OFFICE OF THE CITY MANAGER

CITY COUNCIL AGENDA

AGENDA

REGULAR CITY COUNCIL MEETING DECEMBER 9, 2024 5:30 p.m.

<u>CITY HALL COUNCIL CHAMBER</u> <u>313 COURT STREET</u> <u>&</u> <u>LIVE STREAMED</u> https://www.thedalles.org/Live Streaming

To speak online, register with the City Clerk no later than noon the day of the council meeting. When registering include: your full name, city of residence, and the topic you will address.

Upon request, the City will make a good faith effort to provide an interpreter for the deaf or hard of hearing at regular meetings if given 48 hours' notice. To make a request, please contact the City Clerk and provide your full name, sign language preference, and any other relevant information.

Contact the City Clerk at (541) 296-5481 ext. 1119 or amell@ci.the-dalles.or.us.

- 1. CALL TO ORDER
- 2. ROLL CALL OF COUNCIL
- 3. PLEDGE OF ALLEGIANCE
- 4. APPROVAL OF AGENDA
- 5. AUDIENCE PARTICIPATION

During this portion of the meeting, anyone may speak on any subject which does not later appear on the agenda. Up to three minutes per person will be allowed. Citizens are encouraged to ask questions with the understanding that the City can either answer the question tonight or refer that question to the appropriate staff member who will get back to you within a reasonable amount of time. If a response by the City is requested, the speaker will be referred to the City Manager for further action. The issue may appear on a future meeting agenda for City Council consideration.

- 6. CITY MANAGER REPORT
- 7. CITY COUNCIL REPORTS
- 8. CONSENT AGENDA

Items of a routine and non-controversial nature are placed on the Consent Agenda to allow the City Council to spend its time and energy on the important items and issues. Any Councilor may request an item be

CITY OF THE DALLES

"By working together, we will provide services that enhance the vitality of The Dalles."

Page 1 of 2

OFFICE OF THE CITY MANAGER

"pulled" from the Consent Agenda and be considered separately. Items pulled from the Consent Agenda will be placed on the Agenda at the end of the "Action Items" section.

- A. Approval of the November 25, 2024 Regular City Council Meeting Minutes
- B. Approval of the November 15, 2024 City Council Goal Work Session Minutes
- C. Authorizing the City Manager to Execute a Release for a 10' Public Access Easement Located at 1859 Lincoln Way
- D. Adopting Resolution No. 24-032 Authorizing and Directing the City Attorney to Execute the Electronic Claim Form and All Other Necessary Actions for the City's Participation in the Visa/Mastercard Interchange Fee Settlement
- E. Adoption of Resolution No. 24-031 Directing the City Attorney to Issue Subpoenas for the Production of Airbnb, Inc.'s Records Relating to 414 Jefferson Street to Ensure Compliance with and Enforcement of TDMC Chapters 8.02 and 8.04

9. PUBLIC HEARINGS

A. Adoption of General Ordinance No. 24-1409 Approving a Substantial Amendment to the Columbia Gateway Urban Renewal Plan

10. ACTION ITEMS

- A. Adoption of the Updated Water Master Plan
- B. Adoption of General Ordinance No. 24-1407B, a general ordinance amending The Dalles Municipal Code Chapter 8.02 (Short-Term Rental License)

11. ADJOURNMENT

This meeting conducted VIA Zoom

Prepared by/ Amie Ell City Clerk

CITY OF THE DALLES

"By working together, we will provide services that enhance the vitality of The Dalles."



(541) 296-5481 FAX (541) 296-6906

AGENDA STAFF REPORT

AGENDA LOCATION: Item #8 A-E

MEETING DATE: December 9, 2024

- **TO:** Honorable Mayor and City Council
- **FROM:** Amie Ell, City Clerk
- **<u>ISSUE</u>**: Approving items on the Consent Agenda and authorizing City staff to sign contract documents.
 - A. <u>ITEM</u>: Approval of the November 25, 2024 Regular City Council meeting minutes.

BUDGET IMPLICATIONS: None.

<u>SYNOPSIS</u>: The minutes of the November 25, 2024 Regular City Council meeting have been prepared and are submitted for review and approval.

<u>RECOMMENDATION</u>: That City Council review and approve the minutes of the November 25, 2024 City Council meeting minutes.

B. <u>ITEM</u>: Approval of the November 15, 2024 City Council Goal Setting Work Session minutes.

BUDGET IMPLICATIONS: None.

<u>SYNOPSIS</u>: The minutes of the November 15, 2024 City Council Goal Setting Work Session have been prepared and are submitted for review and approval.

<u>RECOMMENDATION</u>: That City Council review and approve the minutes of the November 15, 2024 City Council Goal Setting Work Session minutes.

C. <u>ITEM:</u> Authorizing the City Manager to execute a release for a 10' public access easement located at 1859 Lincoln Way

<u>BUDGET IMPLICATIONS:</u> None. If authorization is granted, the City Attorney will prepare a release for City Manager execution and all costs (including recording costs) will be the Property owner's responsibility.

SYNOPSIS: The real property depicted in Assessor's Map No. 1N 13E 4 DC as Tax Lot 800 and addressed 1859 Lincoln Way in The Dalles, Oregon 97058 (**Property**) is encumbered by a 10' wide public right-of-way easement (**Easement**) reserved for pedestrian and bicycle traffic.

The Easement was created when Council adopted Special Ordinance No. 99-473 in 1999, which vacated a portion of public right-of-way abutting the Property—that vacation application was reviewed by the Site Review Team who recommended the Easement as a condition of vacation.

A diagram depicting the Easement's location is included for Council's review. Since its creation, the Easement has never been improved by the City and remains a dirt path through the Property. According to the Public Works Department, even if it the Property itself was improved, those improvements would still not provide a connection to Scenic Drive because of the lack of sidewalk on the western side of the Easement and a conflict with existing retaining walls near the intersection of Lincoln Way and Scenic Drive.

The Property's current owner requested the City release this Easement since:

- (1) it is an isolated segment with no improved sidewalks or access on either end; and
- (2) there are sidewalks on both Lincoln Way and Scenic Drive for people to walk or bike that accesses West 16th Street and beyond, so the Easement does not actually serve the purpose of getting someone to or from either end of the Easement in a safe or efficient way.

The City Engineer does not object to the release because the City can achieve pedestrian connectivity between Lincoln Way and Scenic Drive without this Easement via sidewalk on the east side of Lincoln Way that exists all the way from East 14th Street up to Scenic Drive.

The Property owner's release request has been reviewed by the Community Development Department, the Public Works Department, the City Attorney, and the City Manager— none object to the release of this Easement.

<u>RECOMMENDATION</u>: Move to authorize the City Manager to execute the Easement's release, as described.

D. <u>ITEM:</u> Adopting Resolution No. 24-032, a resolution authorizing and directing the City Attorney to execute the electronic claim form and all other necessary actions for the City's participation in the Visa/Mastercard Interchange Fee Settlement

BUDGET IMPLICATIONS: This matter is similar to the City's participation in nationwide settlements connected with opioid manufacturers and distributors in the sense that the City has the opportunity to participate in this Settlement (if it opts-in by February 4, 2025). The Synopsis below and the recitals of the proposed Resolution outline the nature of the lawsuit at play here and why the City appears eligible to recover under the Settlement. Specifically, the City is entitled to recover an amount based on our actual or estimated interchange fees attributable to Visa and Mastercard transactions between January 1, 2004, and January 25, 2019. Based upon the merchant summary provided by the Class Administrator, it seems the City's interchange fee total between those dates is **\$70,180.19**. Our actual recovery will be a percentage of that amount based upon a variety of factors, including the money available to pay all claims, the total dollar value of all valid claims filed, the cost of class administration and notice, applicable taxes on the settlement fund, and other related tax expenses, attorneys' fees and expenses, and money award to the class plaintiffs for their representation of certain merchants originally.

SYNOPSIS: A proposed nationwide settlement agreement has been reached to resolve litigation brought by the settlement class against Visa and Mastercard. The settlement class includes entities that accepted Visa and Mastercard-branded cards between January 1, 2004 and January 25, 2019. The lawsuit settles with Visa and Mastercard for violating antitrust laws prohibiting charging certain excessive fees to use their services. The settlement agreement requires Visa and Mastercard to pay between \$5.54 and 6.24 billion to the settlement class.

The City must take affirmative steps to opt-in to participate in the settlement, including executing the Settlement's claim form on or before February 4, 2025.

I have reviewed the Settlement's claim form and recommend the City take all necessary steps to opt-in. If the City does not opt-in, it cannot directly share in the settlement funds.

RECOMMENDATION: Adopt Resolution No. 24-032 as presented.

E. <u>ITEM:</u> Adoption of Resolution No. 24-031, a resolution directing the City Attorney to issue subpoenas for the production of Airbnb, Inc.'s records relating to 414 Jefferson Street to ensure compliance with and enforcement of TDMC Chapters 8.02 and 8.04

BUDGET IMPLICATIONS: Staff time to submit the subpoena and investigate the produced records. If the Finance Director determines a deficiency determination is warranted against the operator after reviewing the subpoenaed records, the City should expect (in addition to the uncollected transient lodging tax) other supplementary monies in the forms contemplated by Chapters 8.02 and 8.04.

SYNOPSIS: The real property depicted in Assessor's Map No. 1N 13E 3 CA as Tax Lot 300 and addressed 414 Jefferson Street in The Dalles, Oregon 97058 (**Property**) appears to operate as a short-term rental without a license in violation of TDMC Chapter 8.02. Additionally, it seems the Property has neither registered with the City for its provision of transient lodging within the City's corporate

limits nor has it ever filed a transient lodging tax return remitting collected transient room tax in violation of TDMC Chapter 8.04.

It appears the Property has had 110 documented stays since 2021. The operator does not seem to have ever paid the City any transient lodging taxes. The Property's bed and breakfast vacation rental permit expired in January 2024—since then, it appears the Property has had 22 documented stays without a short-term rental license.

For the City to fully determine the Property's compliance with TDMC Chapters 8.02 and 8.04, it seems necessary to obtain certain supporting information and records from Airbnb, Inc. for that compliance determination or to support further enforcement efforts. Airbnb, Inc. has historically provided the City similar records for other properties in response to a duly issued subpoena, which Council is empowered to do and has done through TDMC Chapter 5.01 (*Legislative Subpoenas*).

Adopting the proposed Resolution authorizes the City Attorney to work with the Chief of Police to serve Airbnb, Inc. with a subpoena through its Law Enforcement Portal and other necessary actions for the City to receive evidence relevant to enforcement of our code.

RECOMMENDATION: Adopt Resolution No. 24-031, as presented.

MINUTES

<u>CITY COUNCIL MEETING</u> <u>COUNCIL CHAMBER, CITY HALL</u> <u>OCTOBER 28, 2024</u> 5:30 p.m.

VIA ZOOM/ IN PERSON

PRESIDING:	Mayor Richard Mays
COUNCIL PRESENT:	Darcy Long, Tim McGlothlin, Rod Runyon, Scott Randall, Dan
	Richardson
STAFF PRESENT:	City Manager Matthew Klebes, City Attorney Jonathan Kara, City
	Clerk Amie Ell, Public Works Director Dave Anderson, Police
	Chief Tom Worthy, Finance Director Angie Wilson, Community
	Development Director Joshua Chandler, Senior Planner Sandy
	Freund, Engineering Division Manager Dale McCabe

CALL TO ORDER

The meeting was called to order by Mayor Mays at 5:30 p.m.

ROLL CALL OF COUNCIL

Roll Call was conducted by City Clerk Ell. Long, McGlothlin, Runyon, Randall, Richardson present.

PLEDGE OF ALLEGIANCE

Mayor Mays asked Councilor Long to lead the Pledge of Allegiance. Councilor Long invited the audience to join in the Pledge of Allegiance.

APPROVAL OF AGENDA

It was moved by Richardson and seconded by Randall to approve the agenda as submitted. The motion carried 5 to 0, Richardson, Randall, Long, McGlothlin, Runyon voting in favor; none opposed; none absent.

PRESENTATIONS PROCLAMATIONS

Chuck Gomez – Tourism for The Dalles

Gomez introduced an initiative focused on enhancing tourism in the community, highlighting its potential to rival the economic impact of Google. He shared that over 18 months, he prepared a short video that could be divided into 30 television commercials. Outreach efforts included a potential display at Portland International Airport, which sees 20 million visitors annually, promotion through Granada Theater, and mentions on a nationally syndicated radio station reaching 750 stations and an estimated billion listeners over five months. Gomez emphasized the seriousness of tourism development and presented the video to the group.

Long asked if his business was a for profit or nonprofit business asking for \$125,000.00 of taxpayer dollars.

Gomez said the business was for profit and the money would return tenfold to the City through tourism.

Long said Council did not give dollars to private for profit businesses.

Gomez said tax dollars went to the Chamber of Commerce and if that tax money was increased they could possibly hire someone to bring in more tourism.

Long said he could apply for the contract that would be coming up the next year.

AUDIENCE PARTICIPATION

Lisa Farquharson representing The Dalles Chamber of Commerce at 404 West Second, expressed gratitude for the collaborative efforts to decorate downtown. She acknowledged Wasco Electric PUD, The Dalles Main Street, the Chamber, and numerous volunteers for their contributions, including lighting the community tree and downtown poles. She noted minor fixes will occur this week as needed. She reminded of the Starlight Parade on Friday at 6 p.m., following the usual route and ending at the Chamber for the community tree lighting with hot cocoa, cookies, the Mayor, and Santa.

CITY MANAGER REPORT

City Manager Matthew Klebes;

• Thanked volunteers and organizations for holiday decorations. He highlighted Terry Harkrader's coordination between the Parks District and the City for garland and lighting updates.

- Announced a new holiday star at the Vista reservoir. Thanked Jerry Anderson and the Public Works team for working with PUD on the installation.
- Distributed the Mid-Columbia Community Action Council annual report for the Council's awareness.
- Shared his appointment to the Oregon City County Managers Association board.Expressed enthusiasm for supporting managers and the profession statewide.
- Announced the Finance Department's Certificate of Achievement for Excellence in Financial Reporting from OGFOA for FY2023.Commended department head Angie Wilson and her team for their hard work.

CITY COUNCIL REPORTS

Councilor Runyon reported;

- Attended the City-County joint work session.
- Participated in the Veterans Day Parade, leading the Patriot Guard Riders as the advanced guard.
- Attended the Q-Life meeting.
- Attended the first three hours of the six-hour City Council goal setting retreat.

Councilor Richardson reported;

- Attended the goal-setting session with senior staff, which provided valuable perspective on achievements and future goals.
- Federal Street Plaza Committee meeting was canceled, but a new meeting is scheduled for the 4th.
- Attended a briefing session on ongoing and upcoming issues.
- Met with the Community Development Director to discuss long-term planning projects.
- Noted that the street lights look great.

Councilor Randall reported;

- Attended the City-County work session.
- Q-Life meeting. Met briefly with newly appointed Executive Director, Dr. Liz Lantz, after the meeting.
- Attended the goal-setting session.
- Had a briefing with the Mayor, City Manager, and Councilor Long on the phone.

Councilor Long reported;

- Attended the Joint work session.
- Participated in the Veterans Day Parade.
- Took part in the annual goal-setting session.

- Attended a briefing session.
- No Urban Renewal meeting this month, but one is scheduled for December.

Councilor McGlothlin reported;

- Attended the goal-setting all-day meeting.
- Served as Mayor for the day at the Veterans Parade.
- Attended a briefing with the City Manager and Mayor.
- Participated in the Fire Department transfer of helmets ceremony.
- Appeared on KODL Coffee Break.
- Attended the City-County SIP meeting.

Mayor Mays reported;

• He would forgo his report and double up the next month.

CONSENT AGENDA

It was moved by Long and seconded by Randall to approve the Consent Agenda as presented. The motion carried 5 to 0, Long, Randall, McGlothlin, Richardson, Runyon voting in favor; none opposed; none absent.

Items approved on the consent agenda were: 1) Approval of the October 28, 2024 Regular City Council Meeting Minutes' 2) Approval of the October 23, 2024 City Council Work Session Minutes; 30 Approval of the November 4, 2024 City Council Joint Work Session Minutes; 4) Adoption of Resolution No. 24-029 authorizing application for a Drinking Water Source Protection grant to fund the purchase of lands within and adjacent to The Dalles Municipal Watershed and complying with grant obligations.

CONTRACT REVIEW BOARD ACTIONS

Award of East 12th Street Storm and Sidewalk Improvements Construction Contract Dale McCabe Engineering Division Manager reviewed the staff report.

Richardson asked McCabe to describe the outreach that had been done for the neighborhood and if all of the construction would be within the City right of way.

McCabe said that before the East 12th Street project began, a complete mailing was sent to all residences along both the north and south sides of the project area, informing them about the upcoming surveying and utility locating activities. The mailing included a description of the project and contact information for questions. In late May, an open house meeting was held, where residents were invited to view rendering drawings of the project and ask questions.

Approximately six to eight residents attended the meeting. He also noted receiving numerous phone calls and inquiries from residents throughout the process.

McCabe clarified that for a few driveways, the project extended beyond the right-of-way line to adjust the driveway grades and ensure proper connection with the new road surface. However, aside from these adjustments, all the work related to the walls, sidewalks, road improvements, and storm drainage was within the city right-of-way.

Runyon sought clarification regarding the funding for the project, asking if the money in the two accounts mentioned in the staff report was the same as the ARPA funds, or if those were separate funds.

McCabe said the \$1,612,482.00 was ARPA funds.

Mayor Mays asked when construction was expected to begin.

McCabe said it would depend on the weather. He said there was another project that would also soon be coming to Council for approval with the same contractor submitting the lowest bid. Discussions would occur with the contractor to determine which would happen first. He said the contract required the company to complete the work within 120 days after work began.

It was moved by Randall and seconded by Long to authorize the City Manager to enter into contract with Crestline Construction for the East 12th Street Storm and Sidewalk Improvements, Contract No. 2024-008, in an amount not to exceed \$1,933,455.00. The motion carried 5 to 0, Randall, Long, McGlothlin, Richardson, Runyon voting in favor; none opposed; none absent.

ACTION ITEMS

Adoption of General Ordinance No. 24-1408, a general ordinance amending certain provisions of The Dalles Municipal Code Chapter 8.04 (Transient Room Tax)

Jonathan Kara City Attorney and Matthew Klebes City Manager reviewed the staff report.

Richardson asked for clarification regarding the ordinance changing the amount of money allocated to tourism promotion, specifically questioning if the adjustment was due to a state law provision that requires maintaining a minimum spending level, in this case, 55%. He confirmed that the increase was not a dramatic change but rather a recognition of the current spending practices.

Kara clarified that the State's requirement for the City to allocate 55% of its funds to tourism

promotion was due to the City's historical practice. While the current ordinance sets a mandatory minimum of 21%, State law mandates a 55% minimum, and the change in the ordinance would simply codify the City's compliance with state law, ensuring clarity for future City leadership.

Mayor Mays acknowledged the importance of the issue and noted that this was the third or fourth public meeting held regarding the transient lodging tax. He invited any members of the audience who wished to address the City Council on the matter to do so for up to three minutes.

Kevin Driscoll, resident of The Dalles said that the administration of the Transient Lodging Tax (TLT) was currently cumbersome. He recommended exploring automatic remittance mechanisms for the tax through platforms like Airbnb and VRBO, as he believed the administrative burden may exceed the revenue generated by the tax.

Scott Baker Executive Director for North Wasco County Parks and Recreation District acknowledged that the proposed funding agreements were not part of the action item for the evening but expressed his concern as the staff worked with Wasco County and the District. He encouraged the Council to consider that the current draft still required the Park District to request annual operating funds, which left a gap of over \$160,000 for the pool and other operations. He pointed out that, as proposed, the funding agreement required the District to request funds by January 31, but the budget process was largely completed by that date, making it difficult to plan without a reliable, multi-year funding agreement. He emphasized the importance of such an agreement to allow for proper planning, rather than making last-minute adjustments to the budget.

Mayor Mays clarified that the agreements would be brought before the City Council for approval as well.

It was moved by Long and seconded by McGlothlin to adopt General Ordinance No. 24-1408, as presented, by title only. The motion carried 5 to 0, Long, McGlothlin, Randall, Richardson, Runyon voting in favor; none opposed; none absent.

FEMA Pre-Implementation Compliance Measures (PICM) Recommendations

Joshua Chandler Community Development Director the City's new Senior Planner Sandy Freund and reviewed the staff report.

Runyon expressed frustration with FEMA, noting the agency's slow response that required a lawsuit to move forward. He criticized the short notice and the threat of non-compliance, describing the situation as unreasonable. Runyon expressed concern about the City's planning department, particularly with a new member on board, and highlighted the difficulties faced by

small communities with limited resources. He expressed sympathy for the planning department, given the additional workload from this issue.

Chandler acknowledged the frustration with FEMA, noting that the agency provided information late in July, followed by workshops that often included incorrect details. He mentioned that at one workshop in August, FEMA had stated that the City needed to implement certain requirements by December 1, which later turned out to be inaccurate. Chandler highlighted that the project was continuously evolving, with FEMA advising attendees to attend both the first and last workshops due to frequent changes in presentation material. He emphasized that many communities across the state were facing similar challenges, and the City was doing its best to stay ahead of the curve.

Randall asked about the next steps, specifically inquiring if the City was currently using the permit-by-permit approach for mitigation for those existing in the floodplain, or if that was a new requirement.

Chandler explained that the City requires review within the floodplain and has flood control measures in place to determine if a property is located within the floodplain. All new development must elevate buildings one foot above the base flood elevation. The City also requires specific procedures for properties with foundations located below the floodplain line, such as anchoring and venting procedures. However, the additional precaution for endangered species, as required by FEMA, is not something currently included in the City's process.

Richardson asked for clarification to ensure that one of the consequences of not complying with the requirements would be the potential loss of flood insurance for people living in or owning property within the floodplain and that if the City were to have a federally declared disaster, it would not be eligible for assistance. He also asked if the recommendation for the model ordinance was due to it providing consistent, clear guidance, or if there was another reason.

Chandler confirmed that failing to comply could result in the loss of flood insurance and ineligibility for federal disaster assistance. He added that FEMA is providing a technical assistance platform to help communities with the process. He confirmed the recommendation to use the model ordinance was due to it being the most up-to-date standard for flood control provisions. He explained that the City had planned to update the ordinance when the floodplain map was updated, but with the map's delay, using the model ordinance now provided more flexibility and was the best path forward.

Richardson confirmed that this was essentially a three-year decision, reflecting the gap between FEMA's current position and the final requirements they would set.

Mayor Mays asked which counties were exempt as the staff repot mentioned it applied to just 31

of the 36 Oregon counties.

Kara said it was generally places that were not subject to flooding.

It was moved by McGlothlin and seconded by Richardson to direct staff to notify FEMA Region 10 of the City's intent to begin the implementation process of the Model Ordinance Option no later than December 1, 2024. The motion carried 5 to 0, McGlothlin, Richardson, Long, Randall, Runyon voting in favor; none opposed; none absent.

<u>General Ordinance No. 24-1407 an Ordinance Amending The Dalles Municipal Code Chapter</u> <u>8.02 (Short-Term Rental Licenses)</u>

Joshua Chandler Community Development Director reviewed the staff report.

Mayor Mays invited member of the public to speak on the subject.

Steve Day, resident of Pendleton, Oregon clarified that he was not a wealthy attorney or part of a large corporation buying properties in the West Scenic area, but rather an individual from Pendleton, with family ties to The Dalles. He had been purchasing properties in the area for about 10 years, primarily focusing on long-term rentals, with over 20 properties. He emphasized his efforts to use local contractors and contribute positively to the community. He then addressed some articles and City Council discussions, offering clarification on certain points;

- Clarified that reports of a rock concert, golf carts, boats, and other activities occurred during the remodel phase of 300 West Scenic, prior to it being used as an Airbnb.
- Explained that a golf cart in the yard was used by his children during the remodel phase, and the dirt in the yard was related to construction work.
- Mentioned the planting of an arborvitae hedge as a mistake by his contractor, who tried to match the neighbor's shrubs, leading to a misunderstanding.
- Noted that his contractor parked a boat in the driveway during the remodel, but the property now has parking space for 10–12 cars, addressing parking concerns.
- Stated he owns four Airbnbs, not six, with most of his 20+ properties being long-term rentals.
- Explained that some properties are used as corporate rentals for hospital employees, doctors, nurses, engineers, energy workers, or individuals transitioning between homes.
- Highlighted that he purchased 322 West Scenic at auction after it sat vacant for 5–6 years and turned it into an Airbnb, though he is considering selling it.
- Shared that two adjacent properties near 300 West Scenic were purchased with plans for possible use by his mother in the future.
- Stated that significant investments in these properties would result in considerable financial harm if phased out or amortized.

- Emphasized that the incidents discussed in the media occurred before the properties became Airbnbs and that no issues have occurred since then, as confirmed by local authorities.
- Described gatherings, such as a 75th birthday party, a one-year birthday party, and a graduation party, as small, family-oriented events with no inappropriate behavior.
- Noted that Airbnb guests typically visit for local events like the mural and animation festivals, contributing to local commerce and businesses.
- Expressed plans to make The Dalles his permanent home after his youngest child graduates high school.
- Voiced support for Option B, opposing phase-out amortization due to its financial impact.

Kevin Driscoll, a resident of The Dalles, shared that his family had moved to the City 1.5 years earlier, invested in two properties for both short- and long-term rentals, and believed in contributing to the community. He argued that current STR regulations were effective, with no significant evidence of issues warranting change, and noted that he had never received complaints about his properties. Driscoll criticized the proposed legislation, particularly the 500foot boundary, as arbitrary and likely to harm many STR owners, describing it as over-regulation. He urged the City Council to reconsider the changes and encouraged neighbors to resolve grievances privately.

Richardson asked if his rentals were within 300 or 500 feet of one another.

Kevin Driscoll expressed concerns about the proposed 500-foot radius rule for short-term rentals, stating that his properties would be affected. He doubted whether the proposed limit of 70 STRs, representing 1% of the City's housing stock, could be evenly distributed within The Dalles' residential zones, even under ideal conditions. He urged the City Council to slow down the decision-making process, ensure any alleged violations were documented with direct evidence, and adhere to the City code, which excludes hearsay as evidence.

Long asked it they would be affected by the changes based on the fact that if they switch from being short term to long term rentals throughout the year.

Kevin Driscoll confirmed that his properties were primarily used as long-term rentals but were also rented short-term about 35% of the time. He explained that his private home was occasionally rented while his family traveled, helping offset travel expenses. He noted that some rentals exceeding 30 days were booked through Airbnb and would likely continue under that platform, even with new restrictions. However, he emphasized that the proposed legislation

would still significantly impact his operations, as it was not in his interest to rent the properties 100% of the time.

Daniel Hynes, a short-term rental owner on Esther Way, shared his perspective on the proposed regulations. He explained that he and his in-laws purchased the home in The Dalles as a place to enjoy the sunny climate, given their past experiences living in shadier regions. Hynes detailed his personal connection to the community, including frequenting local businesses, working with contractors, and supporting the local economy by allowing visitors to stay in his property. He argued that short-term rentals fill a positive role by providing active use of homes that might otherwise sit empty.

Hynes expressed concerns about the proposed 500-foot radius for short-term rental licensing, describing it as excessive compared to similar policies in other areas. He also opposed the mandatory posting requirement, citing safety concerns about publicly indicating when the property is vacant. He felt the timeline for these changes was rushed and suggested that the focus should instead be on addressing specific bad actors.

Lisa Cicala, a short-term rental owner and resident of The Dalles, shared her perspective on the value of short-term rentals (STRs) to the local community. She recounted her own positive experience with STRs as a visitor before relocating to The Dalles and emphasized the economic benefits STRs brought through tourism, local spending, and job support for workers such as cleaners, landscapers, and maintenance staff. Cicala noted that the vast majority of her guests were respectful, quiet, and contributed to the local economy, including dining out at local restaurants. She expressed concerns about certain proposed regulations, such as the proximity requirements, which she argued could have significantly impacted many existing STRs. She suggested that the City already had existing codes to address issues like noise and parking, and that enforcing those would have been more effective than imposing strict proximity limits or mandatory posting. She also voiced discomfort with mandatory posting, citing safety concerns, and suggested revising parking requirements to be more practical. Cicala raised concerns about the potential for significant losses if existing regulations changed, particularly with the introduction of lotteries and proximity clusters. She recommended enforcing current regulations and gathering more community input before implementing further restrictions. Lastly, she expressed her preference for Option B but noted that she felt the proposed regulations were overly restrictive.

Victor Johnson, resident of The Dalles and short-term rental owner asked for clarification of the proposed fee changes for licensing.

Chandler explained that the City would not charge based on the cost of notifying each area for the individual short-term rental. Instead, they would calculate an average cost and apply it uniformly. This way, everyone would contribute the same amount, regardless of whether a

property owner had five neighboring properties to notify or fifty. The increase in cost depended on if the notification area was to be 100, 300, or 500 feet.

Johnson stated that it was he had who proposed the 100-foot limit in the downtown area and mentioned that he still favored the idea of preserving historic downtown neighborhoods. He had envisioned it in terms of blocks with houses in a row, rather than as a 100-foot radius. He suggested that if the measure were adopted, it might need further consideration over time but emphasized his support for maintaining the integrity of the neighborhoods.

Kevin Ryan introduced himself and his wife, Julie, as the first Airbnb operators in The Dalles, starting 13 years ago. He expressed agreement with many points made earlier but cautioned against over-regulating the short-term rental (STR) market. Kevin emphasized that he and Julie had always carefully vetted guests to avoid any neighborhood disturbances, maintaining a neighborly parking agreement and regular communication with neighbors. He explained that their short-term rental business served as a supplemental income for their family, particularly given their limited ability to save for retirement in the past. Kevin urged caution in creating new ordinances, as they had not encountered significant problems, and he supported Option B over Option A or a lottery system. He also voiced concern over corporate ownership of STRs but emphasized the need for regulations tailored to small towns rather than large cities.

Yvonne Pepin-Wakefield, resident of The Dalles, asked two questions. First, she inquired about how the City differentiates between residential and non-residential properties. Second, she asked for clarification on how the 100-foot and 300-foot proximity requirements were determined and how they would be applied.

Chandler explained that properties were classified as residential or non-residential based on zoning. Residential zones included low, medium, and high-density areas, while other zones were considered non-residential.

The 100-foot radius had been originally recommended for commercial properties in the downtown area and was expanded to include other commercial zones. The 500-foot requirement applied to residential zones, with the different radius options provided to show their impact on short-term rentals.

Randy Hamilton expressed concern about short-term rental regulations, as he lived in the middle of a cluster of such rentals. He explained that his retirement plan might involve converting his home which had been built by his grandfather in 1955 into a short-term rental and felt it would be unfair if that wasn't allowed in his neighborhood. Randy highlighted the positive impact short-term rentals had on his area, noting that homes previously in disrepair had been purchased to be used as short-term rentals, cleaned up, and maintained. He said neighborhood had improved

significantly over the last 10 years, and his interactions with short-term rental guests had been positive.

Paul Peters shared his concerns about the increasing number of short-term rentals near his property. He currently shares a property line with two such rentals, and with the potential addition of another, he would be surrounded on all sides except one. Paul, who moved to The Dalles in 1957 and lives in the house built by his grandfather in 1948, expressed frustration with the idea of newcomers potentially being grandfathered into the regulations, which he felt unfairly impacted long-time residents. He emphasized that his home, his retirement property, was meant to offer peace and quiet, but the constant noise from neighboring short-term rentals disrupted that serenity. He noted that the occupancy limits at a nearby short-term rental had been an issue, as the property was granted an additional bedroom, increasing its capacity from eight to ten people. While he acknowledged improvements, he stressed that the noise and disturbances were still significant, and he felt that his concerns had been dismissed in the past.

Dunbar, a Wasco County resident and owner of a large property management company, shared his support for short-term rentals, stating that none of his long-term tenants had concerns about them. He clarified that the property at 300 Scenic was properly purchased as a five-bedroom home. While not involved in short-term rentals, Dunbar emphasized their positive impact on the community and local businesses. He expressed concerns about the proposed requirement to post personal information and highlighted his proactive management of properties to ensure safety. Dunbar urged the City Council to carefully consider both options for regulating short-term rentals, considering the potential consequences and benefits.

Mayor Mays acknowledged the ongoing discussions, noting that this was the fourth or fifth meeting on the topic. He emphasized that both options, particularly Option B, had been thoroughly reviewed by the City Council.

Mayor Mays raised a concern about the staff recommendation regarding mandatory posting of the city-approved license near the front door of short-term rentals. He questioned the effectiveness of this approach, asking how posting the license near the door would be more effective than maintaining an online database, and whether people would actually be able to read it from the street.

Chandler explained that the staff recommends posting the city-approved license near the front door of short-term rentals (STRs) to provide immediate access to contact information for the operator or the city's Code Enforcement Office. He emphasized that this approach is more effective than maintaining an online database, as it allows neighbors to directly access the contact details without needing to search online.

McGlothlin shared his involvement in addressing concerns related to short-term rentals (STRs) in his neighborhood. He explained that he had worked to resolve issues by communicating with both residents and STR operators, and that efforts such as a moratorium, a cap on the number of STRs, and noise and parking regulations had helped reduce tensions. He mentioned that most complaints had been addressed, with improved civility between parties, though enforcement of civility remained outside the city's capabilities. McGlothlin also referenced his research on a specific property and found that most of the 165 comments were positive, with the few negative comments addressed by the property owner. He expressed his desire for clear guidelines and ordinances to resolve any future disputes.

Additionally, he disclosed his own involvement with a rental property and asked the City Attorney whether he should recuse himself from the decision-making process due to potential conflicts of interest.

Kara said he was not the Councilor's lawyer and then mentioned that the City Council had recently adopted rules that address government ethics.

Richardson asked McGlothlin if he had any financial stake in the outcome of the decision. McGlothlin stated that while he might have faced potential rate increases, he did not have a strong personal stake in the decision.

Kara explained that the ethics rules in Oregon are straightforward. He clarified that if a public official has an actual conflict of interest, they must recuse themselves from the decision-making process, disclose the conflict at the start of the conversation, and avoid participation. In cases of a potential conflict of interest, the official may still participate but must disclose the conflict at the beginning of the conversation. The distinction between an actual and potential conflict lies in whether the official would directly benefit financially (actual conflict) versus having a possibility of financial benefit (potential conflict).

Kara clarified that there is no significant difference between recusal and abstention in practice. He noted that, under the ethics law, any public official with a conflict of interest must disclose the nature of the conflict. If it is an actual conflict, the official must abstain from the vote and recuse themselves from the meeting.

McGlothlin asked if, under Oregon ethics rules, the conflict is financial in nature, clarifying that it is not about knowing someone or having a conversation.

Kara clarified that friendships or affiliations do not constitute conflicts of interest. The conflict arises only when there is a financial benefit or detriment, either for the public official, their family members, or anyone living in the same household.

Runyon expressed that after reviewing past letters, minutes, and discussions, he had reconsidered the proposed regulations on Airbnbs. He noted that the City already has rules in place for parking, noise, and other issues, and questioned whether new rules were necessary. He suggested that a 500-foot radius for limiting Airbnbs was excessive and favored a smaller distance, perhaps between 100 and 300 feet, based on average lot sizes. He emphasized that Airbnb operators generally care about maintaining their properties and attracting good clients, and he did not see them as bringing negative elements into neighborhoods. He stated he would vote against the 500foot radius and the amortization proposal but was open to reviewing policies over time. Randall acknowledged that the main concern surrounding short-term rentals was proximity. He agreed that a 500-foot radius might be excessive and was more open to a 300-foot radius. He emphasized that while some speakers had downplayed the concerns of residents living near STRs, the residents had been motivated enough to speak before the Council on multiple occasions. He recognized neighbors might become hyper-vigilant and more sensitive to activities around STRs but argued that their concerns should not be dismissed. Citing his own experience living near a short-term rental, he acknowledged the different rhythm of activity associated with such operations and expressed understanding for neighbors who valued their tranquility. He said a 500-foot radius should be reconsidered and suggested reducing it to 300 feet.

Richardson expressed frustration with the challenge of differentiating between owner-occupied and non-owner-occupied properties, citing potential legal issues with the Commerce Clause. He supported a 300-foot buffer to reduce neighborhood conflicts, but was increasingly opposed to mandatory postings, suggesting that public information could be made available through online sources instead. He also voiced discomfort with the lottery system, finding it legally questionable and improper. While he opposed phasing out existing businesses, he emphasized the importance of enforcing noise regulations with clear consequences, such as license revocation. He proposed passing the ordinance with a 300-foot buffer, eliminating the mandatory posting, and discussing a fee structure based on site rather than bedroom count.

Chandler explained that in 2020, the Council had adopted a fee structure based on the number of bedrooms, considering the varying sizes of short-term rentals, from small studios to larger homes. While the structure was currently tied to room count, he noted that it could have been modified to a site-based approach with or without scaling, depending on the Council. He clarified that the fee was capped at four bedrooms, meaning that even if a property had seven bedrooms, the fee would be charged as if it were a four-bedroom property's preference. The existing per-room approach aligned with the original directive from 2020.

Chandler explained that posting occupancy information is not uncommon, citing Hood River as an example, where similar postings are visible at properties. He noted that the City already requires maximum occupancy to be posted at the front door of short-term rentals in a conspicuous location.

Klebes added that if someone wanted contact information for a nearby short-term rental, they could directly reach out to the Community Development Department.

Richardson expressed strong opposition to requiring owner-occupied short-term rentals to post information.

Runyon questioned the practice of charging per bedroom for short-term rentals, as he had not fully realized it was being implemented. He sought clarification from Chandler on whether this method was already in place and whether it needed adjustment. Additionally, he noted that, according to the police department, there had been no significant complaints or legal issues with local Airbnb properties, making him hesitant to implement further regulation unless necessary, while acknowledging that regulations could always be revisited.

Chandler confirmed that the charge per room had already been in place but noted that the fees would change to account for the increased area of required notification.

Kara clarified that the City's annual fee schedule, which the City Attorney's office was preparing for the following year, included the price for a five-bedroom short-term rental license. The City Council had reviewed this schedule annually since January 2021.

Mayor Mays asked if anyone on the City Council would like to make a motion or preferred Ordinance A, but no one raised their hand. The discussion then moved to Option B, with a suggestion to revise the 500-foot buffer down to 300 feet.

Kara clarified that the City's charter required ordinances to typically be approved in a single meeting, with certain requirements, such as posting at least a week prior. If the ordinance was not adopted unanimously at the first meeting, it could be adopted at the second meeting. The substantive modifications, as described by Councilor Richardson, were noted and could be written up exactly as described. To proceed, there needed to be an actual vote on the motion. If the motion was passed, the ordinance would return to the next meeting for final adoption according to Council rules.

It was moved by Richardson and seconded by Randall to adopt General Ordinance 24-140, Option B, which included grandfathering as presented, with the following amendments: striking the mandatory posting requirement and reducing the buffer from 500 feet to 300 feet, by title only.

Councilor Runyon agreed with the motion but suggested that a review of the ordinance be considered in six months to a year.

Mayor Mays suggested making it part of the minutes and public record that the City Council's consensus is for staff to bring an evaluation of the ordinance back for review 12 months after adoption, which would not occur that night. There was agreement from the Council.

Chandler recommended a modification to the mandatory posting requirement. He suggested that the posting not be visible from the outside, but instead remain on the interior of the short-term rental. He proposed keeping the section about the posting, but adjusting it so that it requires the City license to be prominently displayed near the front door, with all necessary information included. This would address the concerns raised, ensuring the information is available for guests without being posted outside.

Councilor Long asked what the enforcement options were for revocation and whether there was a process outlined in the ordinance.

Kara explained that the process for revoking a short-term rental license was outlined in the ordinance. A license could be revoked by the Planning Director if evidence showed the property violated any provisions of the code. The decision could be appealed to the City Council within 10 days of the notice being issued, leading to a quasi-judicial public hearing where the Council would make the final decision. If a property operates without a license, it is subject to a Municipal Court violation with a fine of \$250 per day. This process would be handled through code enforcement, with the Planning Director's revocation decision not requiring judicial review.

Kara clarified that he understood Council's intent with the motion and second, as well as the Planning Director's input, and recommended minor edits to the wording, which Council would have the opportunity to review at a later meeting.

McGlothlin stated that he had reviewed state ethics laws and confirmed he had not violated any provisions regarding financial gain or conflicts of interest. He emphasized that he had not acted to benefit special interest groups at the City's expense and explained his actions were intended to avoid potential ethical issues, as he had witnessed violations in the past. He affirmed his ability to vote truthfully and without bias.

Mayor Mays asked if there was anyone who requested to have the ordinance read in its entirety. Hearing none he asked the City Clerk to read the ordinance by title.

City Clerk Amie Ell read Ordinance 24-1407B by title.

The motion carried 5 to 0, Richardson, Randall, McGlothlin, Long, Runyon voting in favor; none opposed; none absent.

Kara addressed the earlier question regarding the extending the STR moratorium, suggesting that it would be a good time to discuss whether the Council would like to extend it. He said the moratorium established a prohibition for the Planning Department to issue new short-term rental licenses for non-owner-occupied properties in residential zones for a 12-month period, which was set to expire the following day. He noted that if the Council wished to extend it, they could do so by motion.

Runyon recommended extending the moratorium until the ordinance was passed to ensure new short-term rental licenses complied with updated regulations. He suggested preparing a resolution for the extension.

Kara suggested making the extension of the moratorium contingent upon the Council's adoption or the effective date of the general ordinance.

It was moved by Richardson and seconded by McGlothlin to extend the moratorium until the adoption of the ordinance previously discussed. The motion carried 5 to 0, Richardson, McGlothlin, Long, Randall, Runyon voting in favor; none opposed; none absent.

Mayor Mays recessed the meeting for 10 minutes.

Second Amended and Restated Intergovernmental Agreement for the Q-Life Intergovernmental Agency

City Manager Matthew Klebes reviewed the staff report.

Runyon commended the City Manager for his work with Q Life, acknowledging his expertise in areas that are difficult for others to understand, particularly the financial aspects and technical jargon related to internet services. He expressed appreciation for the City Manager's contributions to the community and the collaboration with the county, while also recognizing the need for the city to have its own executive director and expressing confidence in the choice made.

Long reflected on her first four years on the City Council, during which she served on the Q Life board. She noted that much of her tenure involved determining the next steps for the organization and expressed support for the chosen direction, emphasizing its benefit to the entire County.

Mayor Mays asked the new Executive Director be introduced at a Council Meeting in the future.

Klebes shared that while he was saddened by the changes at Q Life, he was grateful for the opportunity to work with the organization. He acknowledged the hard work of the Q Life board,

volunteers, staff, and contractors, and gave special recognition to the four attorneys involved in the IGA process.

It was moved by Randall and seconded by Runyon to authorize the City Manager to execute the Second Amended and Restated Intergovernmental Agreement for the Qualitylife Intergovernmental Agency. The motion carried 5 to 0, Randall, Runyon, McGlothlin, Long, Richardson voting in favor; none opposed; none absent.

EXECUTIVE SESSION

In accordance with ORS 192.660(2)(h) to consult with counsel concerning the legal rights and duties of a public body with regard to current litigation or litigation likely to be filed.

Mayor Mays recessed Open Session at 8:55pm.

Mayor Mays reconvene Open Session at 9:44pm.

ADJOURNMENT

Being no further business, the meeting adjourned at 9:45pm

Submitted by/ Amie Ell, City Clerk

SIGNED:

Richard A. Mays, Mayor

ATTEST:

Amie Ell, City Clerk



Ty K. Wyman Admitted in Oregon and Washington twyman@dunncarney.com Direct 503.417.5478

November 22, 2024

VIA EMAIL ONLY: <u>cityinfo@ci.the-dalles.or.us</u> Mayor and City Council 313 Court Street The Dalles, OR 97058

Re: City File No.: Proposed Ord. No 24-1407, STR Regulations Our File No.: MET23.8

Dear Mayor & Council:

Steve Day asked me to review and advise him on the referenced matter. Having practiced land use law in Oregon for over 30 years, I am happy to do so. I begin by noting the unusually personal and specific nature of the testimony presented to Council. Many comments seem more apt for a code enforcement hearing. Given this, I take the occasion to, in some measure, introduce to you both Steve and the investment he's made in your (and his) community.

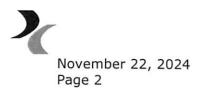
The Day family settled in the Spray/Fossil/John Day area in the 1800's, ranching there until the economic difficulty of the 1970's. His parents then moved to Eastern Oregon; Steve grew up in Pilot Rock and Pendleton through the 1980's.

Steve eventually earned the capital to invest in a community. Seeing a vibrant city faced with challenges – one in which his mother attended high school and his great-grandfather is buried – Steve decided on The Dalles. He acquired a warehouse and, to demonstrate commitment to the community, commissioned a mural at his own cost. Many have celebrated the result, which is seen on the chamber of commerce website, the police department Facebook page, and numerous photos shared on social media. In short, far from an outsider, Steve is a member of the community, with much family history.

At a time when the The Dalles was seeing little investment, Steve saw a need for improved housing. He started rehabilitating homes and now provides over 20 long-term rental units in the community. These nicely renovated and maintained homes provide housing to hospital workers, contractors working at Google, and energy sector experts. The renovation work was done using local vendors, further supporting the community's prosperity. Steve has also contributed financially to both the local art scene and local education.

Steve's portfolio includes four (soon to be three) short term rentals (STRs) – not six as was asserted in testimony. Each of Steve's STRs was renovated extensively and expensively as

851 SW Sixth Ave., Suite 1500 Portland, OR 97204-1357 Main 503.224.6440 Fax 503.224.7324 DunnCarney.com



his long term plan after his children are out of school is likely to move to The Dalles and into one of these well-appointed homes.

As the Council likely knows, STRs offer a convenient way to let people explore the area, while spending money at local shops and restaurants. In the online reviews of Steve's STR properties, people rave about both the accommodations and The Dalles.

We understand that some neighbors are unhappy and have gone out of their way to voice their opinions to Council. Given the context above, these comments ring hollow. To avoid turning this into an enforcement hearing, I will spare the Council a point-by-point rebuttal. Suffice to say that the claims carry little truth. Instead, I simply note that Steve:

- regulates parties well beyond what Airbnb or the City require. Contrary to one claim, he never hosted fifty people; rather, the parties have included a birthday for a one-year-old, a small celebration for a local graduate, and a birthday for a 75-year-old.
- screens his guests, whom he finds to by and large be lovely people that simply want to enjoy the surroundings.
- has responded timely and courteously to concerns presented to him about guests, and will continue to do so.

Reviewing the minutes of its Oct. 14 meeting, I very much appreciated the Council's professionalism, and end with a plea that you continue tempering the charged rhetoric. As the Council itself recognized, the federal constitution protects owners' rights to responsible use of their property. It does so not as some statement of abstract principle, but because private investment in property benefits the community as a whole.

Staff did yeoman's work presenting the Council with a report to inform its Nov. 25 decision. I ask the Council to adopt the non-amortization option presented therein. Steve plans to attend the meeting and, I understand, would like to speak then to the Council.

Thank you for your consideration.

Sincerely,

Ty K. Wyman

TKW: cc (by email): Steve Day, Jonathan Kara

Mayor Rich Mays; Councilors Darcy Long, Tim McGothlin, Scott Randall, Dan Richardson, Rod Runyon

Thank you for allowing input regarding the short-term rental amendments under consideration.

We are not opposed to any of the proposed amendments.

We would especially like to support the acknowledgment of "Good Neighbor Guidelines."

We operate our Guest House through the Airbnb platform (not VRBO or Vacasa). Each host has the opportunity (we would say responsibility) to establish a set of "House Rules." When we have new guests, we always send a note that says:

"Thank you for booking our historic Victor Trevitt Guest House. We always ask first-time guests to review our House Rules (basically no smoking, no pets, no small children, and no parties, etc,) and to review them with each member of your party."

We almost always receive a reply along the lines of "Thank you, we've read all the rules." (Our favorite reply was, "Thank you, we've read the rules...we are in our 60s....we don't smoke, don't have pets, our children are all adults, and our partying days are well behind us!")

While each situation is unique, it seems that some problems might be avoided if all Short-Term-Rental hosts would establish written rules, make their guests aware of them, and enforce them. Neighbor-impacting issues like parking rules and quiet times could certainly be included in one's House Rules. It is irresponsible for hosts to cause problems for their neighbors by failing to enforce common-sense rules, and it reflects badly on all hosts.

On a positive note, we really enjoy promoting The Dalles to our guests and encouraging them to enjoy all the wonderful things the area has to offer.

Thank you,

Alan and Bev Eagy

218 W. 4th Street

From: Jann Oldenburg <jannoinoregon@gmail.com>

Sent: Thursday, November 21, 2024 9:28 PM

To: CDD <cdd@ci.the-dalles.or.us>

Subject: Review of adoption of General Ordinance No 24-1407, a general ordinance amending The Dalles municipal Code Chapter 8.02 for Short-Term Rental License

To: Honorable Mayor, City Council, and Community Development Director

Thank you for the opportunity for the residents in the community to voice their opinions for amending this ordinance. Some key points include additional comments.

* 500' buffer for res districts will protect my neighborhood from an oversaturation of STR's. However, special consideration needs to be given for condo units built on Klindt Dr as noted by a letter written by Yvonne Pepin-Wakefield, current resident at 3793 Klindt Dr. Most of these townhomes are attached and 100' is not appropriate in this setting.

* Increase the licensing fee. \$115 for the STR in a res zone is not enough. I believe the city needs to take more into consideration than just the mailing costs of notifications. Additional manpower costs in administering the requests, a person working in the Community Development Dept signing off after personally reviewing the property that is being initially licensed and those properties being renewed, and police investigating disturbances on the property should all be considered and appropriately assigned a dollar value. This increase of fees is in addition to fines levied on owners breaking the rules stated in the ordinance and city codes.

* All STRs prominently displaying their license near the front door with operator contact information, the number of max occupancy and number of cars allowed, etc. is very helpful. A problem could occur when the licensing information is posted at the front door. That will mean that the neighbors will be walking up to the front door in order to read this information, whether the manager or owner is home or if guests are occupying the residence. In this light, perhaps the non-res owners need to fence their properties, post no trespassing signs and place the license information in clear view on the gate going onto the property if they don't want others to walk on the property grounds.

I would like the city to consider setting a cap as to the number of STRs one person or one corporation can totally own or be a financial partner in owning. With the housing shortage and other community issues, we need to make available more homes for permanent residents and not change the dynamics of our neighborhoods.

Enforcing the rules for STR's requires more city oversight but can be financially handled by increasing fees. When you reflect the amount of money brought in by STR's on a yearly basis, increasing our yearly fees is not unreasonable.

Thank you for your consideration.

Sincerely,

Jann Oldenburg

2151 Radio Way

TOURISM PROJECT

The essential effect is to increase measurable outcomes of tourism dollars to all aspects of our community.

Charles Gomez Production

223 E. 2nd Street | P.O. Box 1329

The Dalles, OR 97058

815-993-2880 ~ Info@watsekatheatre.com 11/2024

YouTube Video link: https://youtu.be/WrLoaALIgiI?si=HvzRJ7FIRWyyZkf4

What major income streams does The Dalles, presently have? **GOOGLE**

Google is first and foremost and has become the focal point of associated revenue into the community through the city. But not without concerns as to power, power usage and distribution. Water usage, lack of a 'large' work force. Little negotiations as to what they need and or will need and construct. This is a multimillion-dollar windfall The Dalles has been fortunate enough to receive. Thank You **Google**!

Let us revisit one of the most positive narratives from 1915, ACRES OF DIAMONDS (Russell H. Conwell, author), Diamonds in Our Own Back Yard. It was mandatory reading from one of my Creative Writing classes at the Unizersity of Arizona back in the day as it teaches a lesson beneficial to us all, be it individuals, businesses or communities. To summarize, it's basically to take what you have and make the most of it. Period. How simple, how SMART!

The Dalles is a community so rich in history, landmarks, culture, fine arts and leadership that it goes without saying we already have at hand the 'NEXT' Google in the making, **TOURISM!**

To expound, the goal of tourism is already established, but what is needed is a road to success that exponentially increases the rate of return upon investment that includes measurable outcomes of an economic influx. How do the current efforts provide measurable outcomes? After working on an event for over 6 years we were able to co-

-2-

produce the Coast to Coast – George Norey live radio stage event at the Granada Theatre. To those of you unaware of this nightly program, it is syndicated with over 740 stations. One can literally go into any city in America and find a nightly radio station presenting this nearly 40-year-old program. Listenership is over 242,000,000 fans a month. They advertise our event at least twice a night times 7 days a week making for over 1 BILLION yes that's billion with a capital 'B' listeners in 6 months. Each mention says the Granada Theatre in the BEAUTIFUL CITY OF THE DALLES. We are a built-in measuring yard stick of who we contact and how many guests come to this show alone. Last presentation we had guests from at least 17 different states here for the weekend. A sold-out show and soon to be again this coming May 24th, 2025.

According to Travel/Leisure/Tourism industry research, the average family per person spends \$324 per day with weekend joins. This translates to a minimum of \$1,300 per couple for a weekend visit and stay. A family of three jumps to nearly \$1,700 for two days in town and a family of four is over \$2,500.

Let us use a family of three for our baseline analysis:

\$1,700. And if only 50 families a weekend came to The Dalles (maybe less but maybe more, many more!), throughout the year, tourists, spending a reasonably small average amount of funds in town, we realize a communal financial Google equivalent of:

50 families X \$1,700 = \$85,000 per weekend.

\$85,000 X 4.3 weekends per month = \$365,500 per month.

\$365,500 X 12 months = \$4,386,000. Per year.

THIS new approach to Tourism has the potential of equaling and then surpassing Google funds in less than 18 months.

The costs:

This format approach is visual imagery, Internet outlets, FB, X, Portland/Tacoma/Seattle/.... Based television. Some print and radio.

Production costs come to approximately \$5,000. A commercial. Exposure frequencies would run \$8,000 a month.

10 different commercials, running throughout the region all month long would equal approximately \$125,000 a year. A two-year program is approximately \$250,000.

-3-

This includes all production, contact media sources, personal, and office-base of operation with its associated overhead.

TWO YEAR AD CAMPAIGN FOR THE DALLES:

\$250,000.00

1) That most certainly can be budgeted next year as a separate city expense.

2) Become part of TRT funding needing an increase of funds to & from the Chamber covering this additional project.

3) Reconfigure TRT funds to encompass this project.

To summarize, the current travel world has gone through changes. What was once the norm has changed significantly and that's who survive and excel change with the times.

The Dalles is a very special place which has also been made evident to us by all the guests we have attracted to town. Not only due to the historic Granada Theatre but due in large part to the splendor, beauty and unequalled uniqueness of this community. The Dalles, OR unlike any other city in AMERICA.

Charles Gomez

The Dalles_Council Retreat_11.15.24_01



GOAL REFINEMENT 2024-25 COUNCIL RETREAT

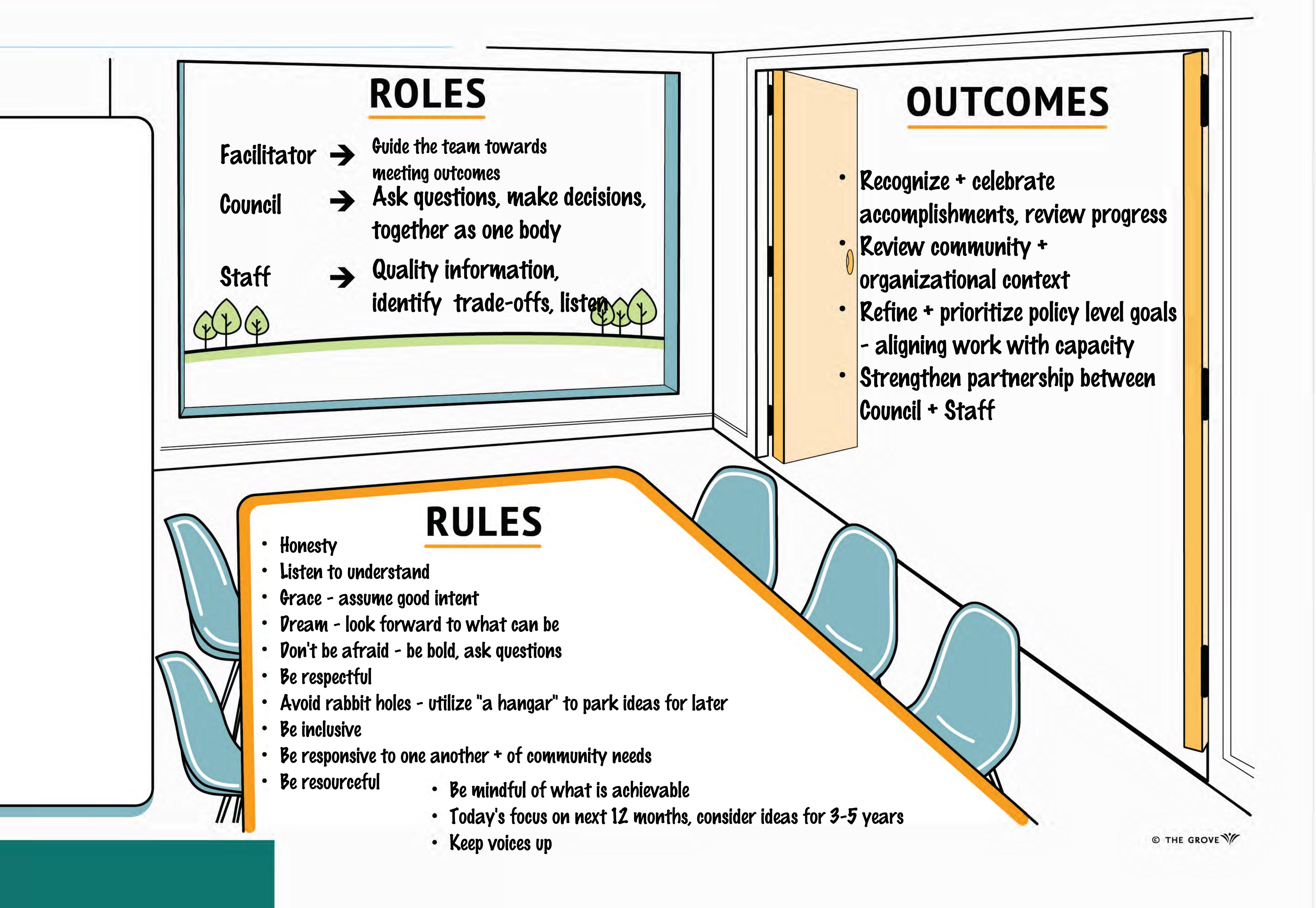


Λ		DA	
A		JA	

9:00 am - Welcome + Agenda Overview

9:40 am - Goal Progress Overview

10:45 am - BREAK



10:55 am - Community Context Update

11:50 am - Goal Refinement Process

12:00 pm - LUNCH

1:00 pm - Goal Refinement

2:30 pm - BREAK

2:45 pm - Review + Prioritization

3:15 pm - Wrap-up + Reflect

4:00 pm - Adjourn

OUR TEAM



MayorMayorMayor	Councilor Darcy Long	Councilor Rod Runyon	Councilor Dan Richardson	Councilor Tim McGlothlin	Councilor Scott Randall	Councilor Elect Ben Wring		Dave
bric		Joshua	Jeff R.	Jeff W.		Angie	Jonathan	
AGENIEA 400 NELLONE+ AGENIDA 100 NELLONE+								

2024-25 THE DALLES HANGAR Projects for the future...


- Update stormwater MP
- Update Transportation System Plan (TSP)
- Transportation System funding
- Pedestrian bike path behind post office
- Constructability study
- Explore 14th/ Union Street property for future housing
- Housing rehanb incentive program
- Explore creative solutions + services after we see how deflection works
- IGA with acknowledgement (not 100% success rate, focus on service)
- Urban Growth Boundary



Page 31 of 664

The Dalles_Council Retreat_11.15.24_02





Finalize new IGA with Wasco County Library

Finalize new IGA

HOUSELESSNESS

In alignment with Mid-Columbia Housing, identify legislative asks/ support and have CM/ Mayor/ Council President submit letters of support and/ or submit legislative testimony

- Consistently tag and abate camps and other debris within the ROW or on public property. Encourage and support private property owners in abating issues as well as partnering with other agencies (ODOT, UPRR, etc.)
- Provide funding support to programs such as Mid-Columbia Center for Living street outreach response efforts in partnership with Mid-Columbia Action Council, and others to improve access to and entry into medical and behavioral health services
- Strengthen regional partnerships by staff and Council participating in housing summits, town halls, and other opportunities around housing, mental, and other wrap-around services
- Continue to pro-actively inform the community around updates, strategies, projects, and resources through City **Council presentations, social media,** tool kits, and the website
- **Evaluate and determine if and how the** City can provide funding or other support for new alternative services.
- Invite community partners to present to the City Council and community on recent successes, upcoming/ongoing projects, and challenges

- Supreme court decision --> House Bill 3115 --> LOC Lobby to refine law
- COMPLETE MCCAC completed Gloria Center, Annex
- Work is ongoing
- Closure of St. Vincents DT decrease, but lasts 2 weeks
- Partnerships and additional
- code enforcement officer
- Ongoing day to day work
- Continue/ Monitor

- Include in refinement discussion for 3.1 + 3.3
- Consider communication + engagement needs generally

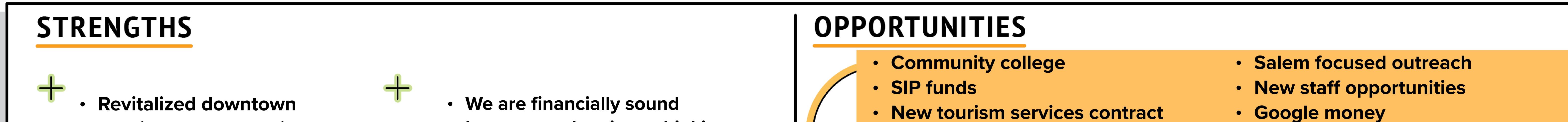
• We do this w/ everything





THE DALLES SPOT MATRIX

SPOT MATRIX



2 ш ш 2 2 U

Passionate community groups

- **Community pride**
- **Economic health of Mid-**
- Columbia
- **Efficient utilities**
- Lack of drama on Council a collaborative approach on
- Council
- Dedicated staff + Council

PROBLEMS

- **Recruitment and retention**
- UG area
- Lack of control of state and federal laws
 - Challenges with the number and magnitude of projects
- School facilities aged out facilities Lack of sidewalk infrastructure The Dalles has an attitude probelm - issues from the past

- Long-term planning + thinking
- **Trusting relationship between** staff + Council
- City's team work from the top to the bottom
- Leadership in governance

Community groups conflict

negative self-image

Tech deficit

Recruitment

Negative social media + rumors =

- Master Plan
- Investments in infrastructure
- Prioritization of work
- Grant funding opportunities
- Hospital relocation
- Rail/airport access
- Recruitment success
- New website content
- New tourism
- **Generational investments in infrastructure**

THREATS

 \sim

- How we write the narrative
- Better public relations
- New funding for large scale investing

- **Perceived high property**
- taxes
- UGB
- Measure 3115
- Enticing people to move
- Lack of childcare **Public misinformation**
- Staff turnover + loss of historical knowledge **Diversifying our revenue** portfolio



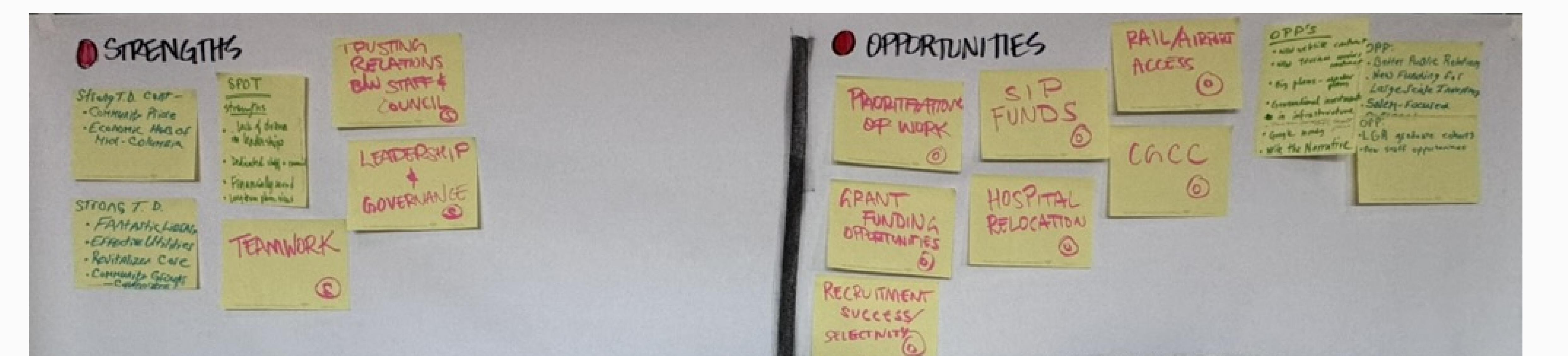
continue to come up

here Loss of businesses

- School district keeps
- family away
- Cybersecurity



© THE GROVE









THE DALLES 2024-25 GOAL REFINEMENT

LIVABILITY

Update the Goal Area description: Enhance the Livability in The Dalles through improved safety services, City IT systems, and places to gather and connect.

UPDATE 1.1 Aggressively train + retain....

1.2 Reimagine NEAT

1.3 Re-establish MINT

1.3 Pilot PD shift policy

1.4 CAD/ RMS Deployment

1.5 Review + Update Animal Control ordinance for comp. AC services

1.6 Finalize Plaza design + budget in next cycle finalize construction documents + bid

1.7 ONGOING sidewalks...

1.8 Econ OPP Analysis

PUBLIC RELATIONS

DRAFT goal statement: Create accurate narrative, foster more community engagement to create a more positive community image

Potential outcomes

- City Council road show Website + City branding
- Digitizing of records
- budget book
- LGA Local Government Academy
- Joint work session with SD 21
- Move/consolidate --- 2.4, 4.1, 5.1/5.2, 3.5



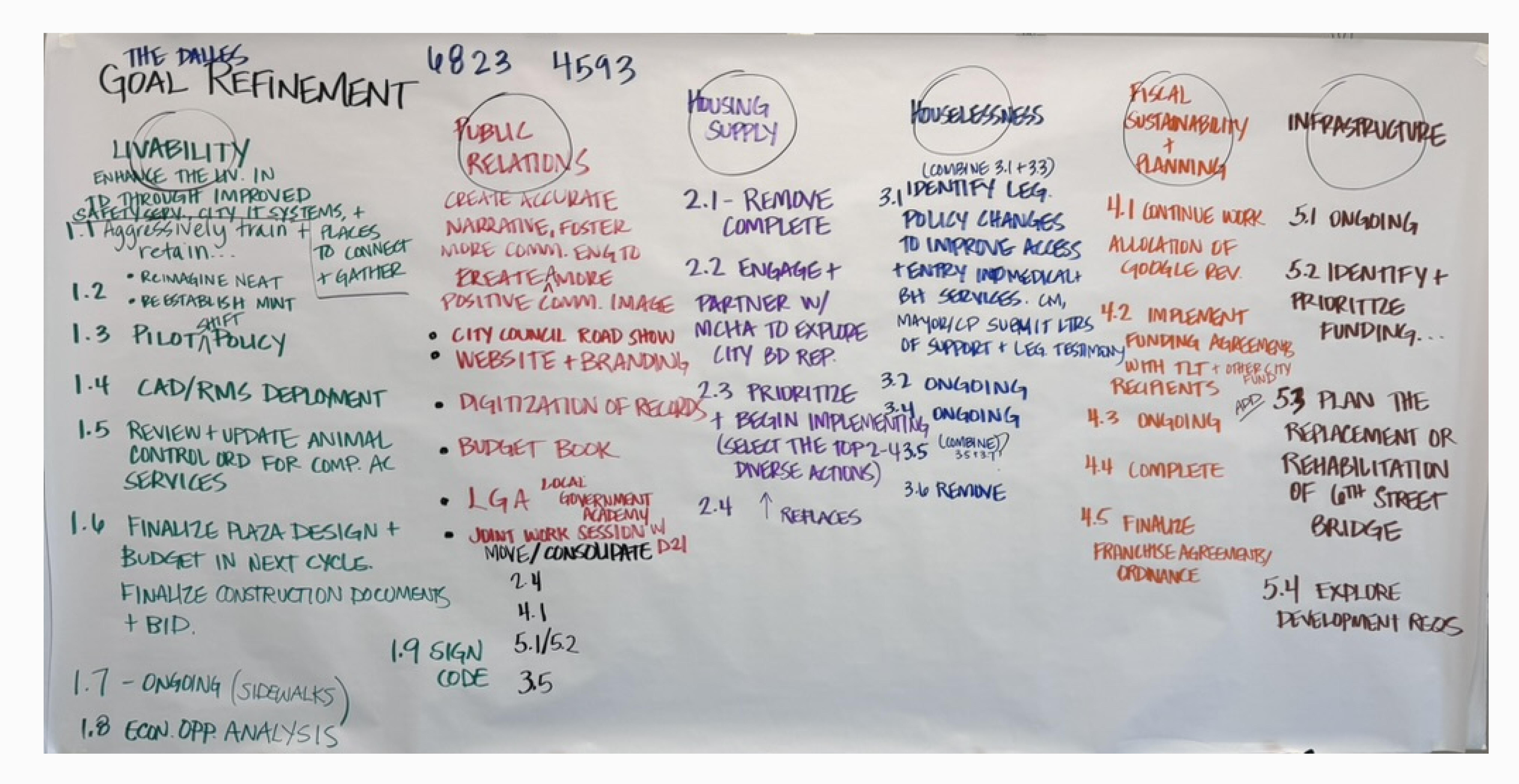
HOUSING SUPPLY

2.1 Remove - complete

2.2 Engage + partner with MCHA to explore City BR rep

2.3 Prioritize + begin implementing (select the top 2-4 diverse actions)

2.4 Replaces Above



HOUSELESSNESS

COMBINE 3.1 + 3.3

3.1 Identify Legislative policy changes to improve access + entry into medical, behaviorhal health services, CM, Mayor/CP submit letters of support + leg. testimony

3.2 ONGOING

3.4 ONGOING

3.5 Combine 3.5 + 3.7

3.6 REMOVE

FISCAL SUSTAINABILITY + PLANNING

4.1 Continue work allocation of Google revenue

4.2 Implement funding agreements with TLT recipients + other City funds

4.3 ONGOING

4.4 COMPLETE

4.5 Finalize franchise agreements ordinance

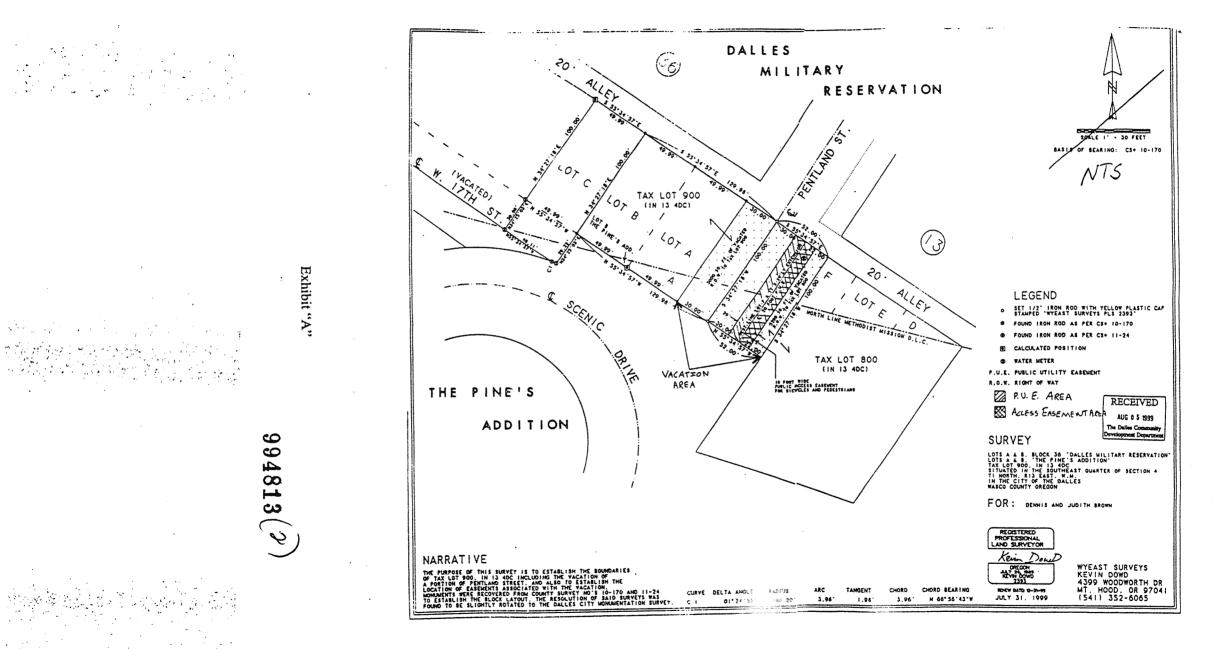
INFRASTRUCTURE

5.1 ONGOING

5.2 Identify + prioritize

- 5.3 Plan the replacement or rehabilitation of 6th street bridge
- 5.4 Explore development REQs





1

RESOLUTION NO. 24-032

A RESOLUTION DIRECTING AND AUTHORIZING THE CITY ATTORNEY TO EXECUTE THE ELECTRONIC CLAIM FORM AND ALL OTHER NECESSARY ACTIONS FOR THE CITY'S PARTICIPATION IN THE VISA/MASTERCARD INTERCHANGE FEE SETTLEMENT

WHEREAS, in 2004, a group of merchants filed a class-action antitrust lawsuit (*In re Payment Card Interchange Fee and Merchant Discount Antitrust Litigation*, MDL 1720 (MKB) (JO), **Case**) on behalf of all plaintiffs against Visa, Mastercard, and several large banks alleging Visa and Mastercard colluded with their banks to set their own excessive fees paid by merchants who accept purchases made using Visa or Mastercard (Interchange Fee);

WHEREAS, the court in this Case certified the settlement class generally as any person, business, or entity that accepted any Visa- or Mastercard-branded cards in the United States at any time between January 1, 2004, and January 25, 2019 (and thus paid Interchange Fees);

WHEREAS, the City accepted Visa- or Master-card branded cards between January 1, 2004, and January 25, 2019 (and thus paid Interchange Fees);

WHEREAS, a proposed nationwide settlement agreement (Settlement) has been reached to resolve the Case for at least \$5.54 billion and as much as \$6.24 billion, and the final amount is slated for distribution to the certified class;

WHEREAS, the City may be entitled to payments under the Settlement if it opts-in to participate by February 4, 2025; and

WHEREAS, the City Council hereby finds the City's participation in the Settlement to support the City's interests and protect the public health, safety, and welfare.

NOW, THEREFORE, THE COUNCIL OF THE CITY OF THE DALLES RESOLVES AS FOLLOWS:

- Section 1 <u>Findings Adopted</u>. The City of The Dalles hereby finds and determines the foregoing recitals are true and correct and adopt the recitals as findings in support of the actions taken and authorized herein.
- Section 2 <u>City Attorney Authorized</u>. The City of The Dalles hereby authorizes the City Attorney to sign the electronic claim form necessary for participation in the Settlement.
- Section 3 <u>Additional Necessary Authorizations</u>. The City of The Dalles hereby authorizes the City Attorney to take all actions necessary for the continued participation in and confirmation of the City's receipt of funds from the Settlement.
- //

. .

//

Section 4 <u>Effective Date</u>. This Resolution shall be effective upon adoption.

PASSED AND ADOPTED THIS 9TH DAY OF DECEMBER, 2024.

Voting Yes	Councilors:	
Voting No	Councilors:	
Abstaining	Councilors:	
Absent	Councilors:	

AND APPROVED BY THE MAYOR THIS 9TH DAY OF DECEMBER, 2024.

Richard A. Mays, Mayor

ATTEST:

Amie Ell, City Clerk

RESOLUTION NO. 24-031

A RESOLUTION DIRECTING THE CITY ATTORNEY TO ISSUE SUBPOENAS FOR THE PRODUCTION OF AIRBNB, INC.'S RECORDS RELATING TO 414 JEFFERSON STREET TO ENSURE COMPLIANCE WITH AND ENFORCEMENT OF TDMC CHAPTERS 8.02 AND 8.04

WHEREAS, the City enforces its transient lodging tax (TLT) pursuant to the provisions of The Dalles Municipal Code (TDMC) Chapter 8.04 (*Transient Lodging Tax*) and its short-term rental (STR) licenses pursuant to the provisions of TDMC Chapter 8.02 (*Short-Term Rental License*);

WHEREAS, the City understands that the certain real property depicted in Assessor's Map No. 1N 13E 3 CA as Tax Lot 300 and addressed 414 Jefferson Street in The Dalles, Oregon 97058 (**Property**), operates as a short-term rental without a STR license in violation of TDMC Chapter 8.02;

WHEREAS, the City further understands the Property has neither registered with the City for its provision of transient lodging within the City's corporate limits nor has it ever filed a TLT return remitting its collected City TLT in violation of TDMC Chapter 8.04;

WHEREAS, the City is conducting an ongoing investigation to determine the Property's compliance with TDMC Chapters 8.02 and 8.04 and its investigation requires certain necessary information for a compliance determination or to support further enforcement

WHEREAS, TDMC Chapter 5.01 (*Legislative Subpoenas*) authorizes and supports the issuance of subpoenas for the purposes of the production of records for evidence in any action or proceeding pending or potentially pending before the City Council;

WHEREAS, the City Council hereby finds and determines probable cause exists Airbnb, Inc. and other witnesses may be in possession of information and/or records relevant to the City's ongoing investigation necessitating the issuance of subpoenas to compel production of relevant records, information, and documentation that may lead to the discovery of evidence relevant to the City's investigation; and

WHEREAS, the subpoenas authorized by this Resolution protect the public health, safety, and welfare and serve a lawful legislative purpose by allowing the City to investigate the finances associated with the Property and its operation as a STR for its compliance with TDMC Chapters 8.02 and 8.04.

NOW, THEREFORE, BE IT RESOLVED BY CITY COUNCIL AS FOLLOWS:

- Section 1 <u>Findings Adopted</u>. The City of The Dalles hereby finds and determines the foregoing recitals are true and correct and adopt the recitals as findings in support of the actions taken and authorized herein.
- Section 2 <u>City Attorney Authorized</u>. The City of The Dalles hereby authorizes the City Attorney and Chief of Police to issue subpoenas to Airbnb, Inc., its officers, agents, and employees, compelling the subpoenaed parties to timely produce all relevant records, information, documents, and evidence as described by the City Attorney to

	aid the City Council in its ongoing investigation into the finances associated with the short-term rental addressed 414 Jefferson Street in The Dalles, Oregon 97058.			
Section 3	<u>Administration</u> . The City of The Dalles hereby commands the City Manager to execute and the City Clerk to attest the subpoenas issued by this Resolution. A copy of this Resolution shall be attached to the subpoenas and shall be incorporated by reference therein. The subpoenas shall be served upon the subpoenaed parties pursuant to TDMC Chapter 5.01 or otherwise as provided by law.			
Section 4	<u>Enforcement</u> . The City of The Dalles hereby declares failure to comply with the subpoena issued pursuant to this Resolution shall subject the subpoenaed parties to the remedies set forth in TDMC Chapter 5.01 or otherwise as provided by law.			
Section 5	<u>Additional Necessary Authorizations</u> . The City of The Dalles hereby authorizes the City Attorney and Chief of Police to take all actions necessary to issue, serve, and enforce subpoenas authorized pursuant to this Resolution.			
Section 6	Effective Date. This Resolution shall be effective upon adoption.			

PASSED AND ADOPTED THIS 9TH DAY OF DECEMBER, 2024.

Voting Yes	Councilors:
Voting No	Councilors:
Abstaining	Councilors:
Absent	Councilors:

AND APPROVED BY THE MAYOR THIS 9TH DAY OF DECEMBER, 2024.

Richard A. Mays, Mayor

ATTEST:

Amie Ell, City Clerk



(541) 296-5481 FAX (541) 296-6906

AGENDA STAFF REPORT

AGENDA LOCATION: Item #9A

TO:	Honorable Mayor and City Council Dan Spatz, Economic Development Officer Joshua Chandler, Community Development Director	
FROM:		
<u>ISSUE:</u>	Adoption of General Ordinance No. 24-1409, a general ordinance approving a Substantial Amendment to the Columbia Gateway Urban Renewal Plan	

BACKGROUND: The Columbia Gateway Urban Renewal Agency (**Agency**) requests The Dalles City Council (**Council**) approval of a Substantial Amendment to the Columbia Gateway Urban Renewal Plan (**Plan**), an urban renewal plan as defined by ORS 457.010(19). The purpose of this Substantial Amendment is to expand the Agency's spending authority, technically referred to as "Maximum Indebtedness" (**MI**) by \$6.1 million. This would allow the Agency to invest district revenues generated between 2026 and 2029 in public and private projects within the Urban Renewal District (**District**), with priority placed upon expanding the tax base. The District would terminate in 2029, with uncommitted revenues distributed among the affected taxing districts including the City of The Dalles.

The District was established by The Dalles City Council in 1990 (General Ordinance No. 90-1113). The primary funding vehicle for urban renewal is Tax Increment Financing (**TIF**). When an urban renewal district is established, the tax base is "frozen" and any gain in tax value is dedicated to urban renewal projects. This amounts to an ongoing deferral of revenue to local tax districts, including the City, during the life of the District. This action results in no additional cost for taxpayers.

On March 21, 2023, the Agency initiated a comprehensive revision of the Plan, which has not been fully revised since 2009. In the 2009 amendment, the Agency's MI – its *spending authority* -- was last established at approximately \$29 million. This 2024 revision incorporates updated statistical and financial data, review of past projects, reassesses current goals, and closely analyzes the Agency's financial capacity. Initially,

ASR – General Ordinance No. 24-1409 CGURA Substantial Amendment, 2024 Page 1 of 7 Agency staff anticipated only minor updates, primarily to add newer projects such as Basalt Commons and the Agency's Incentive Program for privately-owned downtown improvements. However, the fiscal analysis revealed significant constraints on the Agency's ability to invest in any new projects beyond those committed as of July 2023. Specifically, the analysis revealed that budget assumptions in the years leading up to 2023 did not accurately account for remaining MI, arising from the subtle but important distinction between annual revenue and authority to spend that revenue. With the primary exception of debt service, all of the Agency's expenditures over time count against this spending limit. Taking historic as well as recent commitments into account, remaining uncommitted MI is estimated at \$2.2 million as of November 2024, significantly less than had been recognized prior to 2024. This request for expanded spending authority, if approved, will allow the Agency to invest in pending public and private projects, including a bonded commitment made to the City in 2009, for which it will not otherwise have sufficient resources.

Prior and Recent Commitments:

The Agency is committed through terms of a 2009 City bond measure to invest in certain projects, not all of which have been completed. The most challenging and expensive of these is the First Street streetscaping project, previously named The Dalles Riverfront Connection. The estimated cost of First Street streetscaping, sidewalk repair and replacement of an 1874 water main is \$7 million. The total cost of this project is offset by Urban Renewal funding allocated for this purpose to the City, currently \$3.8 million in a separate City account (Fund 18). The remaining deficit is estimated at \$3.2 million. While it would be possible to reduce the scope of First Street, this would come at the cost of other improvements including streetscaping and overall design elements identified in the 2009 bond measure.

Beginning in 2022, Agency staff have been working with downtown business owners to identify projects where Urban Renewal can leverage private investment, all of which would contribute to the Agency's core mission of eliminating blight and thus increasing District property values. Several of these have since been completed, such as investments in the Farm Stand, The Foley, Rio Grande Taqueria, The Granada, Legion Hall and The Dalles Inn. At least \$3.3 million in additional, well-defined investments are identified, with others forthcoming. (Attachment F)

Such investments far outpace remaining spending capacity, leading to an "either/or" scenario under the present \$2.2 million MI: *either* complete First Street at reduced scope, *or* complete a limited number of downtown private investments, but not both.

The Agency can resolve this challenge by seeking an additional \$6.1 million in spending authority by Council, an amount derived from the District's original MI established in the late 1990s. This would bring total spending authority to approximately \$35.3 million *without incurring new debt or raising property taxes*. A substantial amendment to the Plan is required. ORS 457.087 requires an accompanying technical report, further mandating its contents. These include but are not limited to identification of projects to be undertaken in the plan, estimated project costs and completion dates, financial analysis of the plan's feasibility, and fiscal impact on taxing districts.

District Termination, Limitation on Amendments:

Oregon law restricts the Agency to one substantial amendment to increase the MI after January 1, 2010. Since the District's debt schedule to the City of The Dalles from the 2009 bond measure concludes in 2029, this requires that the District terminate in 2029. Should the proposed Substantial Amendment be approved, no later Substantial Amendments to increase the MI are allowed.

The District may terminate as early as 2026, at which time the Agency will have collected sufficient TIF revenue to repay the 2009 bond. The District may be terminated at any time between 2026 and 2029 by accelerating the debt schedule. Early debt repayment would result in release of uncommitted TIF funds to the taxing districts. All uncommitted TIF funds return to the tax districts upon termination of the District.

On October 21, 2024, Agency directed staff, through Resolution 24-004, to initiate the process of requesting approval by The Dalles City Council of the Substantial Amendment and accompanying Report. This occurred through a vote of 8-1 in favor of the recommendation for Council approval.

The Agency contracted with Elaine Howard, widely-respected consultant on Oregon urban renewal, to prepare the technical report. Howard has a long history working the City throughout the District's tenure. Agency staff revised the 2009 report with additional guidance from the consultant. The Substantial Amendment and Report are now completed in draft form pending Council approval.

Prior to Council consideration, and as required by ORS 457, the Agency provided the Substantial Amendment and Report to all impacted taxing districts for a 45-day "consult and confer" period, with distribution occurring on October 22, 2024. In addition, the Agency presented the Plan and Report to The Dalles Planning Commission for review of conformance with The Dalles Comprehensive Plan on November 7, 2024. The Planning Commission approved Resolution PC 624-24 (Ordinance Attachment E), finding that the substantial amendment conforms to the City's comprehensive plan and recommended approval by City Council of the Substantial Amendment. Also as required by ORS 457, staff presented a formal briefing to the Wasco County Board of Commissioners on December 4, 2024. (Staff earlier presented to County Commissioners on October 2, 2024, at that time gaining majority support for MI expansion.)

Ordinance Adoption and Next Steps:

ORS 457.095 authorizes municipalities to adopt urban renewal plans and plan amendments through a non-emergency ordinance. Prior to approval, Council is required to consider any public testimony, and any Planning Commission and taxing district recommendations. The deadline for comments from the affected taxing districts was December 6, 2024. Staff will provide a summary of any recommendations received prior to the December 9, 2024 Council session. The non-emergency ordinance incorporates the plan amendment by reference. Notice of adoption must be published no later than four days following ordinance adoption.

The City of The Dalles Charter requires a unanimous vote of councilors present to approve any ordinance at a single meeting.

ORS 457.095 requires that the ordinance determine and find, in part, that: the urban renewal area is blighted; that rehabilitation and redevelopment are necessary to protect ASR – General Ordinance No. 24-1409 CGURA Substantial Amendment, 2024 Page 3 of 7 the public health, safety or welfare of the municipality; that the urban renewal plan conforms to the comprehensive plan and economic development plan (if any); describes how proposed urban renewal projects will be accomplished; and that adoption and implementation are economically sound and feasible.

As with all non-emergency ordinances, the proposed Substantial Amendment would not take effect until 30 days after approval. During that time the ordinance may be referred to The Dalles voters if a sufficient number of signatures (10 percent of registered voters) are obtained through petition.

Summary of Attachments:

The attachments accompanying the proposed Substantial Amendment include several key documents that collectively provide a thorough overview of the amendment and its background.

- Attachment 1: General Ordinance No. 24-1409. Non-emergency ordinance adopting the Substantial Amendment and Report by reference. At time of recording, this ordinance will include all amendments to the existing Plan (Substantial Amendment), the Report Accompanying the Substantial Amendment, Planning Commission No. 624-24, and this staff report. Referenced as Ordinance 24-1409 Exhibits A-D below. A summary of these exhibits is included below:
 - Substantial Amendment. This Substantial Amendment provides updates for 2009 projects, summarizes progress and status since 2009, and introduces new projects: Basalt Commons, the redevelopment of Tony's site, and the Federal Street Plaza. It also updates the First Street project, initially mentioned alongside other downtown streetscape projects in the 2009 amendment. This Substantial Amendment revises the Agency's goals and objectives, as reviewed and modified by the Board earlier in 2024, and includes findings demonstrating how the amendment aligns with the City's comprehensive plan and, thus, Oregon's land use goals.
 - *Report to accompany the Substantial Amendment.* This is the mandated Report required by ORS, analyzing various aspects of the District. It covers physical, social, and economic conditions, detailing fiscal impacts and the rationale for site selection. It includes a relocation assessment, estimated project costs, funding sources, completion timelines, and the necessary TIF funds, alongside a financial analysis to demonstrate feasibility and evaluate the impact on tax rates and revenue sharing for overlapping taxing districts. (An analysis of TIF revenue that must be shared with the taxing districts under ORS 457.470 is further described in Attachment 7). The threshold for revenue sharing is reached in 2026, with the shared amount increasing each year until uncommitted TIF is fully released in 2029.

A noteworthy clarification in the Report addresses the Agency's MI, indicating a figure of \$4,812,786 that considers actual expenditures but not commitments. For clarification and to reconcile this figure with the \$2.2 million MI noted earlier in this report, it should be noted that MI as

established in the Report only reflects actual expenditures; it does not reflect previous Agency commitments, the largest of which is \$1.7 million for the Basalt Commons development. This is why Agency staff uses a lower figure of \$2.2 million to track commitments made since July 2023. Since recognizing the limited amount of spending authority remaining, staff has intentionally deferred several Property Rehabilitation Grant / Incentive Program requests to avoid exceeding its authority.

The Report provides estimated budgets and completion dates for several projects, such as Basalt Commons. It does not detail all of the Property Rehabilitation Grant / Incentive Program projects currently deferred or anticipated, since these are subject to on-going discussions between the Agency and downtown property owners. A summary of prospective Property Rehabilitation Grant / Incentive Program projects is attached as reference (Attachment 6).

- *The Dalles Planning Commission Resolution No. 624-24.* A resolution recommending the City Council approve a Substantial Amendment to the Columbia Gateway/Downtown Plan and Report.
- Attachment 2: Urban Renewal Plan (as amended). This is the Urban Renewal Plan as amended to include Substantial Amendment revisions. It also includes language which is unchanged from the 2009 version, such as general and specific criteria for urban renewal projects. Some of these "legacy" sections, such as property acquisition, are no longer applicable.
- Attachment 3: Urban Renewal Plan (as amended) Redlined version for historic reference.
- Attachment 4: *Report to accompany the Substantial Amendment*. Referenced above. (*included above as Ordinance 24-1409 Exhibit B*)
- Attachment 5: *Columbia Gateway Urban Renewal Agency Resolution 24-004*. A resolution directing Staff to commence the Substantial Amendment process for making changes to the Columbia Gateway/Downtown Plan.
- Attachment 6: *Property Rehabilitation projects list*. This document provides a summary of prospective Property Rehabilitation projects identified over the past year.
- Attachment 7: *Memorandum on Revenue Sharing Projections*. This memorandum outlines revenue sharing, which enables impacted taxing jurisdictions to receive a share of the incremental growth in the Area as mandated by ORS 457.470, and is required with this Substantial Amendment.

Project Benefits:

Expansion of MI will enable the Agency and City to make needed improvements to First Street while investing a majority of resulting TIF collection in property rehabilitation projects. Those projects will result in long-term expansion of the tax base (as further

ASR – General Ordinance No. 24-1409 CGURA Substantial Amendment, 2024 Page 5 of 7 described in the Report) and will help the Agency fulfill its mission of eliminating blight in the District. No new formal debt with debt service payments will be incurred. If approved by Council, the District will terminate as scheduled in 2029, at which time TIF will be released to the tax districts. Any uncommitted TIF revenues will be returned to the tax districts.

Notification:

In accordance with ORS 457.089, all amendment documents were provided to a representative from each taxing district on October 22, 2024, allowing at least 45 days for them to submit written recommendations to Council prior to its December 9, 2024, public hearing. On November 7, 2024, a public hearing notice of the December 9 hearing was sent to all property owners within The Dalles city limits and available in English and Spanish.

BUDGET IMPLICATIONS:

As with other taxing districts, the City of The Dalles defers potential tax gain through TIF. Annual unrealized revenue to the City is estimated at \$307,246 in 2025-2028 and \$248,098 in 2029, for total deferral of \$1,477,534 prior to release of TIF in 2029. This will be partially offset by mandated revenue sharing, which will return \$209,923 to the City between 2026-2029. The City will receive approximately \$464,443 in FYE 2030 and annually thereafter upon release of TIF, adjusted annually for gain in tax value, including valuation increases resulting from urban renewal private investments.

COUNCIL ALTERNATIVES:

- 1. <u>Staff recommendation:</u> Move to adopt General Ordinance No. 24-1409, a general ordinance approving a Substantial Amendment to the Columbia Gateway Urban Renewal Plan, by title only, as presented.
- 2. Make minor modifications to then move to adopt General Ordinance No. 24-1409, by title only, as amended.
- 3. Make substantial amendments to then move to direct Staff to bring General Ordinance No. 24-1409 back for a second reading at a Council meeting in January 2025.
- 4. Decline formal action and provide Staff additional direction.

ATTACHMENTS:

- Attachment 1: General Ordinance 24-1409
 - o Ordinance 24-1409 Exhibit A: Substantial Amendment
 - Ordinance 24-1409 Exhibit B: Report Accompanying the Substantial Amendment
 - o Ordinance 24-1409 Exhibit C: PC Res No. 624-24

- Ordinance 24-1409 Exhibit D: City Council Staff Report, dated December
 9, 2024 (to be inserted at time of recording)
- Attachment 2: Urban Renewal Plan (as amended)
 - CGURA Plan Exhibit A: Narrative Legal Description
 - o CGURA Plan Exhibit B: Map of Urban Renewal Area
 - CGURA Plan Exhibit C: Comprehensive Plan Map Classifications
 - CGURA Plan Exhibit D: Zoning Map Designation
 - CGURA Plan Exhibit E: Fourth Amendment projects list (historic reference)
 - CGURA Plan Exhibit F: Original projects list (historic reference)
- Attachment 3: Urban Renewal Plan (as amended) Redline version
- Attachment 4: Report Accompanying the Substantial Amendment (*included above as Ordinance 24-1409 Exhibit B*)
- Attachment 5: UR Resolution 24-004
- Attachment 6: Property Rehabilitation Projects List
- Attachment 7: Revenue Sharing memo

GENERAL ORDINANCE NO. 24-1409

AN ORDINANCE MAKING CERTAIN DETERMINATIONS AND FINDINGS RELATING TO AND APPROVING THE COLUMBIA GATEWAY URBAN RENEWAL PLAN AMENDMENT

WHEREAS, the Columbia Gateway Urban Renewal Agency (Agency), as the City's duly authorized and acting urban renewal agency, proposes to undertake certain urban renewal activities in a designated urban renewal area (Area) within the City pursuant to the provisions of ORS Chapter 457 and the duly adopted and approved Columbia Gateway/Downtown Plan (Plan), an urban renewal plan as defined by ORS 457.010(19), a copy of which is incorporated by reference herein;

WHEREAS, the Agency prepared that certain *Columbia Gateway Urban Renewal Plan Amendment* (Amendment) dated December 9, 2024, a copy of which is attached to and made part of this ordinance as its Exhibit A, which authorizes certain urban renewal activities within the Area;

WHEREAS, consistent with ORS 457.087, the Agency prepared that certain report accompanying the Amendment (**Report**) dated December 9, 2024, a copy of which is attached to and made part of this ordinance as its **Exhibit B**;

WHEREAS, consistent with ORS 457.089(1), the Agency forwarded the Amendment and Report to the Planning Commission for recommendations and, at its November 7, 2024, regular meeting, the Planning Commission adopted Resolution No. PC 624-24, a resolution recommending the City Council approve the Amendment and Report as presented, a copy of which is attached to and made part of this ordinance as its Exhibit C;

WHEREAS, on October 21, 2024, the Agency Board adopted Resolution No. 2024-01, a resolution directing Agency staff to send the Amendment out for review;

WHEREAS, consistent with ORS 457.089(2), the Agency delivered the Amendment and Report to the governing body of each taxing district affected by the Amendment on October 22, 2024, and consulted and conferred with the taxing districts before presenting the Amendment to the City Council on December 9, 2024;

WHEREAS, consistent with ORS 457.120, the City noticed the City Council's consideration of this Amendment by the November 7, 2024, mailings to all postal patron households within the City's corporate limits of the December 9, 2024, public hearing before the City Council;

WHEREAS, at its December 9, 2024, regular meeting, the City Council held that duly noticed public hearing to review and consider the Amendment, Report, Resolution No. PC 624-24, the Staff Report attached to and made part of this ordinance as its **Exhibit D**, and all relevant testimony and evidence concerning the Amendment and Report; and

WHEREAS, based upon its consideration of all testimony offered and evidence presented in the hearing record, all of which is hereby incorporated, the City Council hereby finds the Amendment's approval conforms with all applicable legal requirements and that approval of the Amendment supports the City's interests and protects the public health, safety, and welfare.

NOW, THEREFORE, THE COUNCIL OF THE CITY OF THE DALLES ORDAINS AS FOLLOWS:

- <u>Determinations and Findings</u>. Based on the information provided in the Report, Resolution No. PC 624-24, the Staff Report attached to and made part of this ordinance as its **Exhibit D**, and all relevant testimony and evidence provided, the City Council hereby finds the Amendment complies with all applicable requirements of ORS Chapter 457 and the specific criteria listed in ORS 457.095(2), as follows:
 - A. The process for Amendment adoption was conducted in accordance with the applicable provisions of ORS Chapter 457 and all other applicable legal requirements.
 - B. The area designated in the Amendment as the Area is blighted (as defined by ORS 457.010(1)) and is eligible for inclusion within the Plan because of conditions described in the Report's section titled *Existing Physical, Social, and Economic Conditions and Impacts on Municipal Services*, including the existence of inadequate streets and other public rights-of-way, open spaces and utilities within the Area (consistent with ORS 457.010(1)(e)) and a prevalence of depreciated values, impaired investments and social and economic maladjustments to such an extent that the capacity to pay taxes is reduced and tax receipts are inadequate for the cost of public services rendered (consistent with ORS 457.010(1)(e) and (g)).
 - C. The rehabilitation and redevelopment described in the Amendment to be undertaken by the Agency is necessary to protect the public health, safety, and welfare of the City because (absent the completion of urban renewal projects) the Area will fail to contribute its fair share of property tax revenues to support City services and will fail to develop and/or redevelop according to the goals of the City's Comprehensive Plan, a copy of which is incorporated by reference herein.
 - D. The Amendment conforms to the City's Comprehensive Plan and provides an outline for accomplishing the projects described in the Amendment, as more fully described in the Amendment's Section 404 and as referenced by Resolution No. PC 624-24.
 - E. No residential displacement will occur as a result of the acquisition and disposition of land and redevelopment activities proposed in the Amendment and therefore the Amendment does not include provisions addressing housing displaced persons.
 - F. Acquisition is an eligible component of the Amendment and is necessary to cure blight in the Area and to promote economic prosperity.
 - G. Adoption of and carrying out the Amendment is economically sound and feasible since eligible projects and activities will be funded by urban renewal tax revenues

derived from a division of taxes pursuant to section 1c, Article IX of the Oregon Constitution, ORS 457.440, and other available funding as more fully described in the Report's Sections IV - IX.

- H. The City shall assume and complete any activities prescribed it by the Amendment.
- I. The Agency consulted and conferred with affected overlapping taxing districts prior to the Amendment being forwarded to the City Council.
- 2. <u>Amendment Approved</u>. The Amendment is hereby approved based on the City Council's review and consideration of the Amendment, Report, Resolution No. PC 624-24, the Staff Report attached to and made part of this ordinance as its **Exhibit D**, and all relevant testimony and evidence concerning the Amendment and Report in the hearing record.
- 3. <u>Forwarding</u>. The City Clerk shall forward this Ordinance to the Agency and to the Wasco County Assessor.
- 4. <u>Recording</u>. The Agency shall cause a copy of the Amendment to be recorded in the Wasco County Official Records at its expense.
- 5. <u>Notice</u>. The City Clerk shall publish notice of this Ordinance's adoption and the provisions of ORS 457.135 no later than four days from this Ordinance's adoption and in accordance with ORS 457.115.
- 6. <u>Effective Date</u>. This Ordinance shall be effective 30 days after adoption.

PASSED AND ADOPTED THIS 9TH DAY OF DECEMBER, 2024,

Voting Yes	Councilors:	
Voting No	Councilors:	
Abstaining	Councilors:	
Absent	Councilors:	

AND APPROVED BY THE MAYOR THIS 9TH DAY OF DECEMBER, 2024.

Richard A. Mays, Mayor

ATTEST:

Amie Ell, City Clerk

General Ordinance No. 24-1409

Substantial Amendment to Columbia Gateway Urban Renewal Plan, Amendment No. 17

The following sections of the Columbia Gateway Urban Renewal Plan are amended. The new language in the amendment is shown in *italics*, deletions are shown in *strikethrough*.

Updated and edited the list of amendments

SECTION 100 - INTRODUCTION

The Area consists of a single geographic area with an amended certified 1998/99 base year assessed value of \$24,866,020. a certified base assessed value of \$25,076,797.

SECTION 110 - CITY/AGENCY RELATIONSHIP

Description of the Amendments

The Urban Renewal Plan has been amended on 16 occasions. The Plan defines criteria for minor and substantial amendments: Minor amendments clarify language, add or drop projects from the plan and change project scope, provided such changes do not alter the plan's goals and objectives. Substantial amendments expand district boundaries (limited by ORS 457.220) and increase maximum indebtedness. In addition to these changes through time, amendments also periodically shifted Agency governance authority between the City Council and Urban Renewal taxing districts. Following is a summary of all Plan amendments as of April 2024:

First Amendment (Resolution 91-007): Minor amendment adopted July 23, 1991, established that no bonded debt should be incurred beyond 2012-13 except through a Substantial Amendment to the Plan.

Second Amendment (Council Ordinance 93-1161): The first Substantial Amendment occurred March 15, 1993. This was a response to Oregon voters' approval of Measure 5 (November 1991 general election) and subsequent enabling legislation in 1992 (HB 2550), which altered the calculation methodology for Tax Increment Financing. An unintended consequence was to create a significant disparity (7X) in tax burden between the two school districts serving The Dalles at that time, The Dalles School District 12 and Chenowith District 9. The taxation disparity was resolved by removing all urban renewal district acreage from District 9 (deletion of either 32.14 or 71.86 acres – both estimates are referenced in various documentation). Included in the deletion was the western segment of West Second Street corridor (see Attachment B). This amendment also made various other changes to the Plan, including expansion of the Plan's Project list.

Third Amendment (Resolution 96-925): Minor amendment clarifying language regarding scope of proposed Projects and other public improvements.

Fourth Amendment (Council Ordinance 98-1223): The next Substantial Amendment occurred on June 22, 1998, when the Fourth Amendment established a maximum debt limit to comply with Oregon Constitutional changes approved by voters in 1997 (Measure 50). This amendment also established a table projecting costs of anticipated Urban Renewal Projects. However, the enabling ordinance was repealed through a referendum (Measure 33-22) in the November 1998 general election.

Fifth Amendment (Council Ordinance 98-1229): This Substantial Amendment, adopted December 14, 1998, responded to Measure 33-22. City Council adopted two related ordinances that day: Ordinance No. 98-1228, which established the City Council as the Agency Board (**Board**), and Ordinance No. 98-1229, which again reduced the size of the district (see Attachment D, removing 238.04 acres from the original 628.02 acreage). These measures complied with terms of a mediation agreement in October 1998 between the City, Agency, Wasco County, The Dalles Trade Center Association and Committee to Dissolve Urban Renewal.

Sixth Amendment (Council Ordinance No. 99-1232): This Substantial Amendment, adopted August 9, 1999, provided context for developments in the preceding year. Concerns leading to mediation reflected a view that Urban Renewal Projects did not contribute significantly to increased tax base. The Sixth Amendment revised the Project list, sought to ensure project compliance with Plan criteria, and reduced the amount of maximum indebtedness to \$14.23 million, a number later increased to \$29.13 million (see Tenth Amendment below). The amendment outlined a new list of Urban Renewal Projects. This list, which replaced the Fourth Amendment project list, together with minor, later changes in project descriptions, constitutes the first 13 projects that have carried forward ever since and provide the basis for projects identified in this plan revision.

Seventh Amendment (Resolution No. 01-040): Minor amendment allowed acquisition of a parking lot at First & Court streets to support redevelopment of the Commodore Building, adopted May 14, 2001.

Eighth Amendment (Resolution 03-052): Minor amendment adding Wasco Warehouse & Milling Co. property as an Urban Renewal project, adopted November 10, 2003. (This became Project #14 in the Urban Renewal Plan, now the "Sunshine Mill." Project is complete.)

Ninth Amendment (Resolution 08-060): Minor amendment adding Union Pacific Railroad and Oregon Department of Transportation properties to the Wasco Warehouse & Milling Co. redevelopment Project, adopted January 28, 2008.

Tenth Amendment (Council Ordinance 09-1301): The last Substantial Amendment to the Plan occurred June 22, 2009. The Tenth Amendment made various textual edits throughout the Plan. Aside from later minor amendments, the primary text carries through to the present day. The Tenth Amendment modified, added and deleted various items in the original Plan, including changes to the processes for property acquisition and land disposition. It modified the Mill Creek Greenway project from property acquisition to development, added East Gateway / Brewery Grade Reconstruction (this became Project #15 in the Urban Renewal Plan, the Sunshine Mill Roundabout), and Third Place Street improvements (Project #16 in the Urban Renewal Plan). Urban Renewal investment in the roundabout leveraged a \$2.4 million federal grant. Significantly, this Substantial Amendment increased Maximum Indebtedness of the Agency from \$14,227,353 to \$29,125,583, and deleted the provision regarding the duration of the District. That last change meant that the Agency does not necessarily

sunset at any particular time, but rather when Maximum Indebtedness is achieved. The Tenth Amendment was accompanied by a detailed report and fiscal analysis.

Eleventh Amendment (Resolution 10-068): Minor amendment adding The Dalles Skateboard Park to West Gateway Project #10, adopted April 12, 2010.

Twelfth Amendment (Resolution 10-069): Minor amendment adding redevelopment of properties bordered by Washington and Court streets and First and Second streets (the Granada Block), adopted May 10, 2010, as Project #17.

Thirteenth Amendment (Resolution 14-001): Minor amendment adding a new goal of increasing value of properties within the district and enhancing opportunities for non-profit organizations to participate in the property rehabilitation and loan grant fund program. This allowed grants to for-profit, public, non-profit and civic organizations, and was approved May 12, 2014.

Fourteenth Amendment (Resolution 15-001): Minor amendment adding Thompson Park Pool as Urban Renewal Project #18 (slide, climbing wall, shade or other landscaping), adopted February 9, 2015.

Fifteenth Amendment (Resolution 15-002): Minor amendment adding redevelopment of the former Elks Lodge as an Urban Renewal Project #19, adopted March 23, 2015.

Sixteenth Amendment (Resolution 18-002): Minor amendment revising description of the proposed Mill Creek Trail Greenway Project, adopted April 17, 2018.

Seventeenth Amendment (Ordinance 24-1409): Increased MI to \$35,262,100, added projects: Basalt Commons, Tony's site redevelopment and First Street reconstruction, performed overall review and update of Plan. Adopted December 9, 2024.

In addition, the historical record should note for clarification Resolution 23-002, amending the Urban Renewal Incentive Program, adopted on April 18, 2023. This amended an Urban Renewal program established in August 2022 but did not constitute a minor amendment to the Plan itself.

On September 12, 2016, the City Council adopted General Ordinance No. 16-1346, which amended General Ordinance No. 90-1106. This restructured the Agency, removing the City Council as Agency Board and restoring authority to the Board as it exists in 2024, comprising representatives from each affected taxing district (Wasco County, Mid-Columbia Fire & Rescue, Northern Wasco Parks & Recreation, Port of The Dalles; three city councilors; and two citizens at large). The Urban Renewal Advisory Committee was eliminated at that time.

This summary does not attempt to document all of the changes, challenges and progress achieved through the Agency since 1990. Its intent is to offer a historical foundation for the next – and final – phase of the District, and to offer a foundation for decisions leading to the ultimate continuation or discontinuation of the Agency itself.

SECTION 200 - DEFINITIONS

- 203. BLIGHTED AREAS means areas that by reason of deterioration, faulty planning, inadequate or improper facilities, deleterious land use or the existence of unsafe structures, or any combination of these factors, are detrimental to the safety, health or welfare of the community. A blighted area is characterized by the existence of one or more of the following conditions:
 - Defective design and quality of physical construction;
 - Faulty interior arrangement and exterior spacing;
 - Overcrowding and a high density of population;
 - Inadequate provision for ventilation, light, sanitation, open spaces and recreation facilities; or
 - Obsolescence, deterioration, dilapidation, mixed character or shifting of uses;
 - An economic dislocation, deterioration or disuse of property resulting from faulty planning;
 - The division or subdivision and sale of property or lots of irregular form and shape and inadequate size or dimensions for property usefulness and development;
 - The layout of property or lots in disregard of contours, drainage and other physical characteristics of the terrain and surrounding conditions;
 - > The existence of inadequate streets and other rights-of-way, open spaces and utilities;
 - > The existence of property or lots or other areas which are subject to inundation by water;
 - A prevalence of depreciated values, impaired investments, and social and economic maladjustments to such an extent that the capacity to pay taxes is reduced and tax receipts are inadequate for the cost of public services rendered;
 - A growing or total lack of proper utilization of areas, resulting in a stagnant and unproductive condition of land potentially useful and valuable for contributing to the public health, safety and welfare; or
 - A loss of population and reduction of proper utilization of the area, resulting in its further deterioration and added costs to the taxpayer for the creation of new public facilities and services elsewhere.

A. The existence of buildings and structures, used or intended to be used for living, commercial, industrial or other purposes, or any combination of those uses, which are unfit or unsafe to occupy for those purposes because of any one or a combination of the following conditions:

- → 1. Defective design and quality of physical construction;
- 2. Faulty interior arrangement and exterior spacing;
- → 3. Overcrowding and a high density of population;
- Inadequate provision for ventilation, light, sanitation, open spaces and recreation facilities; or
- → 5. Obsolescence, deterioration, dilapidation, mixed character or shifting of uses;

- B. An economic dislocation, deterioration or disuse of property resulting from faulty planning;
- C. The division or subdivision and sale of property or lots of irregular form and shape and inadequate size or dimensions for property usefulness and development;
- D. The layout of property or lots in disregard of contours, drainage and other physical characteristics of the terrain and surrounding conditions;
- E. The existence of inadequate streets and other rights-of-way, open spaces and utilities;
- F. The existence of property or lots or other areas which are subject to inundation by water;
- G. A prevalence of depreciated values, impaired investments, and social and economic maladjustments to such an extent that the capacity to pay taxes is reduced and tax receipts are inadequate for the cost of public services rendered;
- H. A growing or total lack of proper utilization of areas, resulting in a stagnant and unproductive condition of land potentially useful and valuable for contributing to the public health, safety and welfare; or
- I. A loss of population and reduction of proper utilization of the area, resulting in its further deterioration and added costs to the taxpayer for the creation of new public facilities and services elsewhere.

SECTION 300 - LEGAL BOUNDARY DESCRIPTION

The legal description of the boundaries of the Urban Renewal Area is set forth in Part 2 of this Plan as follows:

- 301. Amended Exhibit 1 Narrative Legal Description of Urban Renewal Area.
- 302. Amended Exhibit 2 Graphic (Map) Description of Urban Renewal Area.
- 303. Added Exhibit 3 Comprehensive Plan Designations of Urban Renewal Area
- 304. Added Exhibit 4 Zoning Designations of Urban Renewal Area

SECTION 400 - MISSION STATEMENT, GOALS AND OBJECTIVES OF THE DALLES URBAN RENEWAL AGENCY FOR THE COLUMBIA GATEWAY/DOWNTOWN PLAN

The mission of the Urban Renewal Agency is to eliminate blight and depreciating property values within the Agency's jurisdiction and in the process attract aesthetically pleasing, job-producing private investments that will stabilize or increase property values and protect the area's historic places and values.

401. GOALS AND OBJECTIVES

- A. To foster public participation in all urban renewal activities, including but not limited to strategic planning, through semi-annual in-person and virtual town halls and other civic outreach, and to regularly communicate urban renewal achievements and activities through social and traditional media engagement, signage, website, and public presentations.
- B. To make strategic investments of urban renewal funds and engage in various urban renewal activities which increase the value of properties within the Urban Renewal District so that the area will contribute its fair share to the costs of public services.
- C. To make strategic investments that return unused and underused public and private properties to productive condition, consistent with the City's Comprehensive Plan and implementing ordinances;
- D. To participate through land acquisition and disposition, rehabilitation loans and other activities in specific opportunities for business, civic, residential, cultural, and tourist-related property to be developed, redeveloped, improved, rehabilitated and conserved in ways which will:

1. Encourage the expansion and development of businesses that will expand property values, produce jobs for the people of The Dalles and Wasco County; or

2. Ensure a more attractive, functional and economically viable city; or

3. Restore historically significant properties to productive use when such use aligns with Goals A and B above, or

4. Recognize, maintain awareness of and when feasible mitigate the fiscal impact of Urban Renewal on local tax districts, or

5. Expand availability of family-wage housing, including but not limited to vertical downtown housing and multi-family residential housing.

- 6. Support the development of public spaces downtown.
- *E.* To expand access and connections from downtown to the Riverfront and to provide facilities that enhance public use of the Riverfront;
- *F.* To provide an adequate amount of properly located and designed off-street accessible parking in the downtown area;
- G. To improve the visual appearance, capacity, and traffic flow of public streets where such improvements will foster adjacent commercial or residential investment and/or support public services.

- H. To install and maintain coordinated street furniture, night lighting and landscaping in areas of maximum pedestrian concentration; including alley rights-of-way in the downtown area;
- I. In conjunction with urban renewal projects, leverage other funding sources to install or upgrade public utilities, including but not limited to underground services in downtown alley rights-of-way.
- J. To identify and actively pursue external grant and private resources in order to leverage the Agency's financial resources to the maximum extent possible.

To accomplish its mission, the Agency will develop and implement an urban renewal program, the goals and objectives of which are:

A. To make strategic investments of urban renewal funds and engage in various urban renewal activities which increase the value of properties within the Urban Renewal District.

B. To make strategic investments of urban renewal funds so that unused and underused properties can be placed in productive condition and utilized in a manner consistent with the City's Comprehensive Plan and implementing ordinances;

C. To participate by means of various urban renewal activities (e.g. land acquisition and disposition, rehabilitation loans, etc.) in specific opportunities for business, civic, residential, cultural, and tourist-related property to be developed, redeveloped, improved, rehabilitated and conserved in ways which will:

1. Encourage the expansion and development of businesses that will produce jobs for the people of The Dalles and Wasco County; or

2. Increase property values so that the area will contribute its fair share to the costs of public services, provided by the city, county, schools, community college, port and park and recreation district; or

3. Insure a more attractive, functional and economically viable city; or

4. Conserve historically significant places and properties;

D. To be responsive to the needs and the concerns of all people of the City of The Dalles in the details of amending and implementing the Urban Renewal Plan using multiple forms of outreach including: town hall meetings, the internet, news releases, and signs on projects; and

E. To encourage the maximum amount of public involvement and citizen participation in the formation and implementation of the Urban Renewal Plan by explaining and discussing the details of the Urban Renewal process:

1. To the public at town hall type gatherings;

2. To special interest groups, public service organizations, public bodies and the general public by invitation to Agency meetings;
3. By issuing periodic news releases;
4. By cooperating with the print and electronic news media by being available to discuss the Urban Renewal Plan and process;
5. By use of the Internet;

F. To provide an adequate amount of properly located and designed off-street parking, including disabled parking, in the downtown area, including a plan and program to effectively pay for, manage and maintain such parking;

G. To create positive linkages among the two sectors of the Urban Renewal Area - i.e. the Downtown and the West Gateway Area;

H. To cooperate, coordinate and assist in funding with the program to improve access and connections from downtown to the Riverfront and to provide facilities, such as trails and a public dock, to enhance public use of the Riverfront;

I. To improve the visual appearance, capacity, and traffic flow of streets that carry the major share of vehicular and pedestrian traffic in areas where development would otherwise be inhibited;

J. To assist property owners in the rehabilitation of their buildings and property to the extent that it helps implement the intent of redevelopment goals, policies, and standards, especially where rehabilitation may spur additional redevelopment activity;

K. To install and maintain coordinated street furniture, night lighting and landscaping in areas of maximum pedestrian concentration; including alley rights of way in the Downtown area;

L. In conjunction with specific urban renewal development or redevelopment projects, supplement existing funding sources to construct, install or replace publicly owned utility systems such as water, storm drains, and sanitary sewers where existing facilities are inadequate, undersized or otherwise substandard; and

M. To leverage the Agency's financial resources to the maximum extent possible with other public and private investments and other public and private funding sources.

N. To install underground utilities in areas of urban renewal projects including alley rights-of-way in the downtown area.

403. RELATIONSHIP OF THE PLAN TO LOCAL OBJECTIVES

This plan is intended to further the objectives of the City's Comprehensive Land Use Plan. Further, this plan is intended to improve land uses, traffic flow, off-street parking, pedestrian amenities, and other public improvements.

404. CONSISTENCY WITH THE CITY'S COMPREHENSIVE PLAN

This plan has been prepared in conformity with the City's adopted Comprehensive Land Use Plan including its goals, policies, procedures, and implementing provisions.

Goal 5: Open Spaces, Scenic and Historic areas, and Natural Resources

- To conserve and protect the open space, natural, and scenic resources of the area.
- To recognize, protect and enhance the historical and cultural importance of the community, and to promote increased public awareness and participation in historic preservation.

Finding: Federal Street Plaza is one of the projects in the Plan. The urban renewal funds would be used as a match for other sources of financing. This plaza would create open space in the downtown, supporting the other commercial uses and encouraging activity in the Area. The Plan conforms to the Open Spaces, Scenic and Historic areas, and Natural Resources goal.

Goal 8: Recreation Needs

• To develop, acquire, and maintain a balance of recreation opportunities and open spaces in order to improve the livability within the Urban Growth Boundary.

Finding: Federal Street Plaza is one of the projects in the Plan. The urban renewal funds would be used as a match for other sources of financing. This plaza would create open space in the downtown, supporting the other commercial uses and encouraging activity in the Area. The Plan conforms to the Recreation Needs goal.

Goal 9: Economic Development

- Diversify the economic base of the community.
- Increase the tax base needed to provide an adequate level of community services for The Dalles citizens.
- Encourage the growth of existing employers and attract new employers to The Dalles that complement the existing business community.
- Implement the objectives and activities of the Columbia Gateway/Downtown Urban Renewal Plan, enhancing opportunities for the improvement and redevelopment of business, civic, cultural, and residential uses in the area.
- Provide employment opportunities, environments, and choices, which are a vital part of a high quality of life in The Dalles.
- Support the maintenance and enhancement of The Dalles Commercial Historic District.
- Encourage redevelopment and adaptive reuse of commercial space downtown as an alternative to commercial sprawl.

Finding: The Incentive Program provides funds to encourage rehabilitation in the Area. The program offers assistance to improve building façades, add residential units, provide interior improvements and to provide overall improvements to buildings in the Area which include The Dalles Commercial Historic District. These improvements will help facilitate healthy businesses and economic activity in the Area. The Plan conforms to the Economic Development goal.

Goal 10: Housing

- Promote and provide an adequate supply of safe, healthy and affordable housing for all members of the community in a variety of housing types recognizing the needs and desires of the community's residents.
- Promote the development of housing that minimizes or avoids impacts to the natural environment and surrounding land uses.
- Provide and maintain adequate public facilities in all parts of the community and promote a logical and orderly development of those facilities. Require new housing developments to pay an equitable share of the cost of required capital improvements.
- Promote the efficient use of vacant land by encouraging infill development which is developed at a scale that is allowed in existing neighborhoods, and by encouraging new development which achieves the density allowed by the Comprehensive Plan.
- Strengthen existing and promote new neighborhood centers as focal points for neighborhood services and activities.
- Adopt standards and incentives to increase residential land use efficiency.
- Continue to provide opportunities for a full range of rental housing.

Finding: The improvements to First Street and the development of the Federal Plaza will enhance the Area for further redevelopment, which could include future residential development. Building owners may apply to the Incentive Program for assistance in rehabilitating or adding residential units. The Plan conforms to the Housing goal.

Goal 12: Transportation

• To provide a transportation system that supports the safety and mobility needs of local residents, business and industry, affords choice between transportation modes, is convenient and affordable to use, and supports planned land uses.

Finding: The improvements to First Street including the reconstruction, improved pedestrian system, street trees, and a bike lane will serve the needs of the commercial businesses, residents and tourists in the Area by providing a more safe, multi-modal transportation experience. This project will improve the experience of traveling between downtown and the Lewis and Clark Festival Park, and enhance the opportunity for development of, and connectivity to, a Federal Street Plaza. These improvements will complete the overall transportation plan to improve the streets and pedestrian atmosphere in the Area. The Plan conforms to the Transportation goal.

405. CONSISTENCY WITH ECONOMIC DEVELOPMENT POLICY

The Economic Development Goal of the City's Comprehensive Land Use Plan (Goal 9) discusses, among other things, the need to:

- 1. Provide family wage employment opportunities for The Dalles citizens.
- 2. Diversify the economic base of the community.
- 3. Increase the tax base needed to provide an adequate level of community services for The Dalles citizens.

- 4. Encourage the growth of existing employers and attract new employers to The Dalles that complement the existing business community.
- 5. Implement the objectives and activities of the Columbia Gateway/Downtown Urban Renewal Plan, enhancing opportunities for the improvement and redevelopment of business, civic, cultural, and residential uses in the area.
- 6. Provide for tourism-related employment as part of the effort to diversity The Dalles' economy.
- 7. Provide employment opportunities, environments, and choices, which are a vital part of a high quality of life in The Dalles.
- 8. Support the maintenance and enhancement of The Dalles commercial historic district.
- 9. Encourage redevelopment and adaptive reuse of commercial space downtown as an alternative to commercial sprawl.

The Urban Renewal Plan addresses these goals in conformity with the provisions of the Economic Element.

501. LAND USE DESIGNATIONS

The land use designations of the City's Comprehensive Plan which affect the Urban Renewal Plan Area are shown on Exhibit 3 of this Plan. Current zoning districts, shown on Exhibit 4 of this Plan are described in full in the City's Land Use and Development Ordinance (General Ordinance #98-1222) and generally are as follows:

1. Central Business Commercial District, CBC.

The purpose is... "To provide an area for commercial uses, along with civic and certain residential uses, and to provide all basic services and amenities required to keep the downtown area the vital pedestrian-oriented center of the community". Approximately 33-36 percent of the Urban Renewal Area is in this zoning district.

2. Industrial District, I.

The purpose is... "To establish areas which provide for a variety of commercial and industrial uses". Approximately 33–*11* percent of the Urban Renewal Area is in this zoning district.

3. General Commercial District, CG.

The purpose is... "To provide areas for a wide range of retail, wholesale, and service businesses commensurate with the needs of the marketing region. *New development shall be designed to promote clustering of businesses, use of common access and traffic controls, and use of cross access for vehicles, pedestrians and bicycles between contiguous sites. Safe and convenient pedestrian and bicycle circulation between the particular use and the adjoining street, sidewalk, or public right-of-way shall also be provided. Approximately-4- 5 percent of the Urban Renewal Area is in this zoning district.*

4. Commercial/Light Industrial District, CLI.

The purpose is... "To provide an area for commercial uses and certain industrial uses. *New development shall be designed to promote clustering of businesses where appropriate, and use of common access and traffic controls.* Where appropriate, safe and convenient pedestrian and *bicycle circulation between the particular use and the adjoining street/sidewalk shall also be provided.*

This district also accommodates business parks that provide for a mixture of commercial and light industrial uses in a campus-like setting where business activities are conducted indoors. To ensure compatibility with adjacent residential neighborhoods, business parks shall be reviewed through the planned development process set forth in Article <u>9.050</u>." Approximately 22 27 percent of the Urban Renewal Area is in this zoning district.

5. High/Medium Density Residential District, RH.

The purpose is... "To provide areas where single family detached dwellings, single family attached dwellings, duplexes, town houses, condominiums, and multi-family developments may be constructed under various ownership patterns. *Adequate urban services shall be available to all development without exception.*" Approximately 3 6 percent of the Urban Renewal Area is in this zoning designation.

6. Parks and Open Space District, P/OS.

The purpose is... "To insure sufficient open space areas throughout the community to safeguard public need for visual and environmental resources and to provide areas for recreational activities. *Allowed uses show lower level activity and potentially less offsite impact than uses allowed conditionally*." Approximately 5 percent of the Urban Renewal Area is in this zoning district.

7. Recreational Commercial District, CR

The purpose is to provide areas for mixed business, commercial, service, recreational, and light industrial uses. Site planning for permitted uses shall ensure protection and enhancement of the significant environmental areas located along the Columbia River and related streams and creeks. Streets, sidewalks, bikeways, and water, sewer, and storm drainage systems shall be constructed or improved as needed. Approximately 5 percent of the Urban Renewal Area is in this zoning district.

SECTION 600 – URBAN RENEWAL ACTIVITIES

601. URBAN RENEWAL PROJECTS AND ACTIVITIES

Projects and activities listed under this section *as "completed, partially completed, pending or on-going"* were recommended by the Urban Renewal Advisory Committee *in 2009,* based in part on project selection criteria. *New projects identified by the Urban Renewal Agency Board as part of this 2024 Plan revision will follow. Selection* criteria are as follows:

GENERAL CRITERIA

Acceptable projects must comply with all of the following:

- *I.* Selected projects must address any one, or any combination of, blighted conditions as described in the <u>Columbia Gateway Urban Renewal Plan</u>.
- *II.* Selected projects must be consistent with the goals, policies, and designated uses of the City's <u>Comprehensive Land Use Plan</u> and implementing ordinances.
- *III.* Selected projects must be consistent with the development policies of the Historic Landmarks Commission in those areas where the Historic Landmarks Commission has review authority.
- *IV.* Selected projects must, in aggregate, increase property values and tax collections to a level that will produce a reasonable return of the Urban Renewal contribution.

SPECIFIC CRITERIA

Acceptable projects must meet any one or any combination, of the following:

- *i.* Increases the value of the property on which the project is located.
- *ii.* Increases the property value of the surrounding properties next to the property, or rightof-way, on which the project is located.
- *iii.* Places unused or underused property in a productive condition.
- *iv.* Enhances opportunities for business, civic, residential, cultural, and tourist-related property to be developed, redeveloped, improved, rehabilitated, and/or conserved.
- v. Provides adequate amount of properly located off-street parking in the downtown area.
- vi. Promotes riverfront improvements as determined in <u>The Dalles Riverfront Plan</u>.
- vii. Improves the visual appearance, capacity, and traffic flow of streets in areas where development would otherwise be inhibited.
- viii. Assists property owners with the rehabilitation of their buildings and property.
- ix. Enhances storm drainage capacity of streets.
- x. Leverages the Agency's financial resources to the maximum extent possible with other public and private investments and other public and private funding.
- xi. Encourages investment in the core commercial area.
- xii. Promotes housing opportunities in the Downtown area.

GENERAL CRITERIA

Acceptable projects must comply with all of the following:

- A. Selected projects must address any one, or any combination of, blighted conditions as described in the <u>Columbia Gateway/Downtown Plan</u>.
- B. Selected projects must be consistent with the goals, policies, and designated uses of the City's <u>Comprehensive Land Use Plan</u> and implementing ordinances.
- C. Selected projects must be consistent with the development policies of the Historic Landmarks Commission in those areas where the Historic Landmarks Commission has review authority.
- D. Selected projects must, in aggregate, increase property values and tax collections to a level that will produce a reasonable return of the Urban Renewal contribution.

SPECIFIC CRITERIA

Acceptable projects must meet any one or any combination, of the following:

- Increases the value of the property on which the project is located.
- Increases the property value of the surrounding properties next to the property, or right-ofway, on which the project is located.

- Places unused or underused property in a productive condition.
- Enhances opportunities for business, civic, residential, cultural, and tourist-related property to be developed, redeveloped, improved, rehabilitated, and/or conserved.
- Provides for an adequate amount of properly located off-street parking in the downtown area.
- Creates positive linkages between the two sectors of the commercial areas of the community, i.e. the Downtown and the West Gateway areas.
- Promotes the program to improve the riverfront as determined in The Dalles Riverfront Plan.
- Improves the visual appearance, capacity, and traffic flow of streets in areas where development would otherwise be inhibited.
- Assists property owners with the rehabilitation of their buildings and property.
- Enhances storm drainage capacity of streets.
- Leverages the Agency's financial resources to the maximum extent possible with other public and private investments and other public and private funding.
- Encourages investment in the core commercial area.
- Promotes housing opportunities in the Downtown area.

PROJECTS COMPLETED

Note: Project descriptions carried over from 2009 Urban Renewal Plan are italicized in **bold**, followed by status as of April 2024.

Grain Elevator Demolition

- "This project consists of removing the structures and other appurtenances that make up the three major components of the grain elevator; the wooden elevator, concrete storage silos, and metal storage bins. Removing the grain elevator allows for the construction of the Downtown / Riverfront Access project and the new sewer treatment plant."
 - ✓ The former grain elevator was destroyed in a fire in 1999; Urban Renewal purchased the property and paid for cleanup following the fire, establishing land base for the City's sewer treatment plant expansion and Lewis & Clark Park. Status: Complete.

Commodore Building Redevelopment

• Redevelopment of the Commodore building involves purchase, and total renovation of the building's interior for an identified use or uses, and restoration of the building's historic exterior.

✓ Agency purchased the Commodore and leased it to Commodore II Limited Partnership on April 10, 2001. Agreement included an Agency loan of \$282,445. Loan is payable on or before Dec. 31, 2026. Status: Renovations completed; Agency interest continues until loan is repaid.

Civic Auditorium Remodel and Reconstruction

- The project involves a total remodel and reconstruction of the entire building including: the Fireside room, ballroom, theater, gym, and basement areas, as well as electrical, plumbing, heating and cooling, and exterior repairs.
 - ✓ The Civic Auditorium was saved from demolition when City of The Dalles conveyed ownership to the Civic Auditorium Historic Preservation Committee in 1990. Major and minor phases of repair and restoration continued for more than 30 years, including Urban Renewal investments and many other sources. The Civic celebrated its centennial on May 12, 2023. Status: All major renovations complete.

Mill Creek Bridge Reconstruction (West Sith Street)

- The Mill Creek Bridge reconstruction consists of two phases, the first of which has already been completed. The first phase included improving the four sidewalk approaches to the bridge and related road, drainage, and bank stabilization work. The second phase involves a complete restoration of the bridge in its original historic character including the sidewalks, railings, and light standards and deck.
 - ✓ Reconstruction used a combination of Urban Renewal and City of The Dalles street funds. Completed in the early 2000s, this included deck reconstruction, replacement of the historic parapet and period lighting. Status: Complete.

Thompson Park Sidewalk

- This is a small project that includes construction of a natural rock retaining wall, sidewalk, and curb. It begins at the drive entrance to the Thompson Park swimming pool and ends at the intersection of West Second Street and Cherry Heights.
 - ✓ Urban Renewal paid for sidewalk along West Second Street west from Mill Creek, adjacent to pool extending to and along Cherry Heights Road, including rock retaining wall. There was no sidewalk previously. Status: Complete.

Redevelopment of Wasco Warehouse & Milling Company Property

- Redevelopment of the Wasco Warehouse & Milling Company property involves purchase and may include partial renovation and historic preservation for an identified use or uses. Additional land will be acquired from the Oregon Department of Transportation and the Union Pacific Railroad.
 - ✓ This project was completed through acquisition and redevelopment as the Sunshine Mill. Urban Renewal assisted through its loan program, beginning with a loan agreement to Discovery Development LLC in 2009. Loan was paid in full and mortgage satisfied on Jan. 1, 2020. Status: Complete.

East Gateway/Brewery Grade Street Reconstruction

• The existing streets will be realigned and improved and a roundabout installed to help facilitate a better flow of traffic within the Area.

✓ Brewery Grade roundabout was completed in 2010. This was a \$3.5 million project, combining urban renewal with other public funding sources. Improvements included public parking lot, redesigned access from East Second and East Third streets, and parking upgrades at the former Great Southern Railroad Depot (later Cannon Packer). Status: Complete.

Thompson Park Pool Project

- The project will allow for additional amenities to the construction of a new pool, which was approved as the result of a bond measure passed by the voters of the Northern Wasco County Parks & Recreation District. The alternate features for the project, which will be visible from I-84 freeway, are designed in part to attract tourists to the City.
 - ✓ Urban Renewal paid for sidewalk along West Second Street west from Mill Creek, adjacent to pool extending to and along Cherry Heights Road, including rock retaining wall. There was no sidewalk previously. Status: Complete.

Redevelopment of the Elks Lodge Building

- The project anticipates acquisition of the Elks Lodge Building by the Agency, and conveyance of the property to a private developer for creation of a museum for the display of neon signs.
 - ✓ Urban Renewal Agency acquired the building in March 2015 and entered a Development and Disposition Agreement with David and Kirsten Benko on April 3, 2015, with the goal of establishing a museum dedicated to the preservation and display of vintage neon signs. Property title was conveyed in 2015. The National Neon Sign Museum opened in 2018. **Status: Complete.** In 2023 the Benkos and Restore Oregon announced plans to relocate the historic Jantzen Beach Carousel to a parcel adjoining the building. This project is on-going.

Downtown Parking Structure and Surface Parking Lots

- Increase in demand for easy parking in the Downtown area will require the construction of a multi-level parking structure. Estimates are for 150 parking spaces to help accommodate the additional demand. Smaller surface lots in the core area may be located on a temporary basis or permanently constructed.
 - ✓ Initial plans called for acquisition and demolition of the former Penny's Store on Second between Court and Washington, with construction of a multi-level parking structure on that site and the adjoining parking lot. This project was later abandoned. Focus instead was on construction of smaller, surface parking lots near St. Peter's Landmark, Sunshine Mill Roundabout and (in 2024) East Third. All of these have been completed or are pending completion. No further surface parking lots are proposed. Status: Surface lots complete. Parking structure abandoned.

Redevelopment of Armory Property / Public Works site

- This project includes the redevelopment of the commercial property on the south side of West Sixth Street from Webber to Walnut. The current City Public Works office and yard would be relocated to another site.
 - ✓ Requiring nearly three decades of effort, this project concluded with construction of Ft. Dalles Readiness Center on the Columbia Gorge Community College

campus in 2014 – a \$19.4 million project. The college leased part of its campus to the Oregon Military Department. This allowed demolition of the former armory (a 1940s-circa Quonset hut at West Sixth & Webber Streets) by Urban Renewal and enabled Wasco County to regain site control at that location. A separate, nearby project was the Urban Renewal-funded demolition of the former City of The Dalles Public Works building on West Sixth Street. Public Works relocated to West First Street, making way for an automotive dealership on West Sixth Street, representing a significant private investment on property formerly owned by Wasco County. Commercial property redevelopment resides with Wasco County as property owner. **Status: Complete.**

Projects partially completed, pending or on-going

Note: Most of these projects have changed in scope significantly since 2009. While some major elements have been completed, such as the maritime terminal and Union Street undercrossing, the original visions may still be considered works in progress.

Downtown Streetscape Improvements

- The location of the Downtown Streetscape Improvements project may include all areas designated on the City's official Zoning map as "Central Business Commercial" and includes 1st, 2nd, 3rd, and 4th Streets and connecting side streets. Streetscape improvements may include: Removal of existing curbs, gutters, sidewalks, street lighting, hollow sidewalks, street grades, and other associated elements. Construction of curbs and gutters, decorative concrete sidewalks and paving stones, period street lights, street trees, irrigation systems, plazas, signs, drinking fountains, benches, planting areas, special crosswalk treatment, and other associated elements. This would include the ability to install Opticom GPS Systems and to upgrade the water system in the area.
 - ✓ Second Street downtown was redeveloped in 2002 using a combination of Urban Renewal and City of The Dalles street funds. Opticom GPS was not installed downtown. Third Street redevelopment was scheduled for 2007-08 but postponed amid an economic downturn, then never resumed. First Street has received priority because of failing sidewalks between Union and Washington, the need for separated traffic/pedestrian passage east of Washington, and inadequate infrastructure overall. Architecture and engineering is at 95% completion as of April 2024. Urban Renewal Agency has conveyed \$3.8 million to the city in preparation for this project, with all funding anticipated to come from the Agency. However, cost escalation has resulted in a significant budget gap from original estimates. Research is under way through April 2024 to resolve this urgent challenge. Status: One major element completed
 - ✓ First Street reconstruction to address hollow sidewalk between Union and Washington and other improvements. Given potential fiscal impact on the Agency's capacity, this is called out as a new project below.

Downtown / Riverfront Access

- The Downtown / Riverfront Access project links the Downtown area to the Columbia Riverfront via a non-vehicular pathway. It includes development of a trailhead and parking lot, access tunnels under the railroad, First Street and the I-84 freeway, a commercial marine terminal dock near the site of the old pier, a twelve-foot wide trail with associated landscaping elements between the trailhead and dock, and a plaza on Washington Street.
 - ✓ Access including "boat dock near the old pier" was accomplished through construction of the Union Street portal in 2003, Maritime Terminal (Cruise Ship Dock) in 2012 and Lewis & Clark Park with associated vehicle parking. The undercrossing alone was a \$6 million project. Urban Renewal funding leveraged at least \$2.25 million in state and federal funds. Washington Street plaza, railroad and I-84 under-crossings were envisioned but later cancelled. There is significant potential for additional riverfront development within the current urban renewal district boundaries and west along West First Street and Bargeway Road. Status: Two major elements completed

Mill Creek Greenway Property Development

- A main feature of the Mill Creek Trail/Greenway, primarily the section between 2nd Street and West 8th Place, will be the construction of the 10-foot-wide paved pedestrian bicycle trail, to be utilized for recreation and as a connector for pedestrian and bicycle travel in the City. An additional pedestrian bridge over Mill Creek will be constructed as part of connecting the trail to a terminus with the West 8th Place cul-de-sac. A connection is also proposed from 2nd Street via a pedestrian /bicycle signaled crosswalk or other approved method of passage, then continuing along property between the Union Pacific Railroad right-of-way, Urness Motors (Assessor Map No. 1N 13E 3BB Tax Lots 900 & 1000), and the United States Postal Service properties (Assessor Map No. 1N 13E 3BB Tax Lots 700 & 800) to Union Street, with the trail ultimately connecting to the Riverfront Trail. Construction of the Mill Creek Trail Greenway is anticipated to be done in phases. Anticipated expenses include, but are not limited to engineering and design for the Mill Creek Trail/Greenway, consultant review of the compatibility of the location of the proposed trail with existing and planned improvements for the Thompson Park property owned by the Northern Wasco County Parks & Recreation District, landscaping, lighting, irrigation, trash receptacles, toilets, benches, interpretive and trail signage, creek overlooks, a native plant garden, picnic area, and sculpture.
 - ✓ Ongoing partnership with Northern Wasco County Parks and Agency. Urban Renewal Agency in 2023 transferred \$300,000 to the parks district for an elevated boardwalk the District plans as part of this Project. There are no immediate plans for the linkage across West Second Street to Riverfront Trail near Mill Creek, although public partners recognize the need for this connection. Urban Renewal bought and demolished older structures prior to transferring property to Parks District. Status: Pending

West Gateway Project

 West Second Street from Lincoln Street to western boundary of Urban Renewal; street and property redevelopment, redesign and reconstruction. Amended April 12, 2020, by Resolution No. 10-068 adding Skateboard Park. The Gateway project is a large project that includes redesign and reconstruction of sections of I-84, West Second, and Webber Streets, and property redevelopment and realignment to provide for better access and redevelopment opportunities. The urban renewal portion of the project is focused on West Second Street and associated properties.

✓ Skateboard park was completed, including a \$100,000 commitment from Urban Renewal. Limited intersection improvement occurred at Cherry Heights and West Second Street intersection. The urban renewal district includes multiple parcels along West Second Street west of Webber Street, extending to and including tax lot BC900. Webber Street undercrossing and realignment of West Second Street north of Interstate 84 were part of a proposed transportation improvement project in 2011 (estimated cost \$3.7 million) but later postponed. Status: Incomplete.

Third Place Street Improvements

- The 3rd Place improvements include street, utilities, curbs, sidewalks, lighting, landscaping, and associated improvements.
 - ✓ This project would correct a tight curve on West Third Place just south of the West Fourth Street intersection. Status: Indefinitely postponed.

Redevelopment of properties located within the block bordered by Washington and Court Streets, and First and Second Streets.

- The project may include the acquisition of the Granada Theater for possible use as a fine arts community center through a development and disposition agreement.
 - ✓ This became the Granada Block redevelopment. The Agency acquired the Granada Theatre, former Washington Hotel/Model Laundry ("Blue Building") and Recreation parcels on Second Street, and conducted alley vacations preparatory to development of a downtown hotel and associated conference center. This plan was later discarded and the individual properties sold through Development and Disposition Agreements. All are fully or partially occupied as of April 2024. The Granada Theatre, constructed in 1929, operates in its original function as a movie theatre. The Washington Hotel houses limited retail and is the subject of a pending agreement for retail/residential development with the Agency, approved by the board in February 2024. Two of the three individual Recreation parcels have been redeveloped and sold; the third is scheduled for completion by June 2024, with a DDA amendment approved in February 2024 to expire in October 2024. Status: Major elements completed.

Property Rehabilitation Grants and Agreements

- This is on-going, having current form (2023-24) as the Incentive Program and, for larger projects, Development Funding Agreements.
- This program has three areas that are designed to further the objectives of the Urban Renewal program and address the many individual projects on private and public property identified throughout the amendment process that meet the project selection criteria. The three program areas include:

- a. Land Assemblage: The Agency may assist in land assemblage to allow for private development of City and/or privately owned property.
- b. Historic Design and Restoration: The Agency may provide architectural and engineering design services for existing or new buildings in the National Historic Districts for restoration or compatible design work. The Agency may also provide low interest loans for the portion of the construction work necessary to meet the historic compatibility requirements.
- c. Redevelopment of Unused and Underused Land and Buildings and other Civic Improvements: The Agency may provide grants and low interest loans for business, civic, residential, cultural, and tourist-related property to be developed, redeveloped, improved, rehabilitated, and/or conserved. Grants shall be made to for-profit, public, non-profit, and civic organizations. Projects must meet the project selection criteria in order to be eligible to receive a grant. These grant and loans may include sprinkler systems for existing and new structures.
 - The Agency may establish a below market interest rate loan program for the redevelopment of properties within the urban renewal area. Prior to making any loans, the Agency shall prepare and adopt a comprehensive rehabilitation loan plan that sets forth:
 - Criteria for eligibility;
 - Interest rates and terms for various loans;
 - Procedures for recycling the funds as loan obligations are paid;
 - Procedures for delinquent loan payments or defaults;
 - Procedures and conditions for which deferred payment loans may be offered;
 - Procedures for administering and servicing the loan program; and
 - Such procedures and conditions the Agency deems necessary.
 - ✓ The property rehabilitation grant and loan fund program has been applied on numerous occasions and provides the basis for its current variation, adopted in 2023, the Urban Renewal Incentive Program. Earlier projects (as of 2009-10) included renovation and repairs to the Wasco Milling Co. Warehouse (Sunshine Mill), Columbia River Bank building, Sigman's Flowers Building, Gayer's Building, Granada Theatre, Civic Auditorium, The Dalles Art Center, Masonic Lodge/Second Courthouse (Clock Tower Ales), American Legion, Old St. Peter's Landmark, IOOF Lodge façade, Craig's Office Building, Hilco gas station demolition, Creek View townhouse demolition, and Mill Creek Greenway land donation.
 - ✓ Another project, which has yet to conclude, is the Tony's Town & Country building redevelopment, which began under Programs A (Land Assemblage) and C (Redevelopment) with acquisition of the structure. After determining that the Tony's building could not be salvaged, the Agency had the structure demolished in 2023 for later redevelopment.
 - ✓ The loan program is discontinued.

Status: Modified and ongoing

NEW PROJECTS added in 2024:

- Basalt Commons: A mixed-use commercial and residential development at 523 East 3rd Street. Developer will demolish existing structure (a former auto dealer) and replace it with a five-story commercial and residential complex.
- Tony's Town & Country building acquisition, demolition and site rehabilitation.
- First Street reconstruction to include sidewalk replacement, street and sub-street reconstruction, tree plantings with irrigation, related infrastructure and public safety measures.
- Federal Street Plaza: Establish public plaza, green space and other improvements to create a community gathering space between First and Second streets. Urban Renewal to help leverage external resources such as state and federal grants by contributing toward local match.

1. DOWNTOWN STREETSCAPE IMPROVEMENTS:

The location of the Downtown Streetscape Improvements project may include all areas designated on the City's official Zoning map as "Central Business Commercial" and includes 1st, 2nd, 3rd, and 4th Streets and connecting side streets. Streetscape improvements may include:

Removal of existing curbs, gutters, sidewalks, street lighting, hollow sidewalks, street grades, and other associated elements. Construction of curbs and gutters, decorative concrete sidewalks and paving stones, period street lights, street trees, irrigation systems, plazas, signs, drinking fountains, benches, planting areas, special crosswalk treatment, and other associated elements. This would include the ability to install Opticom GPS Systems and to upgrade the water system in the area.

2. DOWNTOWN / RIVERFRONT ACCESS

The Downtown / Riverfront Access project links the Downtown area to the Columbia Riverfront via a non-vehicular pathway. It includes development of a trailhead and parking lot, access tunnels under the railroad, First Street and the I-84 freeway, a commercial marine terminal dock near the site of the old pier, a twelve-foot wide trail with associated landscaping elements between the trailhead and dock, and a plaza on Washington Street.

3. GRAIN ELEVATOR DEMOLITION

This project consists of removing the structures and other appurtenances that make up the three major components of the grain elevator; the wooden elevator, concrete storage silos, and metal storage bins. Removing the grain elevator allows for the construction of the Downtown / Riverfront Access project and the new sewer treatment plant.

4. COMMODORE BUILDING REDEVELOPMENT

Redevelopment of the Commodore building involves purchase, and total renovation of the building's interior for an identified use or uses, and restoration of the building's historic exterior.

(Project numbers 4, 5, and 6 may be combined into one project depending on timing and on how various decisions are made.)

5. PENNEY'S BLOCK REDEVELOPMENT

Redevelopment of this Downtown core block may include the demolition of the existing Penney's building and reconstruction of a new commercial building and off-street parking on the same site.

6. DOWNTOWN PARKING STRUCTURE AND SURFACE LOTS

Increase in demand for easy parking in the Downtown area will require the construction of a multi-level parking structure. Estimates are for 150 parking spaces to help accommodate the additional demand. Smaller surface lots in the core area may be located on a temporary basis or permanently constructed.

7. CIVIC AUDITORIUM REMODEL AND RECONSTRUCTION

The project involves a total remodel and reconstruction of the entire building including: the Fireside room, ballroom, theater, gym, and basement areas, as well as electrical, plumbing, heating and cooling, and exterior repairs.

8. MILL CREEK BRIDGE RECONSTRUCTION (WEST 6TH ST.)

The Mill Creek Bridge reconstruction consists of two phases, the first of which has already been completed. The first phase included improving the four sidewalk approaches to the bridge and related road, drainage, and bank stabilization work. The second phase involves a complete restoration of the bridge in its original historic character including the sidewalks, railings, and light standards and deck.

9. MILL CREEK GREENWAY PROPERTY DEVELOPMENT

A main feature of the Mill Creek Trail/Greenway, primarily the section between 2nd Street and West 8th Place, will be the construction of the 10 foot wide paved pedestrian bicycle trail, to be utilized for recreation and as a connector for pedestrian and bicycle travel in the City. An additional pedestrian bridge over Mill Creek will be constructed as part of connecting the trail to a terminus with the West 8th Place cul-de sac. A connection is also proposed from 2nd Street via a pedestrian /bicycle signaled crosswalk or other approved method of passage, then continuing along property between the Union Pacific Railroad right of way, Urness Motors (Assessor Map No. 1N 13E 3BB Tax Lots 900 & 1000), and the United States Postal Service properties (Assessor Map No. 1N 13E 3BB Tax Lots 700 & 800) to Union Street, with the trail ultimately connecting to the Riverfront Trail. Construction of the Mill Creek Trail Greenway is anticipated to be done in phases.

Anticipated expenses include, but are not limited to engineering and design for the Mill Creek Trail/Greenway, consultant review of the compatibility of the location of the proposed trail with existing and planned improvements for the Thompson Park property owned by the Northern Wasco County Parks & Recreation District, landscaping, lighting, irrigation, trash receptacles, toilets, benches, interpretive and trail signage, creek overlooks, a native plant garden, picnic area, and sculpture.

10. GATEWAY PROJECT. WEST 2ND-STREET FROM LINCOLN STREET TO WESTERN BOUNDARY OF URBAN RENEWAL, STREET AND PROPERTY REDEVELOPMENT, REDESIGN AND RECONSTRUCTION. AMENDED APRIL 12, 2010 BY RESOLUTION NO.10-068 ADDING SKATEBOARD PARK.

The Gateway project is a large project that includes redesign and reconstruction of sections of I-84, West Second, and Webber Streets, and property redevelopment and realignment to provide for better access and redevelopment opportunities. The urban renewal portion of the project is focused on West Second Street and associated properties.

11. REDEVELOPMENT OF ARMORY PROPERTY / PUBLIC WORKS SITE

This project includes the redevelopment of the commercial property on the south side of West Sixth Street from Webber to Walnut. The current City Public Works office and yard would be relocated to another site.

12. THOMPSON PARK SIDEWALK

This is a small project that includes construction of a natural rock retaining wall, sidewalk, and curb. It begins at the drive entrance to the Thompson Park swimming pool and ends at the intersection of West Second Street and Cherry Heights.

13. PROPERTY REHABILITATION GRANT AND LOAN FUND PROGRAM

This program has three areas that are designed to further the objectives of the Urban Renewal program and address the many individual projects on private and public property identified throughout the amendment process that meet the project selection criteria. The three program areas include:

1. Land Assemblage

The Agency may assist in land assemblage to allow for private development of City and/or privately owned property.

2. Historic Design and Restoration

The Agency may provide architectural and engineering design services for existing or new buildings in the National Historic Districts for restoration or compatible design work. The Agency may also provide low interest loans for the portion of the construction work necessary to meet the historic compatibility requirements.

3. Redevelopment of Unused and Underused Land and Buildings and other Civic Improvements

The Agency may provide grants and low interest loans for business, civic, residential, cultural, and tourist-related property to be developed, redeveloped, improved, rehabilitated, and/or conserved. Grants shall be made to for-profit, public, non-profit, and civic organizations. Projects must meet the project selection criteria in order to be eligible to receive a grant. These grant and loans may include sprinkler systems for existing and new structures. The Agency may establish a below market interest rate loan program for the redevelopment of properties within the urban renewal area. Prior to making any loans, the Agency shall prepare and adopt a comprehensive rehabilitation loan plan that sets forth:

- a. Criteria for eligibility;
- b. Interest rates and terms for various loans;
- c. Procedures for recycling the funds as loan obligations are paid;
- d. Procedures for delinquent loan payments or defaults;
- e. Procedures and conditions for which deferred payment loans may be offered;
- f. Procedures for administering and servicing the loan program; and
- g. Such other procedures and conditions the Agency deems necessary.

14. REDEVELOPMENT OF WASCO WAREHOUSE & MILLING COMPANY PROPERTY

Redevelopment of the Wasco Warehouse & Milling Company property involves purchase and may include partial renovation and historic preservation for an identified use or uses. Additional land will be acquired from the Oregon Department of Transportation and the Union Pacific Railroad.

15. EAST GATEWAY/BREWERY GRADE STREET RECONSTRUCTION

The existing streets will be realigned and improved and a roundabout installed to help facilitate a better flow of traffic within the Area.

16. 3rd PLACE STREET IMPROVEMENTS

The 3rd Place street improvements include street, utilities, curbs, sidewalks, lighting, landscaping, and associated improvements.

17. REDEVELOPMENT OF PROPERTIES LOCATED WITHIN THE BLOCK BORDERED BY WASHINGTON AND COURT STREETS, AND 1ST AND 2ND STREETS

The project may include the acquisition of the Granada Theater for possible use as a fine arts community center through a development and disposition agreement.

18. THOMPSON PARK POOL PROJECT

The project will allow for additional amenities to the construction of a new pool, which was approved as the result of a bond measure passed by the voters of the Northern Wasco County Parks & Recreation District. The alternate features for the project, which will be visible from I-84 freeway, are designed in part to attract tourists to the City.

19. REDEVELOPMENT OF THE ELKS LODGE BUILDING

The project anticipates acquisition of the Elks Lodge Building by the Agency, and conveyance of the property to a private developer for creation of a museum for the display of neon signs.

606. PROPERTY DISPOSITION AND REDEVELOPER OBLIGATIONS

- PROPERTY DISPOSITION. The Agency is authorized to dispose of, sell, lease, exchange, subdivide, transfer, assign, pledge, or encumber by mortgage, deed of trust, or otherwise any interest in property which has been acquired by them in accordance with the provisions of this Plan and with the terms and conditions set forth in a Disposition and Development Agreement or other legal instrument as determined by the Agency.
- REDEVELOPER'S OBLIGATION. Any redeveloper and his/her successors or assigns within the Urban Renewal Area, in addition to the other controls and obligations stipulated and required of the Redeveloper by the provisions of this Plan, shall also be obligated by the following requirements:
 - The Redeveloper shall obtain necessary approvals of proposed developments from all Federal, State and/or local agencies that may have jurisdiction on properties and facilities to be developed or redeveloped within the Urban Renewal Area;
 - The Redeveloper shall develop or redevelop such property in accordance with the land use provisions and other requirements specified in this Plan;
 - The Redeveloper shall submit all plans and specifications for construction of improvements on the land to the Agency or such of its agents as the Agency may designate for review prior to distribution to appropriate reviewing bodies as required by the City;
 - The Redeveloper shall commence and complete the development of such property for the use provided in this Plan within a reasonable period of time as determined by the Agency;
 - The Redeveloper shall not effect or execute any agreement, lease, conveyance, or other instrument whereby the real property or a part thereof is restricted upon the basis of age, race, color, religion, sex, marital status, or national origin in the sale, lease or occupancy thereof;
 - The Redeveloper shall accept all conditions and agreements as may be required by the Agency. In return for receiving assistance from the Agency, if any, the Agency may require the redeveloper to execute a development agreement acceptable to the Agency as a condition of the Agency providing assistance.
 - The Redeveloper shall maintain property under his/her ownership within the Area in a clean, neat and safe condition.

A. PROPERTY DISPOSITION. The Agency is authorized to dispose of, sell, lease, exchange, subdivide, transfer, assign, pledge, or encumber by mortgage, deed of trust, or otherwise any interest in property which has been acquired by them in accordance with the provisions of this Plan and with the terms and conditions set forth in a Disposition and Development Agreement or other legal instrument as determined by the Agency.

B. REDEVELOPER'S OBLIGATION. Any redeveloper and his/her successors or assigns within the Urban Renewal Area, in addition to the other controls and obligations stipulated and required of the Redeveloper by the provisions of this Plan, shall also be obligated by the following requirements: 1. The Redeveloper shall obtain necessary approvals of proposed developments from all Federal, State and/or local agencies that may have jurisdiction on properties and facilities to be developed or redeveloped within the Urban Renewal Area;

2. The Redeveloper shall develop or redevelop such property in accordance with the land use provisions and other requirements specified in this Plan;

3. The Redeveloper shall submit all plans and specifications for construction of improvements on the land to the Agency or such of its agents as the Agency may designate for review prior to distribution to appropriate reviewing bodies as required by the City;

4. The Redeveloper shall commence and complete the development of such property for the use provided in this Plan within a reasonable period of time as determined by the Agency;

5. The Redeveloper shall not effect or execute any agreement, lease, conveyance, or other instrument whereby the real property or a part thereof is restricted upon the basis of age, race, color, religion, sex, marital status, or national origin in the sale, lease or occupancy thereof;

6. The Redeveloper shall accept all conditions and agreements as may be required by the Agency. In return for receiving assistance from the Agency, if any, the Agency may require the redeveloper to execute a development agreement acceptable to the Agency as a condition of the Agency providing assistance.

7. The Redeveloper shall maintain property under his/her ownership within the Area in a clean, neat and safe condition.

701. TAX INCREMENT FINANCING AND MAXIMUM INDEBTEDNESS

The projects may be financed, in whole or in part, by tax increment financing as provided in Article IX Section 9(1)(c) of the Oregon Constitution and ORS 457.420 through 457.450.

The maximum amount of indebtedness that may be issued or incurred under the Plan, as amended, is \$35,262,100.¹

¹ Maximum remaining indebtedness from this and prior bonded obligation was calculated at \$5.7 million (June 30, 2023) but did not reflect FY 2024 expenditures and commitments. MI is projected to be reached in 2029, at which time the District shall terminate taking division of taxes unless the Agency or City Council determines otherwise.

The maximum amount of indebtedness that may be issued or incurred under the Plan, as amended in 2009, was \$29,125,583. Maximum remaining indebtedness from this and prior bonded obligation is calculated at \$1.98 million (April 2024). Remaining debt obligation, to City of The Dalles (incurred through 2009 Full Faith and Credit Obligation by the City, primarily on behalf of Urban Renewal projects) is \$4.3 million. TIF collections necessary to conclude this obligation are required through 2026, upon which time TIF collection may cease (state law precludes expenditure of TIF revenue beyond that point) and full taxable value of the district return to the tax districts. MI is projected to be reached in 2029, at which time the District shall terminate unless the Agency or City Council determines otherwise or debt payment scheduled is accelerated to conclude in 2026.

SECTION 800 - ANNUAL FINANCIAL STATEMENT REQUIRED

802. STATEMENT FILED AND PUBLISHED

The statement required by Subsection 801 shall be filed with the City Council and notice shall be published in the <u>"The Dalles Chronicle"</u> "*Columbia Gorge News*", a newspaper of general circulation in the City, that the statement has been prepared and is on file with the City and with the Urban Renewal Agency and the information contained in the statement is available to all interested persons.

SECTION 900 - CITIZEN PARTICIPATION

The activities and projects identified in this Plan, the development of subsequent plans, procedures, activities and regulations, and the adoption of amendments to this Plan shall be undertaken with the participation of citizens, owners and tenants as individuals and organizations who reside within or who have financial interest within the Urban Renewal Area and with the general citizens of the City.

In particular, the Agency intends to give substantial weight to the recommendations of the Urban Renewal Advisory Committee established by the Agency. This Committee is charged with reviewing issues, programs and projects related to the Plan and its implementation. Membership on the Committee shall be representative of the interests of the City of The Dalles and of the Area. The Committee may establish such rules and procedures as it deems necessary to conduct its work.

SECTION 1000 - NON-DISCRIMINATION

In the preparation, adoption and implementation of this Plan, no public official or private party shall take any action or cause any persons, group or organization to be discriminated against on the basis of age, race, color, religion, sex, marital status, *family status* or national origin.

1204 - SUBSTANTIAL CHANGES

Substantial changes, if any, shall be approved by the City Council in the same manner as the Council's approval of the original plan and in compliance with the provisions of ORS 457.095 and ORS 457.220.

Substantial changes shall include the following:

• An increase in the maximum amount of indebtedness that may be issued or incurred under this Plan as set forth in Section 701 of this Plan; and

Adding land to the urban renewal area that totals more than one percent of the existing • area of the urban renewal area. results in a cumulative addition of more than one percent of the urban renewal area.

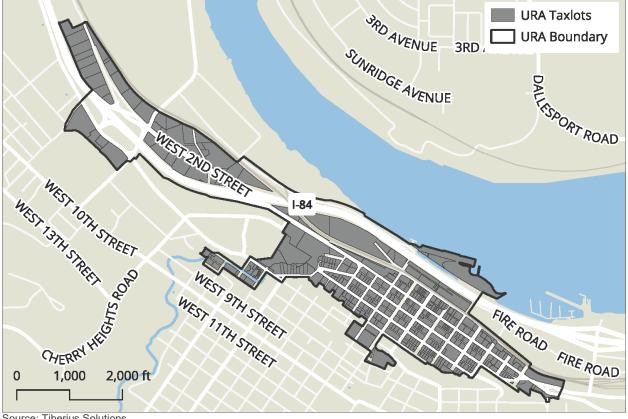


Exhibit 2. Boundary

Source: Tiberius Solutions

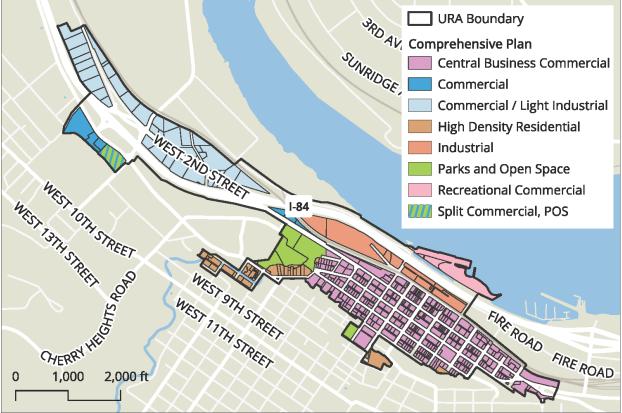
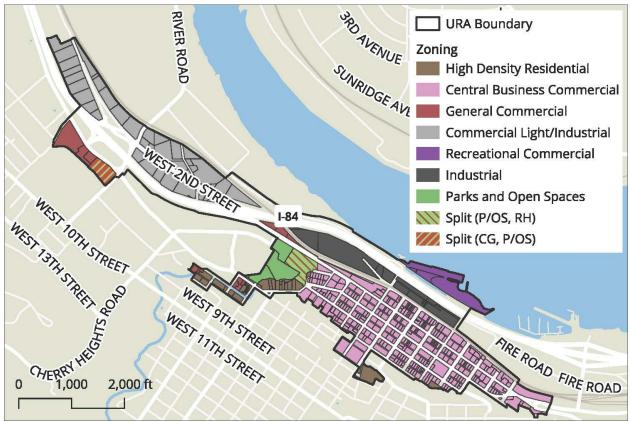


Exhibit 3. Comprehensive Plan Designations

Exhibit 4. Zoning Designations



Source: Tiberius Solutions

Report Accompanying the Columbia-Gateway Urban Renewal Plan Substantial Amendment 2024

This document remains in draft format until the City Council adoption of the Columbia Gateway Urban Renewal Plan Substantial Amendment 2024

Columbia Gateway Urban Renewal Plan Substantial Amendment 2024 adopted by the City of The Dalles by Ordinance No. 24-1409 | December 9, 2024

LIST OF PARTICIPANTS

City Council

Mayor Richard Mays Position 1 Timothy McGlothlin Position 2 Darcy Long Position 3 Scott Randall Position 4 Dan Richardson Position 5 Rod Runyon

Columbia Gateway Urban Renewal Agency

Chair, Darcy Long Staci Coburn, Port of The Dalles Walter Denstedt, Mid-Columbia Fire & Rescue Scott Hege, Wasco County Board of Commissioners Kristen Lillvik, citizen Timothy McGlothlin, City Council Dan Richardson, City Council Marcus Swift, NWC Parks & Recreation Ben Wring, citizen

Planning Commission

Mark Poppoff Maria Peña Carrie Pipinich Cody Cornett Addie Case Nik Portela John Grant

Staff

City Manager, Matthew Klebes City Clerk, Amie Ell Community Development Director and Urban Renewal Manager, Joshua Chandler Public Works Director, Dave Anderson Economic Development Officer, Dan Spatz City Attorney, Jonathan Kara Finance Director, Angie Wilson Secretary, Paula Webb

Consulting Team

Elaine Howard Consulting, LLC

Elaine Howard Scott Vanden Bos

Tiberius Solutions LLC

Nick Popenuk Ali Danko

Margaret Raimann

TABLE OF CONTENTS

I. INTRODUCTION
II. THE PROJECTS IN THE AREA AND THE RELATIONSHIP BETWEEN URBAN RENEWAL PROJECTS AND THE EXISTING CONDITIONS IN THE URBAN RENEWAL AREA
III. THE ESTIMATED TOTAL COST OF EACH PROJECT AND THE SOURCES OF MONEYS TO PAY SUCH COSTS4
IV. FINANCIAL ANALYSIS OF THE PLAN5
V. THE ESTIMATED AMOUNT OF TAX INCREMENT REVENUES REQUIRED AND THE ANTICIPATED YEAR IN WHICH INDEBTEDNESS WILL BE RETIRED7
VI. THE ANTICIPATED COMPLETION DATE FOR EACH PROJECT
VII. REVENUE SHARING
VIII. IMPACT OF THE TAX INCREMENT FINANCING13
IX. COMPLIANCE WITH STATUTORY LIMITS ON ASSESSED VALUE AND SIZE OF URBAN RENEWAL AREA17
X. EXISTING PHYSICAL, SOCIAL, AND ECONOMIC CONDITIONS AND IMPACTS ON MUNICIPAL SERVICES
XI. REASONS FOR SELECTION OF EACH URBAN RENEWAL AREA IN THE PLAN 27
XII. RELOCATION REPORT

Definitions

This document makes references to ORS 457 as it exists in 2024. The majority of these definitions come from the Columbia Gateway Urban Renewal Plan.

AGENCY means the Columbia Gateway Urban Renewal Agency that, in accordance with the provisions of Chapter 457 of the Oregon Revised Statues, is the Urban Renewal Agency of the City of The Dalles, Wasco County, Oregon.

AREA means that geographic portion of the City which encompasses the Columbia Gateway Urban Renewal District, an urban renewal area conceived pursuant to the provisions of ORS Chapter 457.

BLIGHTED AREAS means areas that by reason of deterioration, faulty planning, inadequate or improper facilities, deleterious land use or the existence of unsafe structures, or any combination of these factors, are detrimental to the safety, health or welfare of the community. A blighted area is characterized by the existence of one or more of the following conditions:

- The existence of buildings and structures, used or intended to be used for living, commercial, industrial or other purposes, or any combination of those uses, which are unfit or unsafe to occupy for those purposes because of any one or a combination of the following conditions:
 - o Defective design and quality of physical construction;
 - Faulty interior arrangement and exterior spacing;
 - Overcrowding and a high density of population;
 - Inadequate provision for ventilation, light, sanitation, open spaces and recreation facilities; or
 - o Obsolescence, deterioration, dilapidation, mixed character or shifting of uses;
- An economic dislocation, deterioration or disuse of property resulting from faulty planning;
- The division or subdivision and sale of property or lots of irregular form and shape and inadequate size or dimensions for property usefulness and development;
- The layout of property or lots in disregard of contours, drainage and other physical characteristics of the terrain and surrounding conditions;
- The existence of inadequate streets and other rights-of-way, open spaces and utilities;
- The existence of property or lots or other areas which are subject to inundation by water;
- A prevalence of depreciated values, impaired investments, and social and economic maladjustments to such an extent that the capacity to pay taxes is reduced and tax receipts are inadequate for the cost of public services rendered;
- A growing or total lack of proper utilization of areas, resulting in a stagnant and unproductive condition of land potentially useful and valuable for contributing to the public health, safety and welfare; or

A loss of population and reduction of proper utilization of the area, resulting in its further deterioration and added costs to the taxpayer for the creation of new public facilities and services elsewhere.

CITY means the City of The Dalles, Wasco County, Oregon.

CITY COUNCIL or COUNCIL means the governing body of the City of The Dalles.

COMPREHENSIVE PLAN means The Dalles Comprehensive Land Use Plan including all of its policies, procedures and implementing provisions.

COUNTY means Wasco County, Oregon.

MAXIMUM INDEBTEDNESS (MI) means the amount of the principal of indebtedness included in a plan pursuant to ORS 457.190 and does not include indebtedness incurred to refund or refinance existing indebtedness

ORS means Oregon Revised Statutes (State Law). ORS Chapter 457 is the chapter which regulates the renewal of blighted areas within the State of Oregon.

PLAN means the Amended Columbia Gateway Urban Renewal Plan, an Urban Renewal Plan of the City of The Dalles, Oregon.

REDEVELOPER means a party who acquires real property or receives financial assistance from the Urban Renewal Agency for the purposes of developing or redeveloping such property in conformity with the provisions of this Urban Renewal Plan.

REVENUE SHARING means sharing tax increment proceeds with impacted taxing districts as defined in ORS 457.470.

STATE means the State of Oregon including its various departments, divisions and agencies.

TAX INCREMENT FINANCING (TIF) means a method of financing indebtedness incurred by Columbia Gateway Urban Renewal Agency in preparing and implementing the Urban Renewal Plan. Such tax increment method is authorized by ORS sections 457.420 through 457.470 and provides that all or a portion of the tax proceeds, if any, realized from an increase in the taxable assessed value of real and personal property within the Columbia-Gateway Urban Renewal District above that existing on the County tax roll last equalized prior to the effective date of The Dalles City Council Ordinance approving the Urban Renewal Plan may be paid into a special fund of the Agency. Such special fund, if any, shall be used to pay the principal and interest on indebtedness incurred by the Agency in financing or refinancing the preparation and implementation of the approved Urban Renewal Plan including the administration of the Agency's activities.

TAX INCREMENT REVENUES means the funds allocated by the assessor to an urban renewal area due to increases in assessed value over the frozen base within the area.

TAXING BODY means any authorized entity which levies ad valorem taxes within the boundaries of the Urban Renewal Area.

U.R. means "urban renewal" as in Urban Renewal Boundary, Urban Renewal Area, Urban Renewal Plan, Urban Renewal Report, etc.

URBAN RENEWAL PLAN means the Amended Plan for the Columbia Gateway Urban Renewal District --an Urban Renewal Area of the City of The Dalles, Oregon.

URBAN RENEWAL AREA means a blighted area included in an urban renewal plan or an area included in an urban renewal plan.

URBAN RENEWAL LAW means Chapter 457 of the Oregon Revised Statutes as same exists on the effective date of this Urban Renewal Plan or as same may be amended from time to time by action of the Oregon Legislature.

URBAN RENEWAL PROJECT or PROJECT means any work or undertaking carried out under ORS 457.170 and 457.180 in an urban renewal area.

URBAN RENEWAL REPORT or REPORT means the official report that accompanies the urban renewal plan pursuant to ORS 457.087.

I. INTRODUCTION

The Report Accompanying the Columbia Gateway Urban Renewal Plan Amendment (**Report**) contains background information and project details that pertain to the Columbia Gateway Urban Renewal Plan Amendment (**Plan Amendment**). The Report is not a legal part of the Plan Amendment, but is intended to provide public information and support the findings made by the The Dalles City Council as part of the approval of the Plan Amendment.

The Report provides the analysis and contains the information required to meet the standards of ORS 457.087, including financial feasibility. These requirements include:

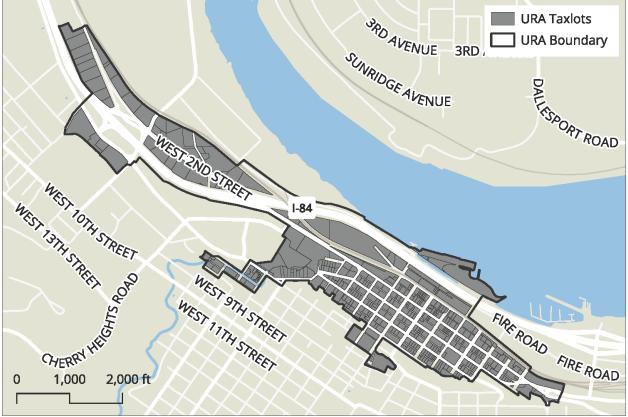
- A description of the physical, social, and economic conditions in the area and expected impact of the plan, including fiscal impact in light of increased services; (ORS 457.087(1))
- Reasons for selection of the plan Area; (ORS 457.087(2))
- The relationship between each project to be undertaken and the existing conditions; (ORS 457.087(3))
- The estimated total cost of each project and the source of funds to pay such costs; (ORS 457.087(4))
- The estimated completion date of each project; (ORS 457.087(5))
- The estimated amount of funds required in the Area and the anticipated year in which the debt will be retired; (ORS 457.087(6))
- A financial analysis of the plan; (ORS 457.087(7))
- A fiscal impact statement that estimates the impact of tax increment financing (TIF) upon all entities levying taxes upon property in the urban renewal area; (ORS 457.0857(8)) and
- A relocation report (ORS 457.087(9)).

The relationship of the sections of the Report and the ORS 457.087 requirements is shown in Figure 1. The specific reference shown is the section of this Report that most addresses the statutory reference. There may be other sections of the Report that also address the statute.

Figure 1. Statutory References

	Report
Statutory Requirement	Section
ORS 457.087 (1)	Х
ORS 457.087 (2)	XI
ORS 457.087 (3)	II
ORS 457.087 (4)	III
ORS 457.087 (5)	VI
ORS 457.087 (6)	IV,V
ORS 457.087 (7)	IV,V
ORS 457.087 (8)	VIII
ORS 457.087 (9)	XII

The Report provides guidance on how the Plan might be implemented. As the Agency reviews revenues and potential projects each year, it has the authority to adjust the implementation assumptions in this Report. The Agency may allocate budgets differently, adjust the timing of the projects, decide to incur debt at different times than assumed in this Report, and make other adjustments to the financials as determined by the Agency. The Agency may also make changes as allowed in the Amendments section of the Plan.





II. THE PROJECTS IN THE AREA AND THE RELATIONSHIP BETWEEN URBAN RENEWAL PROJECTS AND THE EXISTING CONDITIONS IN THE URBAN RENEWAL AREA

The following are new projects in the Plan:

• **Basalt Commons**: A mixed-use commercial and residential development at 523 East Third Street. Developer will demolish existing structure (a former auto dealership) and replace it with a five-story commercial and residential complex.

Existing Conditions: The existing structure does not have an economic use and is a blighting condition in the Area.

• **Tony's Building Site**: Acquisition, demolition and site rehabilitation / redevelopment of the former Tony's Town and Country building located at 401-407 East Third Street.

Existing Conditions: Following demolition of the previous structure, the site is leveled and shovel-ready for new development.

• <u>First Street Project</u>: Reconstruction of First Street between Union and Laughlin Streets to include sidewalk replacement, street and sub-street reconstruction, tree plantings with irrigation, related infrastructure and public safety measures.

Existing Conditions: The conditions of First Street are fully detailed in Section X(B)(4) of this document. It has deficient conditions and is a blighting condition in the Area.

• <u>Federal Street Plaza</u>: Establish public plaza, green space and other improvements to create a community gathering space between First and Second streets. Urban Renewal to help leverage external resources such as state and federal grants by contributing toward local match.

Existing Conditions: This is presently street right of way between First and Second Streets. This proposed community gathering spot does not exist.

III. THE ESTIMATED TOTAL COST OF EACH PROJECT AND THE SOURCES OF MONIES TO PAY SUCH COSTS

Figure 3 shows the costs of the projects in Fiscal Year Ending (**FYE**) 2024 constant dollars and the estimated year of expenditure dollars. These costs are also shown in "year of expenditure" costs, which assumes inflation of 3.0% annually. City staff provides cost estimates and are reviewed by City Council. These estimates are ballpark estimates and will be refined in the annual budgeting process with the acknowledgement of the limiting total cost factor of the MI. Different allocations may be made to different line items within the Plan.

The Plan assumes that the Agency will use other funds to assist in the completion of the projects within the Area. The Agency may pursue regional, county, state, and federal funding, private developer contributions, and any other sources of funding that may assist in the implementation of the programs.

Expenditures	Со	nstant 2024\$	Year of Expenditure \$		
Incentive Program Projects	\$	(4,398,076)	\$	(4,695,901)	
Gayer Building	\$	(12,000)	\$	(12,000)	
Basalt Commons Development Agreement	\$	(730,000)	\$	(730,000)	
Basalt Commons Incentive Program Funding	\$	(928,000)	\$	(928,000)	
Third/Jefferson Sts. Parking Lot Redevelopment	\$	(484,658)	\$	(484,658)	
First Street Parking Lots Resurfacing	\$	(100,000)	\$	(100,000)	
First Street Project	\$	(3,200,000)	\$	(3,291,090)	
Federal Street Plaza*	\$	(700,000)	\$	(721,000)	
Administration	\$	(285,347)	\$	(316,257)	
Total Expenditures	\$	(10,838,081)	\$	(11,278,906)	

Figure 3. Estimated Project Costs

Source: Tiberius Solutions with input from The Dalles staff

* Urban Renewal investment in Federal Street Plaza is intended as local match for state, federal or other grant sources, in keeping with Urban Renewal Agency Goal J: *"To identify and actively pursue external grant and private resources in order to leverage the Agency's financial resources to the maximum extent possible."*

IV. FINANCIAL ANALYSIS OF THE PLAN

The estimated tax increment revenues through FYE 2029 are calculated based on projections of the assessed value within the Area and the consolidated tax rate that will apply in the Area.

The long-term projections for FYE 2025 and beyond assume an annual growth rate for assessed value in the Area of 3.0% plus anticipated new mixed-use development within the Area. These projections of growth are the basis for the projections in Figure 4 which shows the incremental assessed value, tax rates, and tax increment revenues each year, adjusted for discounts, delinquencies, and truncation loss.

The financial capacity of the Agency to fund projects listed in the Plan over the anticipated duration of the Plan should remain stable as it is projected that the Area will reach revenue sharing and that amount shared would create a buffer for the Agency if tax assessed values, and therefore tax increment collections, were lower than expected.

Gross TIF revenue is calculated by multiplying the tax rate times the assessed value used. The tax rate is per thousand dollars of assessed value, so the calculation is "tax rate times assessed value used divided by one thousand." The consolidated tax rate includes only permanent tax rates. General obligation bonds and local option levies are excluded, and will not be impacted by this Plan.

The narrative analysis for Figure 4 is shown below:

- "Total AV" is the estimated total assessed value of the Area on an annual basis.
- "Frozen Base" is the estimate of the assessed value of the Area at its formation.
- "Increment Applied" is the total assessed value minus the frozen base.
- "Increment Shared" is the amount that will be distributed to all taxing districts according to their permanent rate due to revenue sharing. In this Plan Amendment, the taxing districts are projected to begin revenue sharing in FY 2025/2026. The projections in the financial analysis in Figure 4 indicate the Agency will use the transition amount for determining the onset of revenue sharing. The transition amount is anticipated to be \$105,718,265. See Section VIII for a definition of revenue sharing and revenue sharing projections.
- "Tax Rate" is the total permanent rate levy for the Area.
- "Gross TIF" revenue is calculated by multiplying the tax rate times the assessed value used. The tax rate is per thousand dollars of assessed value, so the calculation is "tax rate times assessed value used divided by one thousand."
- "Adjustments" are calculated at 5% of the Gross TIF and are for discounts, delinquencies, and rate truncation.
- "Current Year Net" reflects subtracting the 5% adjustment factor from Gross TIF.
- "Prior Year Net" is the tax increment revenue that was delinquent the prior year and is paid by the assessor's office once it is received. It is estimated that this amount is 1.5% of total TIF.
- "Total TIF" is the amount of tax increment revenues estimated to be received by the Agency.

FYE	Total AV	Frozen	Increment	Increment	Tax Rate	Gross TIF
		Base AV	Applied	Shared		
2025	130,795,062	25,076,797	105,718,265	-	17.4068	1,840,217
2026	134,391,927	25,076,797	105,718,265	3,596,865	17.4068	1,840,217
2027	141,951,845	25,076,797	105,718,265	11,156,783	17.4068	1,840,217
2028	145,865,181	25,076,797	105,718,265	15,070,119	17.4068	1,840,217
2029	149,886,424	25,076,797	85,018,856	39,790,771	17.4068	1,479,906
TOTAL:						8,840,773

Figure 4. Projected Incremental Assessed Value, Tax Rates, and Tax Increment Revenues

FYE	Adjustments	Current Year Net	Prior Year Net	Total TIF
2025	(92,011)	1,748,206	25,355	1,773,561
2026	(92,011)	1,748,206	26,223	1,774,429
2027	(92,011)	1,748,206	26,223	1,774,429
2028	(92,011)	1,748,206	26,223	1,774,429
2029	(73,995)	1,405,911	26,223	1,432,134
TOTAL:	(442,039)	8,398,734	130,247	8,528,981

V. THE ESTIMATED AMOUNT OF TAX INCREMENT REVENUES REQUIRED AND THE ANTICIPATED YEAR IN WHICH INDEBTEDNESS WILL BE RETIRED

The MI of the Plan is increased by \$6,136,517. Pursuant to ORS 457.220 the MI may be increased by 20% of the original MI as adjusted by the inflation factor used in the original urban renewal report. This annual inflation factor was 3%. The original MI was \$14,227,353. The overall inflation factor used was 2.15659127 for an inflated MI of \$30,682,585. Twenty percent of this amount is \$6,136,517 as shown in Figure 5.

1-Jul	Inflation Adjusted MI	20% Limit	Inflation Index
1999	\$14,654,174	\$2,930,835	1.03
2000	\$15,093,799	\$3,018,760	1.0609
2001	\$15,546,613	\$3,109,323	1.092727
2002	\$16,013,011	\$3,202,602	1.12550881
2003	\$16,493,401	\$3,298,680	1.15927407
2004	\$16,988,204	\$3,397,641	1.1940523
2005	\$17,497,850	\$3,499,570	1.22987387
2006	\$18,022,785	\$3,604,557	1.26677008
2007	\$18,563,469	\$3,712,694	1.30477318
2008	\$19,120,373	\$3,824,075	1.34391638
2009	\$19,693,984	\$3,938,797	1.38423387
2010	\$20,284,803	\$4,056,961	1.42576089
2011	\$20,893,348	\$4,178,670	1.46853371
2012	\$21,520,148	\$4,304,030	1.51258972
2013	\$22,165,752	\$4,433,150	1.55796742
2014	\$22,830,725	\$4,566,145	1.60470644
2015	\$23,515,647	\$4,703,129	1.65284763
2016	\$24,221,116	\$4,844,223	1.70243306
2017	\$24,947,750	\$4,989,550	1.75350605
2018	\$25,696,182	\$5,139,236	1.80611123
2019	\$26,467,068	\$5,293,414	1.86029457
2020	\$27,261,080	\$5,452,216	1.91610341
2021	\$28,078,912	\$5,615,782	1.97358651
2022	\$28,921,279	\$5,784,256	2.03279411
2023	\$29,788,918	\$5,957,784	2.09377793
2024	\$30,682,585	\$6,136,517	2.15659127

Maximum Indebtedness	
Original MI	\$14,227,353
Original MI Inflated	\$30,682,585
20% of Inflated MI	\$6,136,517
MI prior to 2024 amendment	\$29,125,583
New MI as a result of 2024 amendment	\$35,262,100

Figure 6. Maximum Indebtedness (MI) Increase Amount

Source: Tiberius Solutions

Figure 7 shows a summary of the financial capacity of the Area, including how total TIF revenue translates to the ability to fund projects in constant 2024 dollars, in five-year increments. Figure 8 shows more detailed tables on the allocation of tax revenues to debt service. Figure 9 shows potential allocations to projects, programs, and administration over time.

The Area is anticipated to complete all projects and have sufficient TIF revenue to terminate the Area in FYE 2029. If growth in assessed value is slower than projected, the Agency may not be able to complete all projects in the Plan. If growth in assessed value is more robust than the projections, it may take a shorter time period. These assumptions show one scenario for financing and that this scenario is financially feasible.

The remaining MI as of July 1, 2024 is \$4,812,786.88. The proposed substantial amendment will increase the MI by \$6,136,517, resulting in a total remaining maximum indebtedness capacity of \$10,949,303. This maximum indebtedness is reflective of dollars spent, not commitments allocated, such as specific development opportunities that are being considered. Those allocated commitments will count against the MI once the funds are expended.

The MI will be repaid through existing fund balance, future TIF revenues, and interest earnings. As of July 1, 2024 there was a beginning fund balance of \$6,377,593. The estimated total amount of future TIF revenues required to pay debt service on the remaining MI (including the new MI) including principal and interest is \$8,528,981 (this equals the impacts to taxing districts) and is from permanent rate tax levies. The sum of the existing fund balance, interest earnings and additional TIF revenue required for debt service is estimated to be \$14,954,479, which is greater than the amount of remaining MI due to the cost of debt service on outstanding borrowings (loans). This includes approximately \$4.0 million in formal debt (owed by the Agency to the city for a 2009 bond obligation) and \$10,949,304 in contract debt, reflecting current and projected MI should the Agency receive increase in MI of \$6.1 million as proposed. By definition in ORS 457.010, interest on debt is not counted against the MI.

Figure 7. TIF Capacity of the Area in FYE 2024 Constant Numbers

Net TIF	\$ 8,528,981
Maximum Indebtedness (MI)	\$ 35,262,100
Capacity of remaining MI (nominal \$)	\$ 10,949,304

	Total	FYE	FYE	FYE	FYE	FYE	FYE
		2024	2025	2026	2027	2028	2029
Resources							
Beginning		6,134,688	6,377,593	802,000	804,000	799,250	798,000
Balance							
Interest	47,904	30,673	31,888	4,010	4,020	3,996	3,990
Earnings							
TIF: Current Year	8,398,734	1,690,318	1,748,206	1,748,206	1,748,206	1,748,206	1,405,911
TIF: Prior	130,247	26,689	25,355	26,223	26,223	26,223	26,223
Years	130,247	20,009	20,000	20,223	20,223	20,223	20,223
Total	14,954,479	7,882,369	8,183,042	2,580,439	2,582,449	2,577,675	2,234,124
Resources							
Expenditures							
Debt Service							
Scheduled							
Payments							
Loan G - Not automated	(4,005,175)	(800,425)	(801,925)	(802,000)	(804,000)	(799,250)	(798,000)
Total Debt Service	(4,005,175)	(800,425)	(801,925)	(802,000)	(804,000)	(799,250)	(798,000)
Debt Service Coverage Ratio		2.15	2.21	2.21	2.21	2.22	1.79
Transfer to URA Projects Fund	(10,949,304)	-	(6,579,117)	(974,439)	(979,199)	(980,425)	(1,436,124)
Total Expenditures	(14,954,479)	(800,425)	(7,381,042)	(1,776,439)	(1,783,199)	(1,779,675)	(2,234,124)
Ending Balance		7,081,944	802,000	804,000	799,250	798,000	-

Figure 8. Projected Revenues and Allocations to Debt Service, page 1

VI. THE ANTICIPATED COMPLETION DATE FOR EACH PROJECT

The schedule for construction of projects will be based on the availability of funding. The projects will be ongoing and will be completed as directed by the Agency. Annual expenditures for program administration are also included.

The amount of money available for projects in nominal (i.e., year-of-expenditure) dollars for the Area is \$11,278,906 if MI expansion is approved. This includes the remaining proposed capacity for MI (\$10,949,304) and anticipated program income of \$329,602. Program income refers to any revenue other than TIF, and is not subject to the restrictions of MI. Program income is assumed to come primarily from loan repayments and interest earnings on non-TIF resources.

After accounting for assumed future inflation of 3.0% per year, the total amount of money available for projects in constant 2024 dollars would be \$10,838,081. See Figure 3 for the individual project analysis. The Agency's cost estimates are typically shown in constant dollars, so understanding how these cost estimates relate to the overall MI over the ensuing years is important to help the Agency to make projections on the allocation of funds throughout the life of the Area.

The Agency may change the completion dates in their annual budgeting process or as project decisions are made in administering the Plan. The following tables are prepared to show that the Area is financially feasible as required by ORS 457. It assumes completion of projects as funding becomes available.

	Total	FYE	FYE	FYE	FYE	FYE	FYE
		2024	2025	2026	2027	2028	2029
Resources							
Beginning Balance		-	-	3,281,877	15,137	3,777	791
Interest	16,508	-	-	16,409	76	19	4
Earnings							
Transfer from TIF Fund	10,949,304	-	6,579,117	974,439	979,199	980,425	1,436,124
Bond/Loan Proceeds	-	-	-	-	-	-	-
Other Program Income	25,000	62,192	25,000	-	-	-	-
Loan	288,094	2,824	2,824	2,824	282,445	-	-
Repayment							
Total Resources	11,278,906	65,016	6,606,941	4,275,550	1,276,857	984,221	1,436,919
Expenditures (YOE \$)							
Incentive	(4,695,901)	-	(1,021,382)	(309,000)	(1,166,990)	(874,160)	(1,324,369)
Program Projects							
Gayer Building	(12,000)	-	(12,000)	-	-	-	-
Basalt Commons Development Agreement	(730,000)	-	(730,000)	-	-	-	-
Basalt Commons Incentive Program Funding	(928,000)	-	(928,000)	-	-	-	-
3rd/Jefferson Parking Lot Redevelopment	(484,658)	-	(484,658)	-	-	-	-
Parking Lot Resurfacing	(100,000)	-	(100,000)	-	-	-	-
First Street	(3,291,090)	-	(163,677)	(3,127,413)	-	-	-
Federal Street Plaza	(721,000)	-	-	(721,000)	-	-	-
Administration	(316,257)	-	114,653	(103,000)	(106,090)	(109,270)	(112,550)
Total Expenditures	(11,278,906)	-	(3,325,064)	(4,260,413)	(1,273,080)	(983,430)	(1,436,919)
Ending Balance		65,016	3,281,877	15,137	3,777	791	1

Figure 9. Programs and Costs in Year of Expenditure Dollars, Page 1

VII. REVENUE SHARING

Mandatory revenue sharing targets are projected to be reached in this Amendment. Whenever an agency adopts a substantial amendment to increase MI, the Plan then turns into a Permanent Rate Plan which requires revenue sharing.

Revenue sharing means that, at thresholds defined in ORS 457.470, the impacted taxing jurisdictions will receive a share of the taxes from the incremental growth in the Area. The division of taxes of a Plan after a substantial amendment is limited to the greater of the 10 to 12.5% percent of the initial MI of the Plan or the transition amount. The "transition amount" is "the maximum division of taxes for a plan in the year in which the plan is first substantially amended to increase maximum indebtedness on or after January 1, 2010."

The first threshold is when annual TIF revenues exceed 10% of the original MI of the Plan ($$14,227,353 \times 10\%$ is \$1,422,735). At the 10% threshold, the Agency will receive the full 10% of the initial MI plus 25% of the increment above the 10% threshold, and the taxing jurisdictions will receive 75% of the increment above the 10% threshold.

The second threshold is set at 12.5% of the MI is 1,778,419 (14,227,353 x.12.5%). If this threshold is met, revenue for the Area would be capped at 12.5% of the MI, with all additional tax revenue being shared with affected taxing districts.

The transition amount in this Plan is \$1,840,216.70. This is greater than either the 10% or 12.5% thresholds, so is the amount used for the revenue sharing threshold. This amount is reached in the fiscal year this Plan is being amended, FY 2024/2025, so the revenue sharing begins in FY 2025/2026. This is implemented through filling out the UR-50 form for the County Assessor to indicate a specific amount of assessed value to be used when computing the tax increment revenues. That amount of value is projected to be \$105,718,265.

The MI is expected to be reached in FYE 2029, meaning the Agency is not projected to take the full division of taxes that year, but to underlevy for voluntary revenue sharing in the amount that exceeds the MI. The amount of assessed value to be shared with the taxing districts according to their permanent rate levy are shown below in Figure 10.

FYE	Total AV	Frozen Base AV	Increment Applied	Increment Shared	Tax Rate	Projected TIF Shared
2025	130,795,062	25,076,797	105,718,265	-	17.4068	
2026	134,391,927	25,076,797	105,718,265	3,596,865	17.4068	\$62,610
2027	141,951,845	25,076,797	105,718,265	11,156,783	17.4068	\$194,204
2028	145,865,181	25,076,797	105,718,265	15,070,119	17.4068	\$262,323
2029	149,886,424	25,076,797	85,018,856	39,790,771	17.4068	\$692,630
TOTAL:						\$1,211,766

Figure 10. Revenue Sharing Projections

Note: A table projecting revenue sharing by tax district is provided as an attachment to this report with accompanying memo.

VIII. IMPACT OF THE TAX INCREMENT FINANCING

This section describes the impact of TIF of the MI, both until and after the indebtedness is repaid, upon all entities levying taxes upon property in the Area.

The impact of TIF on overlapping taxing districts consists primarily of the property tax revenues foregone on permanent rate levies as applied to the growth in assessed value in the Area. There are three separate sets of tables. The first set of figures (Figure 11 and Figure 12), show the impact of the <u>proposed new MI</u>. The second set of figures (Figure 13 and Figure 14), show the impact if <u>no amendment</u> is adopted, and the full existing MI is used. The third set of figures (Figure 15 and Figure 16), show the <u>full impact</u> of the existing MI and the proposed new MI.

North Wasco County School District 21 and Columbia Gorge Education Service District are not directly affected by the TIF, but the amounts of their taxes divided for the Plan are shown in the following tables. Under current school funding law, property tax revenues are combined with State School Fund revenues to achieve per-student funding targets. Under this system, property taxes foregone, due to the use of TIF, are substantially replaced with State School Fund revenues, as determined by a funding formula at the state level. Columbia Gorge Community College is funded through a similar statewide fund, the Community College Support Fund (CCSF).

Figure 11. Projected Impact <u>of Amendment Only</u> on Taxing District Permanent F	Rate
evies - General Government	

FYE	Wasco County	Port of The Dalles	Northern Wasco Park & Rec	Mid Columbia Fire & Rescue	City of The Dalles
2025	-	-	-	-	-
2026	(287,318)	(13,561)	(45,939)	(141,919)	(203,750)
2027	(433,475)	(20,459)	(69,308)	(214,112)	(307,397)
2028	(433,475)	(20,459)	(69,308)	(214,112)	(307,397)
2029	(349,855)	(16,512)	(55,938)	(172,809)	(248,098)
TOTAL:	(1,504,122)	(70,992)	(240,494)	(742,953)	(1,066,642)

FYE	Wasco County Soil Conservation	4H & Extension Service District	Wasco County Library District	Subtotal Gen. Gov't
2025	-	-	-	-
2026	(16,892)	(16,892)	(45,946)	(772,216)
2027	(25,485)	(25,485)	(69,318)	(1,165,039)
2028	(25,485)	(25,485)	(69,318)	(1,165,039)
2029	(20,569)	(20,569)	(55,947)	(940,298)
TOTAL:	(88,430)	(88,430)	(240,529)	(4,042,591)

FYE	Columbia Gorge Community College	Columbia Gorge ESD	North Wasco School District 21	Subtotal	Total
2025	-	-	-	-	-
2026	(18,264)	(31,608)	(354,047)	(403,919)	(1,176,135)
2027	(27,554)	(47,687)	(534,149)	(609,390)	(1,774,429)
2028	(27,554)	(47,687)	(534,149)	(609,390)	(1,774,429)
2029	(22,239)	(38,488)	(431,110)	(491,836)	(1,432,134)
TOTAL:	(95,610)	(165,470)	(1,853,456)	(2,114,536)	(6,157,127)

Figure 12 - Projected Impact <u>of Amendment Only</u> on Taxing District Permanent Rate Levies – Education

Source: Tiberius Solutions

The following two figures show the projected impact to the taxing districts if the MI is not increased, but the full existing MI is used. The impacts in FYE 2026 are much less as the full MI is reached that year, so only a portion of the tax increment proceeds are available to the Agency.

Figure 13. Projected Impact with <u>No Amendment</u> on Taxing District Permanent Rate Levies - General Government

FYE	Wasco	Port of The	Northern Wasco Park & Rec	Mid Columbia Fire &	City of The Dalles
	County	Dalles	Park & Rec	Rescue	Dalles
2025	(433,262)	(20,449)	(69,274)	(214,008)	(307,246)
2026	(146,157)	(6,898)	(23,369)	(72,193)	(103,647)
TOTAL:	(579,419)	(27,347)	(92,643)	(286,201)	(410,893)

FYE	Wasco County Soil Conservation	4H & Extension Service District	Wasco County Library District	Subtotal Gen. Gov't
2025	(25,472)	(25,472)	(69,284)	(1,164,468)
2026	(8,593)	(8,593)	(23,372)	(392,822)
TOTAL:	(34,065)	(34,065)	(92,657)	(1,557,291)

Source: Tiberius Solutions

Figure 14 - Projected Impact with <u>No Amendment</u> on Taxing District Permanent Rate Levies – Education

FYE	Columbia Gorge Community College	Columbia Gorge ESD	North Wasco School District 21	Subtotal	Total
2025	(27,541)	(47,664)	(533,888)	(609,092)	(1,773,561)
2026	(9,291)	(16,079)	(180,102)	(205,471)	(598,294)
TOTAL:	(36,831)	(63,743)	(713,990)	(814,564)	(2,371,854)

Source: Tiberius Solutions

The following two figures show the full impacts to the taxing districts of the proposed MI increase and fully using the existing MI in this scenario, the final year of tax collections in FYE 2029 when the amount of collections is lower than the previous year due to reaching the full MI in that fiscal year.

FYE	Wasco	Port of	Northern	Mid Columbia	City of The Dalles
	County	The	Wasco Park &	Fire & Rescue	
		Dalles	Rec		
2025	(433,262)	(20,449)	(69,274)	(214,008)	(307,246)
2026	(433,475)	(20,459)	(69,308)	(214,112)	(307,397)
2027	(433,475)	(20,459)	(69,308)	(214,112)	(307,397)
2028	(433,475)	(20,459)	(69,308)	(214,112)	(307,397)
2029	(349,855)	(16,512)	(55,938)	(172,809)	(248,098)
TOTAL:	(2,083,541)	(98,339)	(333,137)	(1,029,154)	(1,477,534)

Figure 15. Projected <u>Full Impact</u> Taxing District Permanent Rate Levies - General Government

FYE	Wasco County Soil Conservation	4H & Extension Service District	Wasco County Library District	Subtotal Gen. Gov't
2025	(25,472)	(25,472)	(69,284)	(1,164,468)
2026	(25,485)	(25,485)	(69,318)	(1,165,039)
2027	(25,485)	(25,485)	(69,318)	(1,165,039)
2028	(25,485)	(25,485)	(69,318)	(1,165,039)
2029	(20,569)	(20,569)	(55,947)	(940,298)
TOTAL:	(122,495)	(122,495)	(333,186)	(5,599,882

Source: Tiberius Solutions

Figure 16 – Projected Full Impact Taxing District Permanent Rate Levies – Education

FYE	Columbia Gorge Community College	Columbia Gorge ESD	North Wasco School District 21	Subtotal	Total
2025	(27,541)	(47,664)	(533,888)	(609,092)	(1,773,561)
2026	(27,554)	(47,687)	(534,149)	(609,390)	(1,774,429)
2027	(27,554)	(47,687)	(534,149)	(609,390)	(1,774,429)
2028	(27,554)	(47,687)	(534,149)	(609,390)	(1,774,429)
2029	(22,239)	(38,488)	(431,110)	(491,836)	(1,432,134)
TOTAL:	(132,442)	(229,213)	(2,567,445)	(2,929,100)	(8,528,981)

Figure 17 shows the projected increased revenue to the taxing jurisdictions after tax increment proceeds are projected to be terminated. These projections are for FYE 2030.

The "Frozen Base" is the assessed value of the Area established by the county assessor at the time the Area is established. "Excess Value" is the increased assessed value in the Area above the Frozen Base.

Figure 17. Additional Revenue Financing – FYE 2030	es Obtaine	ed after Terminati	ion of Tax Increme	nt
Taurin a District	Taxa Data	Ensue Ensues Daas	Energy Energy Malue	Tate

Taxing District	Tax Rate	From Frozen Base	From Excess Value	Total
General Government				
Wasco County	4.2523	106,634	548,299	654,933
Port of the Dalles	0.2007	5,033	25,879	30,912
Northern Wasco Park & Rec	0.6799	17,050	87,667	104,717
Mid Columbia Fire & Rescue	2.1004	52,671	270,829	323,500
City of the Dalles	3.0155	75,619	388,824	464,443
Wasco County Soil Conservation	0.2500	6,269	32,235	38,504
4H & Extension Service District	0.2500	6,269	32,235	38,504
Wasco County Library District	0.6800	17,052	87,680	104,732
Subtotal General Government	11.4288	286,597	1,473,648	1,760,245
Education				
Columbia Gorge Community College	0.2703	6,778	34,853	41,631
Columbia Gorge ESD	0.4678	11,731	60,319	72,050
School District 21 North Wasco	5.2399	131,400	675,642	807,042
Subtotal Education	5.9780	149,909	770,814	920,723
TOTAL:	17.4068	436,506	2,244,462	2,680,968

IX. COMPLIANCE WITH STATUTORY LIMITS ON ASSESSED VALUE AND SIZE OF URBAN RENEWAL AREA

State law limits the percentage of both a municipality's total assessed value and the total land area that can be contained in an urban renewal area at the time of its establishment to 25% for municipalities under 50,000 in population. As noted below, the frozen base (FYE 2024 values), including all real, personal, personal, manufactured, and utility properties in the Area is \$25,076,797.

The total assessed value of the City of The Dalles in FYE 2024 is \$1,834,351,233¹.

The percentage of total City assessed value in the urban renewal area is 1.45%, below the 25% threshold. ORS 457.160 (2)(b) states "For municipalities having a population of less than 50,000, according to the latest state census:

A. The assessed value for the urban renewal areas of the plan, when added to the total assessed value previously certified by the assessor for other urban renewal plans of the municipality for which a division of ad valorem taxes is provided, exceeds a figure equal to 25 percent of the total assessed value of that municipality, exclusive of any increased assessed value for other urban renewal areas and without regard to adjustments made pursuant to ORS 457.435."

The Area contains 323.7 acres (GIS calculation), including public rights-of-way. The City of The Dalles contains 4,437 acres. This puts 7.29% of the City's acreage in an urban renewal area, which is below the 25% threshold. The four acres added in the 2024 amendment are map clean up and adding the full acreage of the Port parcel along the riverfront.

Figure 18. Acreage Calculations Columbia-Gateway Urban Rene	wal Area
---	----------

	Acres	
Original Area Acreage	628.02	
20% of Original Acreage Addition Limitation	125.69	
Removals		
Second Amendment	(71.86)	556.16
Fifth Amendment	(238.04)	318.12
Previous Additions		
Eight Amendment – Sunshine Mill	1.662	319.78
10 th Amendment	1.77	321.55
2024 Amendment (17 th)	4	324.55
Total Urban Renewal Acreage BY GIS in 2024		323.70
Remaining Capacity for Acreage Additions	118.25	

Source: Compiled by Elaine Howard Consulting, LLC with data from Tiberius Solutions LLC, City of The Dalles

¹ Wasco County Assessor FY 2023/2024 SAL 4a and 4e Reports.

Figure 19. Urban Renewal Area Conformance with Assessed Value and Acreage Limits

	Acreage	Assessed Value
A. Columbia-Gateway Urban Renewal Area	323.7	\$25,076,797
B. Excess Value of Existing URA		\$102,217,667
C. Total Columbia-Gateway Urban Renewal Area		\$127,294,464
D. City of The Dalles	4,437	\$1,834,351,233
% of City Assessed Value =A/(D-B)	7.29%	1.45 %
% of City Acreage		

Source: Compiled by Elaine Howard Consulting, LLC with data from Tiberius Solutions LLC, City of The Dalles, and Wasco County

X. EXISTING PHYSICAL, SOCIAL, AND ECONOMIC CONDITIONS AND IMPACTS ON MUNICIPAL SERVICES

A. Physical Conditions

1. Land Use

The Area measures 323.70 total acres in size, which is composed of 432 individual parcels encompassing 323.70 acres, and an additional 141.38 acres in public rights-of-way. An analysis of FYE 2024 property classification data from the Wasco County Department of Assessment and Taxation database was used to determine the land use designation of parcels in the Area. By acreage, Commercial (50.44%) accounts for the most prevalent land use within the Area. This was followed by Exempt (33.75%). Detailed land use designations in the Area can be seen in Figure 20. Exempt properties do not produce property tax revenue and are owned by a governmental entity or a non-profit.

Land Use	Tax Lots	Acres	Percent of Acres
Commercial	234	91.97	50.44%
Exempt	91	61.53	33.75%
Residential	80	12.40	6.80%
Industrial	10	9.65	5.29%
Miscellaneous	13	5.52	3.03%
Multi-Family	4	1.26	0.69%
TOTAL:	432	182.32	100.00%

Figure 20. Land Use in the Area

Source: Compiled by Elaine Howard Consulting with data from the City of The Dalles

2. Comprehensive Plan Designations

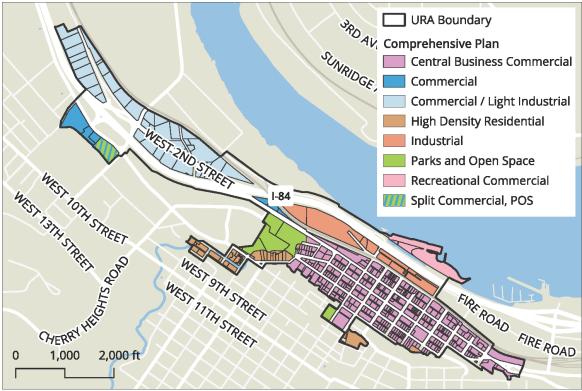
The most prevalent Comprehensive Plan designation by acreage in the Area is Central Business Commercial (35.73%). The second most prevalent Comprehensive Plan designation in the Area is Commercial / Light Industrial (27.31%). One parcel has a split designation, as shown in Figure 21. Detailed Comprehensive Plan designations in the Area can be seen in Figure 21 and Figure 22.

Figure 21. Comprehensive Plan Designations in the Area

Designation	Tax Lots	Acres	Percent of Acres
Central Business Commercial	317	65.13	35.73%
Commercial / Light Industrial	40	49.79	27.31%
Industrial	13	20.43	11.21%
Parks and Open Space	6	14.12	7.75%
High Density Residential	47	11.71	6.42%
Recreational Commercial	2	10.27	5.64%
Commercial	6	7.67	4.21%
Split Commercial, POSpace	1	3.20	1.76%
TOTAL:	432	182.32	100.00%

Source: Compiled by Elaine Howard Consulting, LLC with data from the City of The Dalles

Figure 22. Comprehensive Plan Designations



3. Zoning Designations

The most prevalent zoning designation by acreage in the Area is Central Business Commercial (36.34%). The second most prevalent zoning designation in the Area is Commercial / Light Industrial (27.31%). Two parcels have split designations, as shown in the table. Detailed zoning designations in the Area can be seen in Figure 23 and Figure 24.

Figure 23. Zoning Designations in the Area

Designations	Tax Lots	Acres	Percent of Acres
Central Business Commercial	318	66.26	36.34%
Commercial / Light Industrial	40	49.79	27.31%
Industrial	13	20.43	11.21%
Recreational Commercial	2	10.27	5.64%
High Density Residential	39	10.19	5.59%
General Commercial	13	9.07	4.98%
Parks and Open Spaces	5	8.31	4.56%
Split P/OS, RH	1	4.79	2.63%
Split P/OS, CG	1	3.20	1.76%
TOTAL:	432	182.32	100.00%

Source: Compiled by Elaine Howard Consulting with data from the City of The Dalles

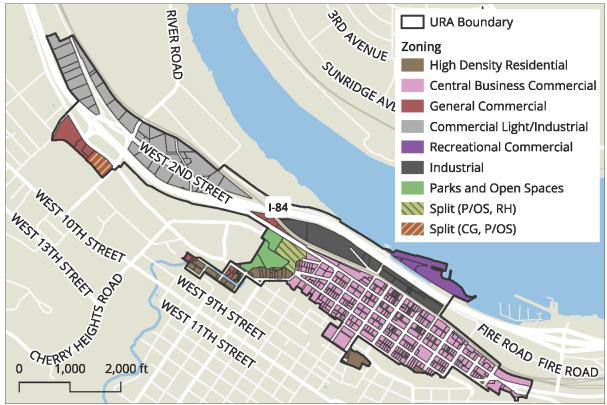


Figure 24. Zoning in the Area

B. Infrastructure

This section identifies the existing conditions in the Area to assist in <u>establishing blight in</u> <u>the ordinance adopting the urban renewal plan</u>. There are projects identified by the City of The Dalles in itemizing blighted conditions in the Area. <u>This does not mean that all of</u> <u>these projects are included in the urban renewal plan</u>. The specific projects that are included in the Plan are listed in Sections II and III of this Report, in the 2024 Plan Amendment and in the original Plan.

- 1. Storm
 - None

2. Sanitary:

- In order to mitigate capacity deficiencies in a 24-inch diameter sewer along Laughlin Street to the Wastewater Treatment Plant, it is necessary for the city to construct a new 12-inch diameter parallel pipeline along the existing alignment.
- In order to mitigate capacity deficiencies in a 15-inch diameter sewer along Union and Second streets between First and Lincoln Street, it is necessary that the city construct a new 18-inch diameter replacement pipeline.

3. Water

 In order to increase fire flow capacity in the city's water distribution network, it is necessary for the city to upgrade the line between Pentland Street and Highway 30 (West Second Street).

4. Streets

- West Sixth Street Bridge may need to be replaced, as required by notice from Oregon Department of Transportation finding "intolerable" structural deficiencies which restrict access by emergency response vehicles.
- In order to improve traffic, pedestrian and bicyclist safety, it is necessary to improve turn lanes, realign approaches, extend northbound right turn and south-bound left turn lanes, and alter signal timings in the area of Webber, West Second, and West Sixth streets.
- In order to improve bicyclist safety, it is necessary to add a bicycle lane along West Second east of Hostetler Street within the District boundary extending to Webber Street.
- In order to improve bicyclist safety, it is necessary to add a bicycle lane along West Second Street from Lincoln to Webber Street.
- In order to improve pedestrian safety, it is necessary to add sidewalks along both sides of West Second Street from Lincoln to Webber Street.
- In order to improve traffic, pedestrian and bicyclist safety, it is necessary to install street lights, add a bicycle lane and conduct resurfacing and other improvements including sidewalk replacement along First Street from Union to Madison Street.

The City implements a Pavement Condition Rating program utilizing the subjective Good-Fair-Poor (GFP) Rating Method. Existing pavement conditions for City roadways, based on 2013 inventory data indicate that there are a number of streets that are designated as in poor condition, evidence of blighting conditions in the Area.

Conditions of First Street as documented in the *East 1st Street Streetscape Plan* prepared for the City of The Dalles in June 2005:

"In preparing the 1st Street Streetscape the existing conditions and opportunities and constraints were identified to guide the development of alternative concepts to review with the community.

"Existing Conditions Images shows photographs of features in the streetscape study area. The two mainline railroad tracks of the Union Pacific Railroad, the City's Sanitary Sewer Treatment Facility, and the Cherry Growers Processing Plant dominate the north side of 1st Street. Within this area, at the foot of Washington Street, is the historic Gitchell Building owned by the City. The treatment facility is in the process of expanding to the west, and the vacant land between the Gitchell Building and Union Street is designated for a future park until a time when the treatment plant needs this area for future facilities. Currently, 34 trains per day travel through the study area.

- 1st Street from Union Street to Washington Street has been constructed on fill material. The first floor of the buildings and the parking areas along this length are eight to ten feet below the grade of the sidewalk. The alleys from Union to Washington provide access to the lower levels.
- The land uses along 1st Street are commercial and industrial. The City owns three major parcels along 1st Street One is at the southeast corner of Court and 1st, which is a below-grade parking area for the Commodore Building. The second and third are the parking lots on the south side of 1st between Washington and Laughlin.
- Between Washington and Federal is the City's Transportation Center (former Train Depot) that is now used as a passenger bus terminal. There is currently no passenger rail service stopping at The Dalles.
- Between Federal and Laughlin is a warehouse facility with a loading dock that is on the right-of-way of 1st Street.
- On the southeast corner of 1st and Laughlin is the brick ice house (not in use). The parking area of the ice house is used for open storage.
- On the southwest corner of 1st and Jefferson is a commercial building used by various businesses.
- Between Jefferson and Madison, open storage and vehicle storage is the primary use.
- The alley is used primarily as the back door for buildings and businesses fronting on 2nd Street. The major exception is the City-owned arcade (now closed) between Washington and Federal that in the past has provided access from 2nd Street to the parking lot on 1st Street." (pg 3)"

A memorandum dated September 12, 2024 from Dave Anderson, City of The Dalles Public Works Director, states:

"The 1st Street Streetscape project has been identified in the CGURA Action Plan for many years. The City's Transportation System Plan (TSP), which was updated in 2017, provided phased specifications for the downtown 1st Street corridor to improve the complimentary use and safety of the corridor to vehicular traffic and increased bicycle and pedestrian users. The TSP's Capital Improvement Plan did not include any major maintenance or capital investments on downtown 1st Street because it was understood that CGURA would be undertaking the Project in the foreseeable future. The Project scope includes upgrading underground utilities – some dating from 1874 yet still in use – in this blighted area because construction of streetscaping improvements might cause the failure of these frail, end-of-life piping systems.

Of special urgency is the need to replace failing, elevated sidewalks between Union and Court streets. These sidewalks on the north side of First Street are placed on deteriorating concrete pillars, reinforced with steel. The concrete has eroded, exposing the steel reinforcement to the elements; consequently, the rusting steel is expanding, leading to further deterioration. Sidewalks are literally sloping down as a result. This situation continues around the First Street and Court Street sides of the Baldwin Saloon. Here, the obvious solution of backfill could lead to horizontal stress on the building's basement foundation, an unacceptable risk. The engineering solution – steel pilings and vertical plating – will cost over \$1 million. This is a major element leading to the overall \$7 million project estimate, which also includes replacement of the fragile, iron water line described above. Another critical element of the project is construction of properly engineering retaining walls along First Street, allowing replacement of the failing sidewalks and support piers. First Street is built upon dry-set rock fill, compacted over time. The northern face of this fill simply slopes down to ground level, held in place by gravity alone. An engineered solution is required."

C. Social Conditions

Only 6.8% of the acreage in the Area is a residential use as determined by the Wasco County Assessor. The social conditions identified below are for the City of The Dalles.

- The City of The Dalles has a population of 16,417 in 2023 according to the Portland State University Population Research data. The United States Census date reported an estimate of 15,786.
- There are 6,341 households in the city with 2.44 persons per household.
- The median value of an owner-occupied house is \$284,100.
- Eighty-six percent of the residents have a high school education and 23% have a bachelor's degree or higher.
- Approximately 21% of the residents identify as Hispanic or Latino.
- The mean travel time to work is 14 minutes.
- The median household income is \$59,714 in 2022 dollars.
- Approximately 11% of the residents live in poverty.
- Race is shown in Figure 25.
- Age is shown in Figure 26.

Figure 25. Race

Race	Percent
White alone	82.9%
Black or African American alone	.3%
American Indian and Alaska Native alone	.3%
Asian alone	.5%
Native Hawaiian and Other Pacific Islander alone	.2%
Two or more races	12.0%
Hispanic or Latino	20.8%

Source: American Community Survey 2016-2020 Five Year Estimates

The Age in the Area figure below shows the breakdown of ages in the Area.

Figure 26. Age

Age	Percent
Under 5 years	5.7%
Under 18 years	23.1%
Between 18 and 65	51.4%
65 years and older	19.8%

Source: American Community Survey 2016-2020 Five Year Estimates

D. Economic Conditions

1. Taxable Value of Property within the Area

The frozen base of the Area in FYE 2024 is \$25,076,797². The excess value, or incremental value in FYE 2024 is \$102,217,667.³

2. Building to Land Value Ratio

An analysis of property values can be used to evaluate the economic condition of real estate investments in a given area. The relationship of a property's improvement value (the value of buildings and other improvements to the property) to its land value is generally an accurate indicator of the condition of real estate investments. This relationship is referred to as the "Improvement to Land Value Ratio," or "I:L." The values used are real market values. In urban renewal areas, the I:L is often used to measure the intensity of development or the extent to which an area has achieved its short- and long-term development objectives.

Figure 27 shows the improvement to land ratios (I:L) for properties within the Area. Exempt properties account for 33.75% of the acreage. In the Area, 68 tax lots representing 9.17% of the acreage have I:L ratios less than 1.0. In other words, the improvements on these properties are worth less than the land they sit on. A reasonable I:L ratio for properties in the Area is 2.0. A little less than half of the tax lots in the Area, 234 of the 432 tax lots, totaling 44.31% of the acreage have I:L ratios of 2.0 or more in FYE 2024.

Improvement to Land Ratio	Tax lots	Acres	Percent of Acres
Exempt	91	61.53	33.75%
No Improvement Value	28	8.17	4.48%
0.01-0.50	27	4.21	2.31%
0.51-1.00	13	4.33	2.38%
1.01-1.50	13	7.28	3.99%
1.51-2.00	18	10.85	5.95%
2.01-2.50	15	8.03	4.40%
2.51-3.00	23	8.14	4.46%
3.01-4.00	30	13.30	7.29%
> 4.00	166	51.32	28.15%
Data Unavailable	6	4.77	2.61%
TOTAL:	432	182.32	100.00%

Figure 27. Improvement to Land Ratios in the Area

Source: Compiled by Elaine Howard Consulting with data from the City of The Dalles

² Wasco County Assessor Sal 4e FY 2023-24

³ Ibid.

E. Impact on Municipal Services

The fiscal impact of TIF on taxing districts that levy taxes within the Area (affected taxing districts) is described in Section VIII of this Report. This subsection discusses the fiscal impacts resulting from potential increases in demand for municipal services.

The new projects being considered in the Amendment for future use of urban renewal funding are for facilitating transportation improvements to allow for better connection (First Street project), to assist privately-owned development and redevelopment in the Area including residential development in historic downtown structures (Incentive Program), Tony's site development, and local match for grants to establish the Federal Street Plaza, creating a more vibrant and economically viable downtown. The use of TIF allows the City to add an additional funding source to the City of The Dalles' other funding sources to allow these projects to be completed.

The financial impacts from tax increment collections will be countered by future economic development, creation of additional housing opportunities in The Dalles and, in the future, adding increases in assessed value to the tax base for all taxing jurisdictions, including the City.

XI. REASONS FOR SELECTION OF EACH URBAN RENEWAL AREA IN THE PLAN

The reason for selecting the Area is to provide the ability to fund projects and programs necessary to cure blight within the Area. The outcome of implementing these projects is anticipated to be an increase to the economic growth in The Dalles by providing infrastructure improvements inside the Area and to assist with economic development.

XII. RELOCATION REPORT

When the Agency acquires occupied property under the Plan, residential or commercial occupants of such property shall be offered relocation assistance, as required under applicable state law. Prior to such acquisition, the Agency shall adopt rules and regulations, as necessary, for the administration of relocation assistance. The Agency will comply with all applicable state law in providing these potential benefits.

CITY of THE DALLES 313 COURT STREET THE DALLES, OREGON 97058

> (541) 296-5481 ext. 1125 PLANNING DEPARTMENT

RESOLUTION NO. PC 624-24

A RESOLUTION RECOMMENDING THE CITY COUNCIL APPROVE A SUBSTANTIAL AMENDMENT TO THE COLUMBIA GATEWAY/DOWNTOWN PLAN AND REPORT

WHEREAS, the Columbia Gateway Urban Renewal Agency (Agency) commenced the process of substantially amending its urban renewal plan (Plan) and accompanying financial report (Report);

WHEREAS, consistent with the provisions of ORS 457.089, the Agency forwarded the Plan and Report to the Commission for recommendations;

WHEREAS, at its November 7, 2024, regular meeting, the Commission heard a staff report and presentation by Agency staff on the proposed substantial amendment, including the Plan's and Report's conformity with The Dalles Comprehensive Plan; and

WHEREAS, based on Commission deliberations on the staff report and all other evidence and information presented during the meeting, the Commission hereby adopts the staff report's findings as its own and recommends approval of the Agency's proposed substantial amendment by the City Council as provided herein.

NOW, THEREFORE, BE IT FOUND, DETERMINED, AND RESOLVED BY THE PLANNING COMMISSION OF THE CITY OF THE DALLES, AS FOLLOWS:

1. <u>Findings Adopted</u>. The Commission hereby adopts the findings of the Plan's and Report's conformity with The Dalles Comprehensive Plan, as follows:

Goal #5: Open Spaces, Scenic and Historic areas, and Natural Resources.

- To conserve and protect the open space, natural, and scenic resources of the area.
- To recognize, protect and enhance the historical and cultural importance of the community, and to promote increased public awareness and participation in historic preservation.

Finding: Federal Street Plaza is one of the projects in the Plan. The urban renewal funds would be used as a match for other sources of financing. This plaza would create open space in the downtown, supporting the other commercial



uses and encouraging activity in the Area. The Plan conforms to the Open Spaces, Scenic and Historic areas, and Natural Resources goal.

Goal 8: Recreation Needs

• To develop, acquire, and maintain a balance of recreation opportunities and open spaces in order to improve the livability within the Urban Growth Boundary.

Finding: Federal Street Plaza is one of the projects in the Plan. The urban renewal funds would be used as a match for other sources of financing. This plaza would create open space in the downtown, supporting the other commercial uses and encouraging activity in the Area. The Plan conforms to the Recreation Needs goal.

Goal 9: Economic Development

- Diversify the economic base of the community.
- Increase the tax base needed to provide an adequate level of community services for The Dalles citizens.
- Encourage the growth of existing employers and attract new employers to The Dalles that complement the existing business community.
- Implement the objectives and activities of the Columbia Gateway/Downtown Urban Renewal Plan, enhancing opportunities for the improvement and redevelopment of business, civic, cultural, and residential uses in the area.
- Provide employment opportunities, environments, and choices, which are a vital part of a high quality of life in The Dalles.
- Support the maintenance and enhancement of The Dalles Commercial Historic District.
- Encourage redevelopment and adaptive reuse of commercial space downtown as an alternative to commercial sprawl.

Finding: The Incentive Program provides funds to encourage rehabilitation in the Area. The program offers assistance to improve building façades, add residential units, provide interior improvements and to provide overall improvements to buildings in the Area which include The Dalles Commercial Historic District. These improvements will help facilitate healthy businesses and economic activity in the Area. The Plan conforms to the Economic Development goal.

Goal 10: Housing

- Promote and provide an adequate supply of safe, healthy and affordable housing for all members of the community in a variety of housing types recognizing the needs and desires of the community's residents.
- Promote the development of housing that minimizes or avoids impacts to the natural environment and surrounding land uses.

- Provide and maintain adequate public facilities in all parts of the community and promote a logical and orderly development of those facilities. Require new housing developments to pay an equitable share of the cost of required capital improvements.
- Promote the efficient use of vacant land by encouraging infill development which is developed at a scale that is allowed in existing neighborhoods, and by encouraging new development which achieves the density allowed by the Comprehensive Plan.
- Strengthen existing and promote new neighborhood centers as focal points for neighborhood services and activities.
- Adopt standards and incentives to increase residential land use efficiency.
- Continue to provide opportunities for a full range of rental housing.

Finding: The improvements to First Street and the development of the Federal Plaza will enhance the Area for further redevelopment, which could include future residential development. Building owners may apply to the Incentive Program for assistance in rehabilitating or adding residential units. The Plan conforms to the Housing goal.

Goal 12: Transportation

• To provide a transportation system that supports the safety and mobility needs of local residents, business and industry, affords choice between transportation modes, is convenient and affordable to use, and supports planned land uses.

Finding: The improvements to First Street including the reconstruction, improved pedestrian system, street trees, and a bike lane will serve the needs of the commercial businesses, residents and tourists in the Area by providing a more safe, multi-modal transportation experience. This project will improve the experience of traveling between downtown and the Lewis and Clark Festival Park, and enhance the opportunity for development of, and connectivity to, a Federal Street Plaza. These improvements will complete the overall transportation plan to improve the streets and pedestrian atmosphere in the Area. The Plan conforms to the Transportation goal.

- 2. <u>Recommendation</u>. The Commission hereby recommends the City Council's approval of the Agency's proposed substantial amendment to the Plan and accompanying Report.
- //
- //
- //
- //
- ||

Planning Commission Resolution 624-24 Substantial Amendment to Urban Renewal Plan and Report | Page 3 of 4 3. <u>Effective Date</u>. This Resolution shall be effective upon adoption.

APPROVED AND ADOPTED THIS 7TH DAY OF NOVEMBER, 2024.

Cody Cornett, Chair

Planning Commission

I, Joshua Chandler, Community Development Director for the City of The Dalles, hereby certify that the foregoing Resolution was adopted at the November 7, 2024, regular meeting of the City's Planning Commission.

AYES:	Case, Cornett, Grant, Peña, Pipinich and Poppoff
NAYS:	None
ABSENT:	Portela

ABSTAIN:

Ch.

ATTEST:

Joshua Chandler Community Development Director City of The Dalles

COLUMBIA GATEWAY/DOWNTOWN URBAN RENEWAL AGENCY

"Improving Our Community"

Plan

Revised and updated: December 9, 2024

COLUMBIA GATEWAY/DOWNTOWN PLAN

An Urban Renewal Plan and Program of the City of The Dalles, Oregon

Approved by The Dalles City Council on August 23, 1990 By Council Ordinance No. 90-1113

Amendment 1 – Minor Amendment Approved by the Columbia Gateway Urban Renewal Agency on July 23, 1991 By Resolution No. 91-007

> <u>Amendment 2</u> – Substantial Amendment Approved by The Dalles City Council on March 15, 1993 By Council Ordinance 93-1161

Amendment 3 – Minor Amendment Approved by the Columbia Gateway Urban Renewal Agency on August 27, 1996 By Resolution No. 96-025

> <u>Amendment 4</u> – Substantial Amendment Approved by The Dalles City Council on June 22, 1998 By Council Ordinance 98-1223

General Ordinance No. 98-1223 was repealed by Referendum Measure No. 33-22 Adopted by a Vote of the People at the November 3, 1998 General Election

> <u>Amendment 5</u> – Substantial Amendment Approved by The Dalles City Council on December 14, 1998 By Council Ordinance 98-1229

> <u>Amendment 6</u> – Substantial Amendment Approved by The Dalles City Council on August 9, 1999 By Council Ordinance 99-1232

Amendment 7 – Minor Amendment Approved by the Columbia Gateway Urban Renewal Agency on May 14, 2001 By Resolution No. 01-040

Amendment 8 – Minor Amendment Approved by the Columbia Gateway Urban Renewal Agency on November 10, 2003 By Resolution No. 03-052 Amendment 9 – Minor Amendment Approved by the Columbia Gateway Urban Renewal Agency on January 28, 2008 By Resolution No. 08-060

Amendment 10 – Substantial Amendment Approved by the Columbia Gateway Urban Renewal Agency on June 22, 2009 By Council Ordinance No. 09-1301

Amendment <u>11 – Minor Amendment</u> Approved by the Columbia Gateway Urban Renewal Agency on April 12, 2010 By Resolution No. 10-068

Amendment 12 – Minor Amendment Approved by the Columbia Gateway Urban Renewal Agency on May 10, 2010 By Resolution No. 10-069

Amendment 13 – Minor Amendment Approved by the Columbia Gateway Urban Renewal Agency on May 12, 2014 By Resolution No. 14-001

Amendment 14 – Minor Amendment Approved by the Columbia Gateway Urban Renewal Agency on February 9, 2015 By Resolution No. 15-001

Amendment 15 – Minor Amendment Approved by the Columbia Gateway Urban Renewal Agency on March 23, 2015 By Resolution No. 15-002

Amendment 16 – Minor Amendment Approved by the Columbia Gateway Urban Renewal Agency on April 17, 2018 By Resolution No. 18-002

Amendment 17 – City Council Substantial Amendment Approved by The Dalles City Council on December 9, 2024 By Resolution No. 24-1409

PLAN

TABLE OF CONTENTS

PART 1: PLAN TEXT

SECTION 100 -	INTRODUCTION	1
SECTION 200 -	DEFINITIONS	5
SECTION 300 -	LEGAL BOUNDARY DESCRIPTION	8
SECTION 400 -	MISSION STATEMENT, GOALS AND OBJECTIVES OF THE DALLES	
	URBAN RENEWAL AGENCY FOR THE COLUMBIA GATEWAY PLAN	-
SECTION 500 -	LAND USE PLAN	12
SECTION 600 -	URBAN RENEWAL ACTIVITIES	15
SECTION 700 -	FINANCING OF URBAN RENEWAL INDEBTEDNESS	28
SECTION 800 -	ANNUAL FINANCIAL STATEMENT REQUIRED	29
SECTION 900 -	CITIZEN PARTICIPATION	30
SECTION 1000 -	NON-DISCRIMINATION	30
SECTION 1100 -	RECORDING OF PLAN	30
SECTION 1200 -	PROCEDURES FOR CHANGES OR AMENDMENTS IN THE APPROVED	C
	URBAN RENEWAL PLAN	31
SECTION 1300 -	VALIDITY OF APPROVED URBAN RENEWAL PLAN	33

PART 2: PLAN EXHIBITS

AMENDED EXHIBIT 1 – Narrative Legal Description
AMENDED EXHIBIT 2 – Map of Urban Renewal Area
AMENDED EXHIBIT 3 – Comprehensive Plan Map Classifications
AMENDED EXHIBIT 4 – Zoning Map Designations
ATTACHMENTS A,B,C: Self-referential: Amendment, Plan, Plan red-line)
ATTACHMENT D – Report accompanying the 2024 Substantial Amendment
ATTACHMENT E – PC Resolution 624-24
ATTACHMENT H – General Ordinance 24-1409
EXHIBIT 5 – Fourth Amendment projects list (historic reference)
EXHIBIT 6 – Original projects list (pages 14-19 of ORD 90-1113)

SECTION 100 – INTRODUCTION

The Columbia Gateway/Downtown Plan (the "Plan"), as amended, governs the 318.12 acre Columbia Gateway/Downtown Urban Renewal Area (the "Area") of the City of The Dalles, Oregon. The Area was established in 1990, amended in 1993 to reduce its size, and amended further in 1998, also to reduce its size. A substantial amendment of the Plan was adopted in 2009 to increase the size of the Area and the maximum indebtedness (MI) allowed under the Plan. The Area consists of a single geographic area with a certified base assessed value of \$25,076,797.

This Plan consists of two parts: Part 1, Text and Part 2, Exhibits, and has been prepared by the Urban Renewal Agency pursuant to the provisions of Chapter 457 of the Oregon Revised Statutes, the Oregon Constitution and all other applicable state and local laws.

SECTION 110 – CITY/AGENCY RELATIONSHIP

The Governing Body (Council) of the City of The Dalles on April 23, 1990, by Ordinance Number 90-1106, declared that blighted areas exist within the City and that there is a need for an urban renewal agency to function within the City. The City Council, by the approval of such Ordinance No. 90-1106, and in accordance with the provisions of ORS 457.045 (2), appointed an Urban Renewal Agency consisting of eleven (11) members. In 1998, the Council adopted Ordinance No. 98–1228, designating the members of the Council as the Urban Renewal Agency. General Ordinance Number 90-1106 was amended in 1998 by General Ordinance No. 98-1228, which was adopted on December 14, 1998. This ordinance reduced the size of the Urban Renewal Agency to six (6) members, including the Mayor and the five City Councilors; these persons were designated as the Urban Renewal Agency pursuant to ORS 457.045(3). Pursuant to ORS 457.035, the Urban Renewal Agency is a public body corporate and politic. The relationship between the City of The Dalles, an Oregon Municipal Corporation and The Dalles Urban Renewal Agency, a public body corporate and politic, shall be as contemplated by Chapter 457 of the Oregon Revised Statutes. Nothing contained in this Plan, nor the City's supplying of services or personnel, nor the budgeting requirements of this Plan shall in any way be construed as departing from or disturbing the relationship contemplated by Chapter 457 of the Oregon Revised Statutes.

Description of the Amendments

The Urban Renewal Plan has been amended on 16 occasions. The Plan defines criteria for minor and substantial amendments: Minor amendments clarify language, add or drop projects from the Plan and change project scope, provided such changes do not alter the Plan's goals and objectives. Substantial amendments expand district boundaries (limited by ORS 457.220) and increase maximum indebtedness. In addition to these changes through time, amendments also periodically shifted Agency governance authority between the City Council and Urban Renewal taxing districts. Following is a summary of all Plan amendments as of April 2024:

First Amendment (Resolution 91-007): Minor amendment adopted July 23, 1991, established that no bonded debt should be incurred beyond 2012-13 except through a Substantial Amendment to the Plan.

Second Amendment (Council Ordinance 93-1161): The first Substantial Amendment occurred March 15, 1993. This was a response to Oregon voters' approval of Measure 5 (November 1991 general election) and subsequent enabling legislation in 1992 (HB 2550), which altered the calculation methodology for Tax Increment Financing.

An unintended consequence was to create a significant disparity (7X) in tax burden between the two school districts serving The Dalles at that time, The Dalles School District 12 and Chenowith School District 9. The taxation disparity was resolved by removing all urban renewal district acreage from District 9 (deletion of either 32.14 or 71.86 acres – both estimates are referenced in various documentation). Included in the deletion was the western segment of West Second Street corridor (see Attachment B). This amendment also made various other changes to the Plan, including expansion of the Plan's project list.

Third Amendment (Resolution 96-925): Minor amendment clarifying language regarding scope of proposed Projects and other public improvements.

Fourth Amendment (Council Ordinance 98-1223): The next Substantial Amendment occurred on June 22, 1998, when the Fourth Amendment established a maximum debt limit to comply with Oregon constitutional changes approved by voters in 1997 (Measure 50). This amendment also established a table projecting costs of anticipated Urban Renewal projects (However, the enabling ordinance was repealed through a referendum (Measure 33-22) in the November 1998 general election.

Fifth Amendment (Council Ordinance 98-1229): This Substantial Amendment, adopted December 14, 1998, responded to Measure 33-22. City Council adopted two related ordinances that day: Ordinance No. 98-1228, which established the City Council as the Agency Board (**Board**), and Ordinance No. 98-1229, which again reduced the size of the district (removing 238.04 acres from the original 628.02 acreage). These measures complied with terms of a mediation agreement in October 1998 between the City, Agency, Wasco County, The Dalles Trade Center Association and the Committee to Dissolve Urban Renewal.

Sixth Amendment (Council Ordinance No. 99-1232): This Substantial Amendment, adopted August 9, 1999, provided context for developments in the preceding year. Concerns leading to mediation reflected a view that urban renewal projects did not contribute significantly to increased tax base. The Sixth Amendment revised the project list, sought to ensure project compliance with Plan criteria, and reduced the amount of maximum indebtedness to \$14.23 million, a number later increased to \$29.13 million (see Tenth Amendment below). The amendment outlined a new list of Urban Renewal projects. This list, which replaced the Fourth Amendment project list, together with minor, later changes in project descriptions, constitutes the first 13 projects that have carried forward ever since and provide the basis for projects identified in this plan revision.

Seventh Amendment (Resolution No. 01-040): Minor amendment allowed acquisition of a parking lot at First and Court streets to support redevelopment of the Commodore Building, adopted May 14, 2001.

Eighth Amendment (Resolution 03-052): Minor amendment adding Wasco Warehouse & Milling Co. property as an Urban Renewal project, adopted November 10,

2003. (This became Project #14 in the Urban Renewal Plan, now the "Sunshine Mill." Project is complete.)

Ninth Amendment (Resolution 08-060): Minor amendment adding Union Pacific Railroad and Oregon Department of Transportation properties to the Wasco Warehouse & Milling Co. redevelopment project, adopted January 28, 2008.

Tenth Amendment (Council Ordinance 09-1301): The latest Substantial Amendment to the Plan occurred June 22, 2009. The Tenth Amendment made various textual edits throughout the Plan. Aside from later minor amendments, the primary text carries through to the present day. The Tenth Amendment modified, added and deleted various items in the original Plan, including changes to the processes for property acquisition and land disposition. It modified the Mill Creek Greenway project from property acquisition to development, added East Gateway / Brewery Grade Reconstruction (this became Project #15 in the Urban Renewal Plan, the Sunshine Mill Roundabout), and Third Place Street improvements (Project #16 in the Urban Renewal Plan). Urban Renewal investment in the roundabout leveraged a \$2.4 million federal grant. Significantly, this Substantial Amendment increased maximum indebtedness of the Agency from \$14,227,353 to \$29,125,583, and deleted the provision regarding the duration of the District. That last change meant that the Agency does not necessarily sunset at any particular time, but rather when maximum indebtedness is achieved. The Tenth Amendment was accompanied by a detailed report and fiscal analysis.

Eleventh Amendment (Resolution 10-068): Minor amendment adding The Dalles Skateboard Park to West Gateway Project #10, adopted April 12, 2010.

Twelfth Amendment (Resolution 10-069): Minor amendment adding redevelopment of properties bordered by Washington and Court streets and First and Second streets (the Granada Block), adopted May 10, 2010, as Project #17.

Thirteenth Amendment (Resolution 14-001): Minor amendment adding a new goal of increasing value of properties within the district and enhancing opportunities for non-profit organizations to participate in the property rehabilitation and loan grant fund program. This allowed grants to for-profit, public, non-profit and civic organizations, and was approved May 12, 2014.

Fourteenth Amendment (Resolution 15-001): Minor amendment adding Thompson Park Pool as Urban Renewal Project #18 (slide, climbing wall, shade or other landscaping), adopted February 9, 2015.

Fifteenth Amendment (Resolution 15-002): Minor amendment adding redevelopment of the former Elks Lodge as an Urban Renewal Project #19, adopted March 23, 2015.

Sixteenth Amendment (Resolution 18-002): Minor amendment revising description of the proposed Mill Creek Trail Greenway Project, adopted April 17, 2018.

Seventeenth Amendment (Ordinance 24-1409): Increased maximum indebtedness to \$35,262,100, added projects: Basalt Commons, Tony's site redevelopment and First

Street reconstruction, local match for Federal Street Plaza, and performed overall review and update of Plan. Adopted December 9, 2024.

In addition, the historical record should note for clarification Resolution 23-002, amending the Urban Renewal Incentive Program, adopted on April 18, 2023. This amended an Urban Renewal program established in August 2022 but did not constitute a minor amendment to the Plan itself.

On September 12, 2016, the City Council adopted General Ordinance No. 16-1346, which amended General Ordinance No. 90-1106. This restructured the Agency, removing the City Council as Agency Board and restoring authority to the Board as it exists in 2024, comprising representatives from each affected taxing district (Wasco County, Mid-Columbia Fire & Rescue, Northern Wasco Parks & Recreation, Port of The Dalles; three city councilors; and two citizens at large). The Urban Renewal Advisory Committee was eliminated at that time.

This summary does not attempt to document all of the changes, challenges and progress achieved through the Agency since 1990. Its intent is to offer a historical foundation for the next – and final – phase of the District, and to offer a foundation for decisions leading to the ultimate continuation or discontinuation of the Agency itself.

SECTION 200 - DEFINITIONS

As used in the construction of this Plan, unless the context requires otherwise, the following definitions shall apply:

- 201. AGENCY means The Dalles Urban Renewal Agency that, in accordance with the provisions of Chapter 457 of the Oregon Revised Statues, is the Urban Renewal Agency of the City of The Dalles, Wasco County, Oregon.
- 202. AREA means that geographic portion of the City which encompasses the Columbia Gateway/Downtown Area an urban renewal area conceived pursuant to the provisions of ORS Chapter 457.
- 203. BLIGHTED AREAS means areas that by reason of deterioration, faulty planning, inadequate or improper facilities, deleterious land use or the existence of unsafe structures, or any combination of these factors, are detrimental to the safety, health or welfare of the community. A blighted area is characterized by the existence of one or more of the following conditions:
 - The existence of buildings and structures, used or intended to be used for living, commercial, industrial or other purposes, or any combination of those uses, which are unfit or unsafe to occupy for those purposes because of any one or a combination of the following conditions:
 - Defective design and quality of physical construction;
 - Faulty interior arrangement and exterior spacing;
 - Overcrowding and a high density of population;
 - Inadequate provision for ventilation, light, sanitation, open spaces and recreation facilities; or
 - o Obsolescence, deterioration, dilapidation, mixed character or shifting of uses;
 - An economic dislocation, deterioration or disuse of property resulting from faulty planning;
 - The division or subdivision and sale of property or lots of irregular form and shape and inadequate size or dimensions for property usefulness and development;
 - The layout of property or lots in disregard of contours, drainage and other physical characteristics of the terrain and surrounding conditions;
 - > The existence of inadequate streets and other rights-of-way, open spaces and utilities;
 - > The existence of property or lots or other areas which are subject to inundation by water;
 - A prevalence of depreciated values, impaired investments, and social and economic maladjustments to such an extent that the capacity to pay taxes is reduced and tax receipts are inadequate for the cost of public services rendered;

- A growing or total lack of proper utilization of areas, resulting in a stagnant and unproductive condition of land potentially useful and valuable for contributing to the public health, safety and welfare; or
- A loss of population and reduction of proper utilization of the area, resulting in its further deterioration and added costs to the taxpayer for the creation of new public facilities and services elsewhere.
- 204. CITY means the City of The Dalles, Wasco County, Oregon.
- 205. CITY COUNCIL or COUNCIL means the governing body of the City of The Dalles.
- 206. COMPREHENSIVE PLAN means the Land Use Plan of the City of The Dalles including all of its policies, procedures and implementing provisions.
- 207. COUNTY means Wasco County, Oregon.
- 208. MAXIMUM INDEBTEDNESS (MI) means the amount of the principal of indebtedness included in a plan pursuant to ORS 457.190 and does not include indebtedness incurred to refund or refinance existing indebtedness
- 209. EXHIBIT means an attachment, either narrative or graphic, to this Urban Renewal Plan as set forth in Part 2 of this Plan.
- ORS means Oregon Revised Statutes (State Law). ORS Chapter
 457 is the chapter which regulates the renewal of blighted areas within the State of Oregon.
- 211. PLAN means the Amended Columbia Gateway/Downtown Plan, an Urban Renewal Plan of the City of The Dalles, Oregon.
- 212. REDEVELOPER means a party who acquires real property or receives financial assistance from the Urban Renewal Agency for the purposes of developing or redeveloping such property in conformity with the provisions of this Urban Renewal Plan.
- 213. STATE means the State of Oregon including its various departments, divisions and agencies.
- 214. TAX INCREMENT FINANCING means a method of financing indebtedness incurred by The Dalles Urban Renewal Agency in preparing and implementing the Urban Renewal Plan. Such tax increment method is authorized by ORS sections 457.420 through 457.450 and provides that all or a portion of the tax proceeds, if any, realized from an increase in the taxable assessed value of real and personal property within the Columbia Gateway/Downtown Urban Renewal Area above that existing on the County tax roll last equalized prior to the effective date of The Dalles City Council Ordinance approving the Urban Renewal Plan may be paid into a special fund of the Agency. Such special fund, if any, shall be used to pay the principal and interest on indebtedness incurred by the Agency in financing or refinancing the preparation and implementation of the approved Urban Renewal Plan including the administration of the Agency's activities.

- 215. TAXING BODY means any authorized entity which levies ad valorem taxes within the boundaries of the Urban Renewal Area.
- 216. U.R. means "urban renewal" as in Urban Renewal Boundary, Urban Renewal Area, Urban Renewal Plan, etc.
- 217. URBAN RENEWAL ADVISORY COMMITTEE means the committee established pursuant to General Ordinance No. 98-1228, whose duties include review of all projects and expenditures for the Agency to ensure compliance with the Agency's adopted budget and the Plan; making recommendations to the Agency concerning potential projects to be undertaken, public contracts to be awarded, potential plan amendments, and budget needs, policies and procedures for the Agency; and performance of other tasks and duties as requested by the Agency.
- 218 .URBAN RENEWAL LAW means Chapter 457 of the Oregon Revised Statutes as same exists on the effective date of this Urban Renewal Plan or as same may be amended from time to time by action of the Oregon Legislature.
- 219. URBAN RENEWAL PLAN means the Amended Plan for the Columbia Gateway/Downtown Area--an Urban Renewal Area of the City of The Dalles, Oregon.

SECTION 300 - LEGAL BOUNDARY DESCRIPTION

The legal description of the boundaries of the Urban Renewal Area is set forth in Part 2 of this Plan as follows:

- 301. Amended Exhibit 1 Narrative Legal Description of Urban Renewal Area.
- 302. Amended Exhibit 2 Graphic (Map) Description of Urban Renewal Area.
- 303. Added Exhibit 3 Comprehensive Plan Designations of Urban Renewal Area.
- 304. Added Exhibit 4 Zoning Designations of Urban Renewal Area

SECTION 400 – MISSION STATEMENT, GOALS AND OBJECTIVES OF THE DALLES URBAN RENEWAL AGENCY FOR THE COLUMBIA GATEWAY PLAN

MISSION STATEMENT

The mission of the Urban Renewal Agency is to eliminate blight and depreciating property values within the Agency's jurisdiction and in the process attract aesthetically pleasing, job producing private investments that will stabilize or increase property values and protect the area's historic places and values.

401. GOALS AND OBJECTIVES

- A. To foster public participation in all urban renewal activities, including but not limited to strategic planning, through semi-annual in-person and virtual town halls and other civic outreach, and to regularly communicate urban renewal achievements and activities through social and traditional media engagement, signage, website, and public presentations.
- B. To make strategic investments of urban renewal funds and engage in various urban renewal activities which increase the value of properties within the Urban Renewal District so that the area will contribute its fair share to the costs of public services.
- C. To make strategic investments that return unused and underused public and private properties to productive condition, consistent with the City's Comprehensive Plan and implementing ordinances;
- D. To participate through land acquisition and disposition, rehabilitation loans and other activities in specific opportunities for business, civic, residential, cultural, and tourist-related property to be developed, redeveloped, improved, rehabilitated and conserved in ways which will accomplish any or all of the following goals:
 - Encourage the expansion and development of businesses that will expand property values, produce jobs for the people of The Dalles and Wasco County;
 - 2. Ensure a more attractive, functional and economically viable city;
 - 3. Restore historically significant properties to productive use when such use aligns with Goals A and B above,
 - 4. Recognize, maintain awareness of, and when feasible, mitigate the fiscal impact of Urban Renewal on local tax districts,
 - 5. Expand availability of family-wage housing, including but not limited to vertical downtown housing and multi-family residential housing.
 - 6. Support the development of public spaces downtown.
- E. To expand access and connections from downtown to the Riverfront and to provide facilities that enhance public use of the Riverfront;

- F. To provide an adequate amount of properly located and designed off-street accessible parking in the downtown area;
- G. To improve the visual appearance, capacity, and traffic flow of public streets where such improvements will foster adjacent commercial or residential investment and/or support public services.
- H. To install and maintain coordinated street furniture, night lighting and landscaping in areas of maximum pedestrian concentration; including alley rights-of-way in the downtown area;
- I. In conjunction with urban renewal projects, leverage other funding sources to install or upgrade public utilities, including but not limited to underground services in downtown alley rights-of-way.
- J. To identify and actively pursue external grant and private resources in order to leverage the Agency's financial resources to the maximum extent possible.

402. RELATIONSHIP OF THE PLAN TO LOCAL OBJECTIVES

This plan is intended to further the objectives of the City's Comprehensive Land Use Plan. Further, this plan is intended to improve land uses, traffic flow, off-street parking, pedestrian amenities, and other public improvements.

403. CONSISTENCY WITH THE CITY'S COMPREHENSIVE PLAN

This plan has been prepared in conformity with the City's adopted Comprehensive Land Use Plan including its goals, policies, procedures, and implementing provisions.

The following analysis is of the specific goals of the comprehensive plan which are implemented through this Plan.

Goal 5: Open Spaces, Scenic and Historic areas, and Natural Resources

- To conserve and protect the open space, natural, and scenic resources of the area.
- To recognize, protect and enhance the historical and cultural importance of the community, and to promote increased public awareness and participation in historic preservation.

Finding: Federal Street Plaza is one of the projects in the Plan. The urban renewal funds would be used as a match for other sources of financing. This plaza would create open space in the downtown, supporting the other commercial uses and encouraging activity in the Area. The Plan conforms to the Open Spaces, Scenic and Historic areas, and Natural Resources goal.

Goal 8: Recreation Needs

• To develop, acquire, and maintain a balance of recreation opportunities and open spaces in order to improve the livability within the Urban Growth Boundary.

Finding: Federal Street Plaza is one of the projects in the Plan. The urban renewal funds would be used as a match for other sources of financing. This plaza would create open space in the downtown, supporting the other commercial uses and encouraging activity in the Area. The Plan conforms to the Recreation Needs goal.

Goal 9: Economic Development

- Diversify the economic base of the community.
- Increase the tax base needed to provide an adequate level of community services for The Dalles citizens.
- Encourage the growth of existing employers and attract new employers to The Dalles that complement the existing business community.
- Implement the objectives and activities of the Columbia Gateway/Downtown Urban Renewal Plan, enhancing opportunities for the improvement and redevelopment of business, civic, cultural, and residential uses in the area.
- Provide employment opportunities, environments, and choices, which are a vital part of a high quality of life in The Dalles.
- Support the maintenance and enhancement of The Dalles Commercial Historic District.
- Encourage redevelopment and adaptive reuse of commercial space downtown as an alternative to commercial sprawl.

Finding: The Incentive Program provides funds to encourage rehabilitation in the Area. The program offers assistance to improve the façade of a building, add residential units, provide interior improvements and to provide overall improvements to buildings in the Area which include The Dalles Commercial Historic District. These improvements will help facilitate healthy businesses and economic activity in the Area. The Plan conforms to the Economic Development goal.

Goal 10: Housing

- Promote and provide an adequate supply of safe, healthy and affordable housing for all members of the community in a variety of housing types recognizing the needs and desires of the community's residents.
- Promote the development of housing that minimizes or avoids impacts to the natural environment and surrounding land uses.
- Provide and maintain adequate public facilities in all parts of the community and promote a logical and orderly development of those facilities. Require new housing developments to pay an equitable share of the cost of required capital improvements.
- Promote the efficient use of vacant land by encouraging infill development which is developed at a scale that is allowed in existing neighborhoods, and by encouraging new development which achieves the density allowed by the Comprehensive Plan.

- Strengthen existing and promote new neighborhood centers as focal points for neighborhood services and activities.
- Adopt standards and incentives to increase residential land use efficiency.
- Continue to provide opportunities for a full range of rental housing.

Finding: The improvements to First Street and the development of the Federal Plaza will enhance the Area for further redevelopment, which could include future residential development. Building owners may apply to the Incentive Program for assistance in rehabilitating or adding residential units. The Plan conforms to the Housing goal.

Goal 12: Transportation

• To provide a transportation system that supports the safety and mobility needs of local residents, business and industry, affords choice between transportation modes, is convenient and affordable to use, and supports planned land uses.

Finding: The improvements to First Street including the reconstruction, improved pedestrian system, street trees, and a bike lane will serve the needs of the commercial businesses, residents and tourists in the Area by providing a more safe, multi-modal transportation experience. This project will improve the experience of traveling between downtown and the Lewis and Clark Festival Park, and enhance the opportunity for development of, and connectivity to, a Federal Street plaza. These improvements will complete the overall transportation plan to improve the streets and pedestrian atmosphere in the Area. The Plan conforms to the Transportation goal.

404. COORDINATION WITH THE LANDMARK COMMISSION POLICIES

In the implementation of this Urban Renewal Plan, and in particular with the Rehabilitation Program project, the Urban Renewal Agency shall coordinate their efforts with those of the Historic Landmarks Commission in the Urban Renewal Area in which the Historic Landmarks Commission has review authority.

SECTION 500 – LAND USE PLAN

The use and development of all land within the Urban Renewal Area shall conform to the City's Comprehensive Land Use Plan, the Land Use and Development Ordinance, and any other implementing ordinances of the City.

501. LAND USE DESIGNATIONS

The land use designations of the City's Comprehensive Plan which affect the Urban Renewal Plan Area are shown on Exhibit 3 of this Plan. Current zoning districts, shown on Exhibit 4 of this Plan, are described in full in the City's Land Use and Development Ordinance (General Ordinance #98-1222) and generally are as follows:

1. <u>Central Business Commercial District, CBC</u>

The purpose is... "To provide an area for commercial uses, along with civic and certain residential uses, and to provide all basic services and amenities required to keep the downtown

area the vital pedestrian-oriented center of the community". Approximately 36 percent of the Urban Renewal Area is in this zoning district.

2. Industrial District, I

The purpose is... "To establish areas which provide for a variety of commercial and industrial uses". Approximately 11 percent of the Urban Renewal Area is in this zoning district.

3. General Commercial District, CG

The purpose is... "To provide areas for a wide range of retail, wholesale, and service businesses commensurate with the needs of the marketing region. New development shall be designed to promote clustering of businesses, use of common access and traffic controls, and use of cross access for vehicles, pedestrians and bicycles between contiguous sites. Safe and convenient pedestrian and bicycle circulation between the particular use and the adjoining street, sidewalk, or public right-of-way shall also be provided." Approximately 5 percent of the Urban Renewal Area is in this zoning district.

4. Commercial/Light Industrial District, CLI

The purpose is... "To provide an area for commercial uses and certain industrial uses. New development shall be designed to promote clustering of businesses where appropriate, and use of common access and traffic controls. Where appropriate, safe and convenient pedestrian and bicycle circulation between the particular use and the adjoining street/sidewalk shall also be provided.

This district also accommodates business parks that provide for a mixture of commercial and light industrial uses in a campus-like setting where business activities are conducted indoors. To ensure compatibility with adjacent residential neighborhoods, business parks shall be reviewed through the planned development process set forth in Article 9.050." Approximately 27 percent of the Urban Renewal Area is in this zoning district.

5. High Density Residential District, RH

The purpose is... "To provide areas where single family detached dwellings, single family attached dwellings, duplexes, town houses, condominiums, and multi-family developments may be constructed under various ownership patterns. Adequate urban services shall be available to all development without exception." Approximately 6 percent of the Urban Renewal Area is in this zoning designation.

6. Parks and Open Space District, P/OS

The purpose is... "To ensure sufficient open space areas throughout the community to safeguard public need for visual and environmental resources and to provide areas for recreational activities. Allowed uses show lower level activity and potentially less offsite impact than uses allowed conditionally". Approximately 5 percent of the Urban Renewal Area is in this zoning district.

7. <u>Recreational Commercial District, CR</u>

The purpose is... "To provide areas for mixed business, commercial, service, recreational, and light industrial uses. Site planning for permitted uses shall ensure protection and enhancement of the significant environmental areas located along the Columbia River and related streams and creeks. Streets, sidewalks, bikeways, and water, sewer, and storm drainage systems shall be constructed or improved as needed." Approximately 5 percent of the Urban Renewal Area is in this zoning district.

- **502.** The City's acknowledged Comprehensive Plan and its implementing ordinances, codes, policies, regulations, including The Dalles Riverfront Plan, as they exist on the effective date of this Urban Renewal Plan, or as they may be amended from time to time, are incorporated hereby by reference as if they were included in full.
- **503.** The use, development or redevelopment of all land within the Urban Renewal Area shall comply with the provisions of the City's Comprehensive Plan, implementing ordinances, codes, policies, and regulations described in Sections 501 and 502 above, and with all other applicable federal, state, county and city regulations.

SECTION 600 – URBAN RENEWAL ACTIVITIES

In order to achieve the goals and objectives of this plan, the following projects and activities, subject to the availability of appropriate funding, may be undertaken by the Agency or caused to be undertaken by others, in accordance with applicable federal, state, county, and city laws, policies, and procedures and in compliance with the provisions of this Plan and the Cooperation Agreement between the City and Agency.

601. URBAN RENEWAL PROJECTS AND ACTIVITIES

Projects and activities listed under this section as "completed, partially completed, pending, or on-going" were recommended by the Urban Renewal Advisory Committee in 2009, based in part on project selection criteria. New projects identified by the Urban Renewal Agency Board as part of this 2024 Plan revision will follow. Selection criteria are as follows:

GENERAL CRITERIA

Acceptable projects must comply with all of the following:

- I. Selected projects must address any one, or any combination of, blighted conditions as described in the <u>Columbia Gateway Urban Renewal Plan</u>.
- II. Selected projects must be consistent with the goals, policies, and designated uses of the City's <u>Comprehensive Land Use Plan</u> and implementing ordinances.
- III. Selected projects must be consistent with the development policies of the Historic Landmarks Commission in those areas where the Historic Landmarks Commission has review authority.
- IV. Selected projects must, in aggregate, increase property values and tax collections to a level that will produce a reasonable return of the Urban Renewal contribution.

SPECIFIC CRITERIA

Acceptable projects must meet any one or any combination, of the following:

- i. Increases the value of the property on which the project is located.
- ii. Increases the property value of the surrounding properties next to the property, or rightof-way, on which the project is located.
- iii. Places unused or underused property in a productive condition.
- iv. Enhances opportunities for business, civic, residential, cultural, and tourist-related property to be developed, redeveloped, improved, rehabilitated, and/or conserved.
- v. Provides for an adequate amount of properly located off-street parking in the downtown area.
- vi. Promotes riverfront improvements as determined in <u>The Dalles Riverfront Plan</u>.

- vii. Improves the visual appearance, capacity, and traffic flow of streets in areas where development would otherwise be inhibited.
- viii. Assists property owners with the rehabilitation of their buildings and property.
- ix. Enhances storm drainage capacity of streets.
- x. Leverages the Agency's financial resources to the maximum extent possible with other public and private investments and other public and private funding.
- xi. Encourages investment in the core commercial area.
- xii. Promotes housing opportunities in the Downtown area.

The following projects and activities are hereby deemed necessary to:

- Eliminate blighted conditions and influences;
- Stabilize or increase depreciating property values;
- Create an attractive area for the stabilization, expansion, rehabilitation or redevelopment of existing businesses, industries, and housing;
- Create a physical, visual, and economic environment that will attract new, job producing development on the area's vacant land and redevelopment property; and
- Further the objectives of this Urban Renewal Plan as set forth in Section 400.

All public improvements herein proposed shall be complete with all required appurtenances and shall be constructed and implemented in conformance with the approved standards and policies of the City of The Dalles.

With monies available to it, the Urban Renewal Agency may fund in full, in part, a proportionate share, or cause to be funded, the following numbered projects and activities:

PROJECTS COMPLETED

Note: Project descriptions carried over from 2009 Urban Renewal Plan are italicized in **bold,** followed by status as of April 2024.

Grain Elevator Demolition

• "This project consists of removing the structures and other appurtenances that make up the three major components of the grain elevator; the wooden elevator, concrete storage silos, and metal storage bins. Removing the grain elevator allows for the construction of the Downtown / Riverfront Access project and the new sewer treatment plant." ✓ The former grain elevator was destroyed in a fire in 1999; Urban Renewal purchased the property and paid for cleanup following the fire, establishing land base for the City's sewer treatment plant expansion and Lewis & Clark Park. Status: Complete.

Commodore Building Redevelopment

- Redevelopment of the Commodore building involves purchase, and total renovation of the building's interior for an identified use or uses, and restoration of the building's historic exterior.
 - ✓ Agency purchased the Commodore and leased it to Commodore II Limited Partnership on April 10, 2001. Agreement included an Agency loan of \$282,445. Loan is payable on or before Dec. 31, 2026. Status: Renovations completed; Agency interest continues until loan is repaid.

Civic Auditorium Remodel and Reconstruction

- The project involves a total remodel and reconstruction of the entire building including: the Fireside room, ballroom, theater, gym, and basement areas, as well as electrical, plumbing, heating and cooling, and exterior repairs.
 - ✓ The Civic Auditorium was saved from demolition when City of The Dalles conveyed ownership to the Civic Auditorium Historic Preservation Committee in 1990. Major and minor phases of repair and restoration continued for more than 30 years, including Urban Renewal investments and many other sources. The Civic celebrated its centennial on May 12, 2023. Status: All major renovations complete.

Mill Creek Bridge Reconstruction (West Sixth Street)

- The Mill Creek Bridge reconstruction consists of two phases, the first of which has already been completed. The first phase included improving the four sidewalk approaches to the bridge and related road, drainage, and bank stabilization work. The second phase involves a complete restoration of the bridge in its original historic character including the sidewalks, railings, and light standards and deck.
 - Reconstruction used a combination of Urban Renewal and City of The Dalles street funds. Completed in the early 2000s, this included deck reconstruction, replacement of the historic parapet and period lighting. In September 2024 Oregon Department of Transportation informed the City of surface and structural concerns requiring remediation, potentially requiring bridge replacement. Further information pending as of the date of this Substantial Amendment.

Thompson Park Sidewalk

- This is a small project that includes construction of a natural rock retaining wall, sidewalk, and curb. It begins at the drive entrance to the Thompson Park swimming pool and ends at the intersection of West Second Street and Cherry Heights.
 - ✓ Urban Renewal paid for sidewalk along West Second Street west from Mill Creek, adjacent to pool extending to and along Cherry Heights Road, including rock retaining wall. There was no sidewalk previously. Status: Complete.

Redevelopment of Wasco Warehouse & Milling Company Property

- Redevelopment of the Wasco Warehouse & Milling Company property involves purchase and may include partial renovation and historic preservation for an identified use or uses. Additional land will be acquired from the Oregon Department of Transportation and the Union Pacific Railroad.
 - ✓ This project was completed through acquisition and redevelopment as the Sunshine Mill. Urban Renewal assisted through its loan program, beginning with a loan agreement to Discovery Development LLC in 2009. Loan was paid in full and mortgage satisfied on January 1, 2020. Status: Complete.

East Gateway/Brewery Grade Street Reconstruction

- The existing streets will be realigned and improved and a roundabout installed to help facilitate a better flow of traffic within the Area.
 - ✓ Brewery Grade roundabout was completed in 2010. This was a \$3.5 million project, combining urban renewal with other public funding sources. Improvements included public parking lot, redesigned access from East Second and East Third streets, and parking upgrades at the former Great Southern Railroad Depot (later Cannon Packer). Status: Complete.

Thompson Park Pool Project

- The project will allow for additional amenities to the construction of a new pool, which was approved as the result of a bond measure passed by the voters of the Northern Wasco County Parks & Recreation District. The alternate features for the project, which will be visible from I-84 freeway, are designed in part to attract tourists to the City.
 - ✓ Urban Renewal paid for sidewalk along West Second Street west from Mill Creek, adjacent to pool extending to and along Cherry Heights Road, including rock retaining wall. There was no sidewalk previously. Status: Complete.

Redevelopment of the Elks Lodge Building

- The project anticipates acquisition of the Elks Lodge Building by the Agency, and conveyance of the property to a private developer for creation of a museum for the display of neon signs.
 - ✓ Urban Renewal Agency acquired the building in March 2015 and entered a Development and Disposition Agreement with David and Kirsten Benko on April 3, 2015, with the goal of establishing a museum dedicated to the preservation and display of vintage neon signs. Property title was conveyed in 2015. The National Neon Sign Museum opened in 2018. Status: Complete. In 2023 the Benkos and Restore Oregon announced plans to relocate the historic Jantzen Beach Carousel to a parcel adjoining the building. This project is on-going.

Downtown Parking Structure and Surface Parking Lots

• Increase in demand for easy parking in the Downtown area will require the construction of a multi-level parking structure. Estimates are for 150 parking

spaces to help accommodate the additional demand. Smaller surface lots in the core area may be located on a temporary basis or permanently constructed.

✓ Initial plans called for acquisition and demolition of the former J. C. Penny's store on Second between Court and Washington, with construction of a multi-level parking structure on that site and the adjoining parking lot. This project was later abandoned. Focus instead was on construction of smaller, surface parking lots near St. Peter's Landmark, Sunshine Mill Roundabout and (in 2024) East Third. All of these have been completed or are pending completion. No further surface parking lots are proposed. Status: Surface lots complete. Parking structure abandoned.

Redevelopment of Armory Property / Public Works site

- This project includes the redevelopment of the commercial property on the south side of West Sixth Street from Webber to Walnut. The current City Public Works office and yard would be relocated to another site.
 - ✓ Requiring nearly three decades of effort, this project concluded with construction of Ft. Dalles Readiness Center on the Columbia Gorge Community College campus in 2014 – a \$19.4 million project. The college leased part of its campus to the Oregon Military Department. This allowed demolition of the former armory (a 1940s-circa Quonset hut at West Sixth & Webber Streets) by Urban Renewal and enabled Wasco County to regain site control at that location. A separate, nearby project was the Urban Renewal-funded demolition of the former City of The Dalles Public Works building on West Sixth Street. Public Works relocated to West First Street, making way for an automotive dealership on West Sixth Street, representing a significant private investment on property formerly owned by Wasco County. Commercial property redevelopment resides with Wasco County as property owner. Status: Complete.

Projects partially completed, pending or on-going

Note: Most of these projects have changed in scope significantly since 2009. While some major elements have been completed, such as the maritime terminal and Union Street undercrossing, the original visions may still be considered works in progress.

Downtown Streetscape Improvements

The location of the Downtown Streetscape Improvements project may include all areas designated on the City's official Zoning map as "Central Business Commercial" and includes 1st, 2nd, 3rd, and 4th Streets and connecting side streets. Streetscape improvements may include: Removal of existing curbs, gutters, sidewalks, street lighting, hollow sidewalks, street grades, and other associated elements. The project includes construction of curbs and gutters, decorative concrete sidewalks and paving stones, period street lights, street trees, irrigation systems, plazas, signs, drinking fountains, benches, planting areas, special crosswalk treatment, and other associated elements. This would include the ability to install Opticom GPS Systems and to upgrade the water system in the area.

- ✓ Second Street downtown was redeveloped in 2002 using a combination of Urban Renewal and City of The Dalles street funds. Opticom GPS was not installed downtown. Third Street redevelopment was scheduled for 2007-08 but postponed amid an economic downturn, then never resumed. First Street has received priority because of failing sidewalks between Union and Washington, the need for separated traffic/pedestrian passage east of Washington, and inadequate infrastructure overall. Architecture and engineering is at 95% completion as of April 2024. Urban Renewal Agency has conveyed \$3.8 million to the city in preparation for this project, with all funding anticipated to come from the Agency. However, cost escalation has resulted in a significant budget gap from original estimates. Research is under way to resolve this urgent challenge. Status: One major element completed.
- ✓ First Street reconstruction to address hollow sidewalk between Union and Washington and other improvements. Given potential fiscal impact on the Agency's capacity, this is called out as a new project below.

Downtown / Riverfront Access

- The Downtown / Riverfront Access project links the Downtown area to the Columbia Riverfront via a non-vehicular pathway. It includes development of a trailhead and parking lot, access tunnels under the railroad, First Street and the I-84 freeway, a commercial marine terminal dock near the site of the old pier, a twelve-foot wide trail with associated landscaping elements between the trailhead and dock, and a plaza on Washington Street.
 - ✓ Access including "boat dock near the old pier" was accomplished through construction of the Union Street portal in 2003, Maritime Terminal (Cruise Ship Dock) in 2012 and Lewis & Clark Park with associated vehicle parking. The undercrossing alone was a \$6 million project. Urban Renewal funding leveraged at least \$2.25 million in state and federal funds. Washington Street plaza, railroad and I-84 under-crossings were envisioned but later cancelled. There is significant potential for additional riverfront development within the current urban renewal district boundaries and west along West First Street and Bargeway Road. Status: Two major elements completed.

Mill Creek Greenway Property Development

• A main feature of the Mill Creek Trail/Greenway, primarily the section between 2nd Street and West 8th Place, will be the construction of the 10-foot-wide paved pedestrian bicycle trail, to be utilized for recreation and as a connector for pedestrian and bicycle travel in the City. An additional pedestrian bridge over Mill Creek will be constructed as part of connecting the trail to a terminus with the West 8th Place cul-de-sac. A connection is also proposed from 2nd Street via a pedestrian/bicycle signaled crosswalk or other approved method of passage, then continuing along property between the Union Pacific Railroad right-of-way, Urness Motors (Assessor Map No. 1N 13E 3BB Tax Lots 900 & 1000), and the United States Postal Service properties (Assessor Map No. 1N 13E 3BB Tax Lots 700 & 800) to Union Street, with the trail ultimately connecting to the Riverfront Trail. Construction of the Mill Creek Trail Greenway is anticipated to be done in

phases. Anticipated expenses include, but are not limited to engineering and design for the Mill Creek Trail/Greenway, consultant review of the compatibility of the location of the proposed trail with existing and planned improvements for the Thompson Park property owned by the Northern Wasco County Parks & Recreation District, landscaping, lighting, irrigation, trash receptacles, toilets, benches, interpretive and trail signage, creek overlooks, a native plant garden, picnic area, and sculpture.

✓ Ongoing partnership with Northern Wasco County Parks & Recreation and Agency. Urban Renewal Agency in 2023 transferred \$300,000 to the parks district for an elevated boardwalk the District plans as part of this Project. There are no immediate plans for the linkage across West Second Street to Riverfront Trail near Mill Creek, although public partners recognize the need for this connection. Urban Renewal bought and demolished older structures prior to transferring property to Parks District. Status: Pending.

West Gateway Project

- West Second Street from Lincoln Street to western boundary of Urban Renewal; street and property redevelopment, redesign and reconstruction. Amended April 12, 2020, by Resolution No. 10-068 adding Skateboard Park. The Gateway project is a large project that includes redesign and reconstruction of sections of I-84, West Second, and Webber Streets, and property redevelopment and realignment to provide for better access and redevelopment opportunities. The urban renewal portion of the project is focused on West Second Street and associated properties.
 - ✓ Skateboard park was completed, including a \$100,000 commitment from Urban Renewal. Limited intersection improvement occurred at Cherry Heights and West Second Street intersection. The urban renewal district includes multiple parcels along West Second Street west of Webber Street, extending to and including tax lot BC900. Webber Street undercrossing and realignment of West Second Street north of Interstate 84 were part of a proposed transportation improvement project in 2011 (estimated cost \$3.7 million) but later postponed. Status: Incomplete.

Third Place Street Improvements

- The 3rd Place improvements include street, utilities, curbs, sidewalks, lighting, landscaping, and associated improvements.
 - ✓ This project would correct a tight curve on West Third Place just south of the West Fourth Street intersection. Status: Indefinitely postponed.

Redevelopment of properties located within the block bordered by Washington and Court Streets, and First and Second Streets.

- The project may include the acquisition of the Granada Theater for possible use as a fine arts community center through a development and disposition agreement.
 - ✓ This became the Granada Block redevelopment. The Agency acquired the Granada Theatre, former Washington Hotel/Model Laundry ("Blue Building") and

Recreation parcels on Second Street, and conducted alley vacations preparatory to development of a downtown hotel and associated conference center. This plan was later discarded and the individual properties sold through Development and Disposition Agreements. All are fully or partially occupied as of April 2024. The Granada Theatre, constructed in 1929, operates in its original function as a movie theatre. The Washington Hotel houses limited retail. All three individual Recreation parcels have been redeveloped and sold, with final property transferred from Agency ownership in October 2024. **Status: Major elements completed.**

Property Rehabilitation Grants and Agreements

- This is on-going, having current form (2023-24) as the Incentive Program and, for larger projects, Development Funding Agreements.
- This program has three areas that are designed to further the objectives of the Urban Renewal program and address the many individual projects on private and public property identified throughout the amendment process that meet the project selection criteria. The three program areas include:
 - a. Land Assemblage: The Agency may assist in land assemblage to allow for private development of City and/or privately owned property.
 - b. Historic Design and Restoration: The Agency may provide architectural and engineering design services for existing or new buildings in the National Historic Districts for restoration or compatible design work. The Agency may also provide low interest loans for the portion of the construction work necessary to meet the historic compatibility requirements.
 - c. Redevelopment of Unused and Underused Land and Buildings and other Civic Improvements: The Agency may provide grants and low interest loans for business, civic, residential, cultural, and tourist-related property to be developed, redeveloped, improved, rehabilitated, and/or conserved. Grants shall be made to for-profit, public, non-profit, and civic organizations. Projects must meet the project selection criteria in order to be eligible to receive a grant. These grant and loans may include sprinkler systems for existing and new structures.
 - The Agency may establish a below market interest rate loan program for the redevelopment of properties within the urban renewal area. Prior to making any loans, the Agency shall prepare and adopt a comprehensive rehabilitation loan plan that sets forth:
 - Criteria for eligibility;
 - Interest rates and terms for various loans;
 - Procedures for recycling the funds as loan obligations are paid;
 - Procedures for delinquent loan payments or defaults;
 - Procedures and conditions for which deferred payment loans may be offered;
 - Procedures for administering and servicing the loan program; and
 - Such procedures and conditions the Agency deems necessary.

- ✓ The property rehabilitation grant and loan fund program has been applied on numerous occasions and provides the basis for its current variation, adopted in 2023, the Urban Renewal Incentive Program. Earlier projects (as of 2009-10) included renovation and repairs to the Wasco Milling Co. Warehouse (Sunshine Mill), Columbia River Bank building, Sigman's Flowers Building, Gayer's Building, Granada Theatre, Civic Auditorium, The Dalles Art Center, Masonic Lodge / Second Courthouse (Clock Tower Ales), American Legion, Old St. Peter's Landmark, IOOF Lodge façade, Craig's Office Building, Hilco gas station demolition, Creek View townhouse demolition, and Mill Creek Greenway land donation.
- ✓ Another project, which has yet to conclude, is the Tony's Town & Country building redevelopment, which began under Programs A (Land Assemblage) and C (Redevelopment) with acquisition of the structure. After determining that the Tony's building could not be salvaged, the Agency had the structure demolished in 2023 for later redevelopment.
- ✓ The loan program is presently discontinued. **Status: Modified and ongoing.**

NEW PROJECTS added in 2024:

- Basalt Commons: A mixed-use commercial and residential development at 523 East 3rd Street. Developer will demolish existing structure (a former auto dealership) and replace it with a five-story commercial and residential complex.
- Tony's Town & Country building acquisition, demolition and site rehabilitation.
- First Street reconstruction to include sidewalk replacement, street and sub-street reconstruction, tree plantings with irrigation, related infrastructure and public safety measures.
- Federal Street Plaza: Establish public plaza, green space and other improvements to create a community gathering space between First and Second streets. Urban Renewal to help leverage external resources such as state and federal grants by contributing toward local match.
- •

602. ACQUISITION OF REAL PROPERTY

The Plan authorizes the acquisition and disposition of property as described in this section. Property includes any and all interests in property, including fee simple ownership, lease, easements, licenses or other rights to use. Eminent domain would be used only if necessary for the acquisition of land for public improvements and after the Agency has taken all steps required by law to attempt to acquire the land by voluntary agreement with the property owner.

A. Property Acquisition for Public Improvements

The Agency may acquire any property within the Area necessary for the public improvement projects undertaken pursuant to the Plan by all legal means. The Agency action approving an acquisition will specify the need for the acquisition in relation to the public improvement undertaken.

B. Property Acquisition – From Willing Sellers

The Plan authorizes the Agency acquisition of any interest in property within the Area that the Agency finds is necessary to support private redevelopment pursuant to the Plan, but, except as noted below, only in those cases where the property owner wishes to convey such interest to the Agency. The Agency action approving an acquisition will specify the need for the acquisition to support private redevelopment. The Plan does not authorize the Agency to use the power of eminent domain to acquire property other than in the case described in Section 602.A. above, which allows the acquisition of land for public improvements using the power of eminent domain.

C. Land Disposition

The Agency will dispose of property acquired for a public improvement project by conveyance to the appropriate public agency responsible for construction and/or maintenance of the public improvement. The Agency may retain such property during construction of the public improvement. The schedule for disposition of land for a public improvement project will be determined based on the timing of the construction of the public improvement.

The Agency may dispose of property acquired under Subsection B. of this Section 602 by conveying any interest in the property. The schedule for disposition of land acquired under Subsection B. of this Section 602 will be determined by the Agency when the Agency determines the acquisition is necessary pursuant to Section 602. B above. These determinations may be made by Resolution of the Agency.

Property shall be conveyed at its fair reuse value. Fair reuse value is the value, whether expressed in terms of rental or capital price, at which the Urban Renewal Agency in its discretion determines such land should be made available in order that it may be developed, redeveloped, cleared, conserved or rehabilitated for the purposes specified in such plan. Because fair reuse value reflects limitations on use of the property to those purposes specified in the Plan, the value may be lower than the property's fair market value.

Where land is sold or leased, the purchaser or lessee must agree to use the land for the purposes designated in the Plan and to begin and complete the building of its improvements within a period of time that the Agency determines is reasonable.

605. RELOCATION ACTIVITIES

If in the implementation of this Plan, persons or businesses should be displaced by action of the Agency, the Agency shall provide assistance to such persons or businesses to be displaced. Such displaces will be contacted to determine their individual relocation needs. They will be provided information on available space and will be given assistance in moving. All relocation activities will be undertaken and relocation payments made in accordance with the requirements of ORS 35.500 – 35.530. Payments made to persons displaced from dwellings will be assured that they will have available to them habitable, safe, and sanitary dwellings at costs or rents within their financial reach. Payment for moving expense will be made to occupants displaced.

Prior to the Agency acquiring any property which will cause households, businesses, industries, offices or other occupants to be displaced, the Agency will prepare, adopt, and maintain a Relocation Policy. Such policy will be available to interested parties at the Agency's office and will set forth the relocation program and procedures, including eligibility for and amounts of relocation payments, services available and other relevant matters.

606. PROPERTY DISPOSITION AND REDEVELOPER OBLIGATIONS

- PROPERTY DISPOSITION. The Agency is authorized to dispose of, sell, lease, exchange, subdivide, transfer, assign, pledge, or encumber by mortgage, deed of trust, or otherwise any interest in property which has been acquired by them in accordance with the provisions of this Plan and with the terms and conditions set forth in a Disposition and Development Agreement or other legal instrument as determined by the Agency.
- REDEVELOPER'S OBLIGATION. Any redeveloper and his/her successors or assigns within the Urban Renewal Area, in addition to the other controls and obligations stipulated and required of the Redeveloper by the provisions of this Plan, shall also be obligated by the following requirements:
 - The Redeveloper shall obtain necessary approvals of proposed developments from all Federal, State and/or local agencies that may have jurisdiction on properties and facilities to be developed or redeveloped within the Urban Renewal Area;
 - The Redeveloper shall develop or redevelop such property in accordance with the land use provisions and other requirements specified in this Plan;
 - The Redeveloper shall submit all plans and specifications for construction of improvements on the land to the Agency or such of its agents as the Agency may designate for review prior to distribution to appropriate reviewing bodies as required by the City;
 - The Redeveloper shall commence and complete the development of such property for the use provided in this Plan within a reasonable period of time as determined by the Agency;
 - The Redeveloper shall not effect or execute any agreement, lease, conveyance, or other instrument whereby the real property or a part thereof is restricted upon the basis of age, race, color, religion, sex, marital status, or national origin in the sale, lease or occupancy thereof;
 - The Redeveloper shall accept all conditions and agreements as may be required by the Agency. In return for receiving assistance from the Agency, if any, the Agency may require the redeveloper to execute a development agreement acceptable to the Agency as a condition of the Agency providing assistance.
 - The Redeveloper shall maintain property under his/her ownership within the Area in a clean, neat and safe condition.

607. OWNER PARTICIPATION

Property owners within the Urban Renewal Area proposing to improve their properties and receiving financial and/or technical assistance from the Agency shall do so in accordance with all applicable provisions of this Plan and with all applicable codes, ordinances, policies, plans and procedures of the City.

608. ADMINISTRATIVE ACTIVITIES AND SERVICES TO THE AGENCY

- A. The Agency may hire its own staff or it may obtain its administrative support staff from the City of The Dalles; and the City may provide the personnel necessary to staff the Urban Renewal Agency on such financial terms and conditions as the Agency and the City may from time to time agree in writing. In the event the Agency elects to use City personnel in all or part of its staffing, the Agency will evaluate and make recommendations to the City regarding their personnel support needs. The costs of Agency staffing recommendations shall be included in the annual budget proposal of the Agency.
- B. Further, the Agency may retain and budget for the services of independent professionals, firms, or organizations to provide technical services such as, but not limited to:
 - 1. Legal counsel and bond counsel;
 - 2. Preparation of market, feasibility or other economic studies or plans;
 - 3. Preparation of design, architectural, engineering, landscape architectural, planning, redevelopment, or other developmental feasibility studies;
 - 4. Preparation of construction contract documents for Agency's improvement activities by appropriately licensed professionals;
 - 5. Providing accounting or audit services;
 - 6. Providing special rehabilitation, restoration or renovation feasibility and cost analysis studies or plans;
 - 8. Assisting in -preparation of the annual financial report required under Section 800 of this Plan;
 - 8. Property acquisition and disposition appraisals;
 - 9. Licensed real estate professionals for real property acquisition, disposition or negotiation services;
 - 10. Bond issuance and renewal financing consultants.

C. The Agency may prepare and adopt design standards, themes, guidelines and implementation procedures that would be applied in various sectors of the Urban Renewal Area as the Agency deems appropriate to:

1. Assure architectural continuity and compatibility in new or remodeled buildings that are located in areas in which buildings with unique and distinctive historical or architectural character exists;

2. Advance the role of The Dalles Riverfront Plan as a unique element of visual and civic value to the City and to the properties that abut the river. As such, promote the development and redevelopment of these abutting properties so as to advance and protect these values; and

3. Assure that the developments on the large vacant lands within the Urban Renewal Area will have a design consistency and will advance the objectives of this Urban Renewal Plan.

- D. The Agency may acquire, rent or lease office space within the Urban Renewal Area and may purchase, rent or lease office furniture, equipment and facilities necessary for it to conduct its affairs in the management and implementation of this Plan.
- E. The Agency may invest its reserve funds in interest-bearing accounts or securities consistent with the provisions of city, state and federal law.
- F. To implement this Plan, the Agency may borrow money, accept advances, loans or grants from any legal source, issue urban renewal bonds (also known as tax allocation bonds, governmental bonds, qualified redevelopment bonds and tax increment bonds), and receive tax increment proceeds as provided for in Section 700 of this Plan. Regardless of the form of borrowing of funds, the approval of such borrowing shall comply with the provisions of the Agency's adopted by-laws and all applicable legal requirements.
- G. Without limiting any other provision, power or authorization of this Plan, the Agency shall have all of the powers and responsibilities allowed under the provisions of ORS Chapter 457.

SECTION 700 – FINANCING OF URBAN RENEWAL INDEBTEDNESS

The Urban Renewal Agency may borrow money and accept advances, loans, grants and any other legal form of financial assistance from the federal government, the state, city, county or other public body, or from any legal sources, public or private, for the purposes of undertaking and carrying out this Plan, or may otherwise obtain financing as authorized by ORS Chapter 457.

701. TAX INCREMENT FINANCING AND MAXIMUM INDEBTEDNESS

The projects may be financed, in whole or in part, by tax increment financing as provided in Article IX Section 9(1)(c) of the Oregon Constitution and ORS 457.420 through 457.450.

The maximum amount of indebtedness that may be issued or incurred under the Plan, as amended in 2024, is \$35,262,100.¹

702. PRIOR INDEBTEDNESS

Any indebtedness permitted by law and incurred by the Agency, or the City of The Dalles in connection with preplanning for this Urban Renewal Plan may be repaid from Agency funds when and if such funds are available.

703. ANNUAL BUDGET

The Agency shall adopt and use a fiscal year ending June 30 accounting period. Each year, by July 1, the Agency shall adopt a budget in conformance with the provisions of ORS 294 and ORS 457.460 which shall describe its sources of revenue, proposed expenditures and activities.

The Agency shall submit its proposed budget to the Urban Renewal Agency's Budget Committee for its review and approval, and the Agency shall not undertake any activities nor expend any funds except as provided in the approved budget.

¹ Maximum remaining indebtedness from this and prior bonded obligation was calculated at \$5.7 million (June 30, 2023) but did not reflect FY 2024 expenditures and commitments. Maximum indebtedness is projected to be reached in 2029, at which time the District shall terminate taking division of taxes.

SECTION 800 – ANNUAL FINANCIAL STATEMENT REQUIRED

801. REQUIRED FINANCIAL STATEMENT

The Agency shall conform to all statutory requirements for reporting financial information.

802. STATEMENT FILED AND PUBLISHED

The statement required by Subsection 801 shall be filed with the City Council and notice shall be published in the "Columbia Gorge News", a newspaper of general circulation in the City, that the statement has been prepared and is on file with the City and with the Urban Renewal Agency and the information contained in the statement is available to all interested persons.

SECTION 900 – CITIZEN PARTICIPATION

The activities and projects identified in this Plan, the development of subsequent plans, procedures, activities and regulations, and the adoption of amendments to this Plan shall be undertaken with the participation of citizens, owners and tenants as individuals and organizations who reside within or who have financial interest within the Urban Renewal Area and with the general citizens of the City.

SECTION 1000 – NON-DISCRIMINATION

In the preparation, adoption and implementation of this Plan, no public official or private party shall take any action or cause any persons, group or organization to be discriminated against on the basis of age, race, color, religion, sex, marital status, family status, or national origin.

SECTION 1100 – RECORDING OF PLAN

A copy of the City Council's Non-Emergency Ordinance approving this Plan or amendments to this Plan under ORS 457.095 shall be sent by the Council to the Urban Renewal Agency. Following receipt of such ordinance, this Plan or such amendments shall be recorded by the Agency with the Recording Officer, Wasco County.

SECTION 1200 – PROCEDURES FOR CHANGES OR AMENDMENTS IN THE APPROVED URBAN RENEWAL PLAN

The Plan will be reviewed and analyzed periodically and will continue to evolve during the course of project execution and ongoing planning. The Plan may be changed, clarified, modified or amended as future conditions may warrant. Where, in the judgment of the Agency the proposed modification will substantially change the Plan, the modification must be duly approved by the City Council in the same manner as the original Plan and in accordance with the requirements of State and local law. The provisions of ORS 457.085 and ORS 457.220 and of Section 1203 of this Plan shall apply.

The various types of Plan changes, clarifications, modifications or amendments and the official actions that shall be taken prior to their implementation are as follows:

1201. MINOR CHANGES

Minor changes shall not modify the goals and objectives of the Plan or any of its provisions. Such minor changes may include:

- A. Clarification of language or the State Legislature's changes in ORS Chapter and Section references.
- B. Clarification of written or graphic Exhibits to this Plan.
- C. Modification in this location of project improvements authorized by this Plan, resulting from detailed architectural, engineering or planning analysis.
- D. The identification of property to be acquired as provided for in this Plan.
- E. Changes to the scope, cost or location or projects or addition of projects that do not modify the goals and objectives or the basic procedural, planning or engineering principles of this Plan.

Such minor changes, if any, shall be made only by a duly approved resolution of the Agency in which the details of the minor change shall be described.

1202. AMENDMENT TO THE CITY'S COMPREHENSIVE PLAN OR TO ANY OF ITS IMPLEMENTING ORDINANCES

From time to time during the implementation of this Urban Renewal Plan, the Planning Commission and the City Council of the City of The Dalles may approve amendments or modifications to the City's Comprehensive Plan or to codes, policies, procedures or ordinances, which are established to implement such Comprehensive Plan. Further, the City Council may from time to time amend or approve new building, health safety and other codes that affect the implementation of this Urban Renewal Plan.

A. Where such amendments, modifications or approvals have been officially adopted by the City Council, such amendments, modifications or approvals – which affect the

provisions of this Urban Renewal Plan – shall, by reference become a part of the Plan as if such amendments, modifications or approvals were herein stated in full.

B. The City Council shall forward to the Agency copies of such Council actions as are herein above described, and the Agency shall prepare and approve a resolution recognizing that such City Council amendments, modifications or approvals are to be considered as minor changes to this Urban Renewal Plan as provided in Section 1201 above.

1203. COUNCIL APPROVED AMENDMENTS

Changes to the Plan that are not minor changes as described in Section 1202 or substantial changes as described in Section 1204 shall be approved by the City Council in the manner described in ORS 457.085(4), (5) and (6) except that the additional notice provisions of ORS 457.120 shall not apply.

Council approved amendments include any change in any provision of this Plan which would modify the goals and objectives or the basic procedural, planning or engineering principles of this Plan.

1204. SUBSTANTIAL CHANGES

Substantial changes, if any, shall be approved by the City Council in the same manner as the Council's approval of the original plan and in compliance with the provisions of ORS 457.095 and ORS 457.220.

Substantial changes shall include the following:

- A. An increase in the maximum amount of indebtedness that may be issued or incurred under this Plan as set forth in Section 701 of this Plan; and
- B. Adding land to the urban renewal area that results in a cumulative addition of more than one percent of the urban renewal area.

SECTION 1300 - VALIDITY OF APPROVED URBAN RENEWAL PLAN

Should a court of competent jurisdiction find any word, clause, sentence, section or part of this Plan to be invalid, the remaining words, clauses, sentences or parts shall be unaffected by such finding and shall remain in force and effect.

10-2 TO 21-11-12 CONT

Commencing at the corner common to Sections 4 and 5, Township 1 North, Range 13 East, and the south section line of Section 33, Township 2 North, Range 13 East, Willamette Meridian, Wasco County, Oregon;

- 1. Thence due east from said common corner to a point on the west line of the Methodist Mission Dedication Land Claim (DLC), and thence northerly along said west line of the Methodist Mission DLC to a point common with the southerly right-of-way line of Interstate Highway 84 and the west line of the Methodist Mission DLC, Assessors Plat 2N 13 33CD, for the TRUE POINT OF BEGINNING;
- 2. Thence from the true point of beginning, easterly along the southerly right-of-way line of Interstate Highway 84 to a point of intersection with the southerly right-of-way line of the Columbia River Highway 30, Assessors Plat 2N 13 33D, (West 2nd Street);
- Thence easterly along the said southerly right-of-way line of the Columbia River Highway 30 (West 2nd Street) to a point of intersection with the easterly right-of-way line of Cherry Heights Road and the northwesterly lot line of tax lot 500, Assessors Plat 1N 13 4AA;
- 4. Thence southwesterly along said northwesterly lot line of tax lot 500 to the southwest corner, which is a common corner with tax lot 700, Assessors Plat 1N 13 4AA;
- 5. Thence counter-clockwise around said tax lot 700 to the northwest corner of tax lot 801 of said plat;
- 6. Thence counter-clockwise around said tax lot 801 to the southeast corner of tax lot 104 of Assessors Plat 1N 13 4AB;
- 7. Thence clockwise around tax lot 104 of said plat until it intersects the westerly right-ofway line of the Mt. Hood Street stub;
- 8. Thence southerly along the westerly right-of-way line of Mt. Hood Street and its prolongation to the northerly right-of-way line of West 7th Street;
- 9. Thence westerly along the northerly right-of-way line of West 7th Street to a point of intersection with tax lot 3700 of Assessors Plat 1N 13 4AB;
- 10. Thence East 50 feet along the North Boundary of said tax lot 3700;
- 11. Thence counterclockwise around tax lot 3600 of Assessor's Plat 1N 13 4AB to the Southwest corner of tax lot 3800 of said plat;
- 12. Thence southerly along the easterly right-of-way line of Wright Street and its prolongation to the southerly right-of-way line of West 8th Street;

- 13. Thence easterly along the southerly right-of-way line of West 8th Street and its prolongation to the easterly right-of-way line of Jordan Street;
- 14. Thence northerly along the easterly right-of-way line of Jordan Street to the southerly right-of-way line of the alley between West 8th and West 7th Streets;
- 15. Thence easterly along the southerly right-of-way line of the said alley and its prolongation to the easterly right-of-way line of Bridge Street;
- 16. Thence northerly along the easterly right-of-way line of Bridge Street and its prolongation to the southerly right-of-way line of West 6th Street;
- 17. Thence easterly along the southerly right-of-way line of West 6th Street and its prolongation to the easterly right-of-way line of Trevitt Street;
- 18. Thence northerly along the easterly right-of-way line of Trevitt Street and its prolongation to the southerly right-of-way line of West 3rd Place;
- 19. Thence easterly along the southerly right-of-way line of West 3rd Place to a point of intersection with the southwest corner of tax lot 3100, Assessors Plat 1N 13 4AA, Trevitt's Addition;
- 20. Thence counter-clockwise around said tax lot 3100 to the southwest corner of tax lot 3200 of said plat,
- 21. Thence easterly along the south lot line of said tax lot 3200 to the southeast corner of said tax lot 3200;
- 22. Thence across a public right-of-way to the southwest corner of tax lot 4600, Assessors Plat 1N 13 3BB;
- 23. Thence southeasterly along the south lot line of said tax lot 4600 to the southwest corner of tax lot 4401, Assessor's Plat 1N 13 3BC.
- 24. Thence easterly along the south lot lines of tax lots 4401, 4200, and 3800 of said plat, to a point of intersection with the westerly lot line of tax lot 3700 of said plat;
- 25. Thence counter-clockwise around said tax lot 3700 to the southwest corner of tax lot 5200 of said plat;
- 26. Thence easterly along the southerly lot line of said tax lot 5200 to the southeast corner of said tax lot 5200;
- 27. Thence easterly across the Liberty Street right-of-way to the southwest corner of tax lot 5600 of said plat;

- 28. Thence clockwise around said tax lot 5600 to the northeast corner of said tax lot 5600 at the intersection with the west lot line of tax lot 6100 of said plat;
- 29. Thence clockwise around said tax lot 6100 to the northeast corner of tax lot 6000 of said plat;
- 30. Thence southerly along the east lot lines of tax lots 6000 and 5900 to the intersection with the north right-of-way line of the alley between West 5th and West 6yh Streets;
- 31. Thence westerly along the northerly right-of-way line of said alley to a point of prolongation of the west lot line of tax lot 8200 of said plat;
- 32. Thence southerly along the west lot line of said tax lot 8200 and its prolongation to the southerly right-of-way line of the alley between West 6th and West 7th Streets;
- 33. Thence easterly along the southerly right-of-way line of the said alley and its prolongation to the easterly right-of-way line of Court Street;
- 34. Thence southerly along the easterly right-of-way line of Court Street and its prolongation to the northerly right-of-way line of East 7th Place, Assessors Plat 1N 13 3CB;
- 35. Thence easterly along the northerly right-of-way line of East 7th Place and its prolongation to the southwest corner of tax lot 700, Assessors Plat 1N 13 3CB;
- 36. Thence clockwise around said tax lot 700 to the westerly right-of-way line of Case Street;
- 37. Thence northerly along the westerly right-of-way line of Case Street to the southerly right-of-way line of East 7th Street;
- 38. Thence westerly along the southerly right-of-way line of East 7th Street to a point on the easterly lot line of tax lot 9800, Assessors Plat 1N 13 3BC;
- 39. Thence clockwise around said tax lot 9800 to a point on the easterly lot line of tax lot 9700 of said plat;
- 40. Thence clockwise around said tax lot 9700 to the easterly right-of-way line of Court Street;
- 41. Thence northerly along the easterly right-of-way line of Court Street to the southerly right-of-way line of East 5th Street;
- 42. Thence easterly along the southerly right-of-way line of East 5th Street to the southwesterly corner of tax lot 900, Assessors Plat 1N 13 3CA;
- 43. Thence counter-clockwise around said tax lot 900 to the southwest corner of tax lot 1200 of said plat;

° °

- 44. Thence counter-clockwise around said tax lot 1200 to the southerly right-of-way line of East 4th Street;
- 45. Thence easterly along the southerly right-of-way line of East 4th Street to the westerly right-of-way line of Madison Street;
- 46. Thence counter-clockwise around the terminus of the southerly right-of-way line of Madison Street to the easterly right-of-way line of Madison Street;
- 47. Thence northerly along the easterly right-of-way line of Madison Street and its prolongation to the southerly right-of-way line of East 3rd Street;
- 48. Thence easterly along the southerly right-of-way line of East Third Street and counterclockwise around the easterly terminus of East 3rd Street to a point which intersects with the South boundary line of Tax Lot 5400, Assessor's Plat 1N 13 3DB; thence South 56° 5' East a distance of approximately 250 feet to the Northeast corner of Tax Lot 5800; thence North 5° 32' East 136.5 feet to the Southwest corner of Tax Lot 5500; thence 50 feet East along the South boundary of Tax Lot 5500, Assessor's Map 1N 13 3DB, to the Southwest corner of Tax Lot 3900, Assessor's Plat 1N 13 3DA;
- 49. Thence Easterly along the Southerly lot line of Tax Lot 3900 to the Northwest corner of Tax Lot 4000 of said plat;
- 50. Thence clockwise around said tax lot 4000 to the northerly right-of-way line of East 8th Street;
- 51. Thence easterly along the northerly right-of-way line of East 8th Street and its prolongation to the easterly right-of-way line of Harris Street;
- 52. Thence northerly along the easterly right-of-way line of Harris Street to the northwest corner of tax lot 3700 of said plat;
- 53. Thence clockwise around said tax lot 3700 to the westerly lot line of tax lot 2600 of said plat;
- 54. Thence clockwise around said tax lot 2600 to a point which is the southerly prolongation of the easterly lot line of tax lot 100 of said plat;
- 55. Thence northerly along the southerly prolongation of the easterly lot line of said tax lot 100 to the northwest corner of said tax lot 100;
- 56. Thence westerly along the northerly lot line of said tax lot 100 to the easterly right-ofway line of Taylor Street;
- 57. Thence northerly along the easterly right-of-way line of Taylor Street and its prolongation to the northerly right-of-way line of the Union Pacific Railroad;

- 58. Thence westerly along the northerly right-of-way line of the Union Pacific Railroad to the easterly right-of-way line of Laughlin Street;
- 59. Thence northerly along the easterly right-of-way line of Laughlin Street and its prolongation to the northerly right-of-way line of Interstate Highway 84;
- 60. Thence westerly along the northerly right-of-way line of Interstate Highway 84 to the easterly lot line of Government Lot #3, Assessors Plat 1N 13 3;
- 61. Thence northerly along the easterly line of said Government Lot to the northeast corner of said Lot;
- 62. Thence westerly along the northerly line of said Government Lot and its prolongation to a point on the northerly right-of-way line of Interstate Highway 84;
- 63. Thence westerly along the northerly right-of-way line of said Interstate Highway 84 to the northerly right-of-way line of West 1st Street (Bargeway Road);
- 64. Thence westerly along the northerly right-of-way line of said West 1st Street to the easterly right-of-way line of Terminal Way;
- 65. Thence southerly along the easterly right-of-way line of said Terminal Way and its prolongation to the southerly right-of-way line of the Union Pacific Railroad, Assessors Plat 2N 13 33DC;
- 66. Thence westerly along the southerly right-of-way line of said railroad to the southerly line of the Charles W. Shaug DLC #41, Assessors Plat 2N 13 33BC;
- 67. Thence westerly along the southerly line of said Charles W. Shaug DLC #41 to the easterly lot line of tax lot 800, Assessors Plat 2N 13 33BC;
- 68. Thence clockwise around said tax lot 800 to the southerly lot line of tax lot 700 of said plat;
- 69. Thence clockwise around said tax lot 700 to the southerly line of the said Charles W. Shaug DLC #41;
- 70. Thence westerly along said Charles W. Shaug DLC #41 to the northerly right-of-way line of Interstate Highway 84;
- 71. Thence southeasterly along the northerly right-of--way line of said highway to the southwest corner of tax lot 1500, Assessors Plat 2N 13 33C;
- 72. Thence southerly to the westerly right-of-way line of Walnut Street;
- 73. Thence southerly along the westerly right-of-way line of Walnut Street to the southerly right-of-way line of West 7th Street;

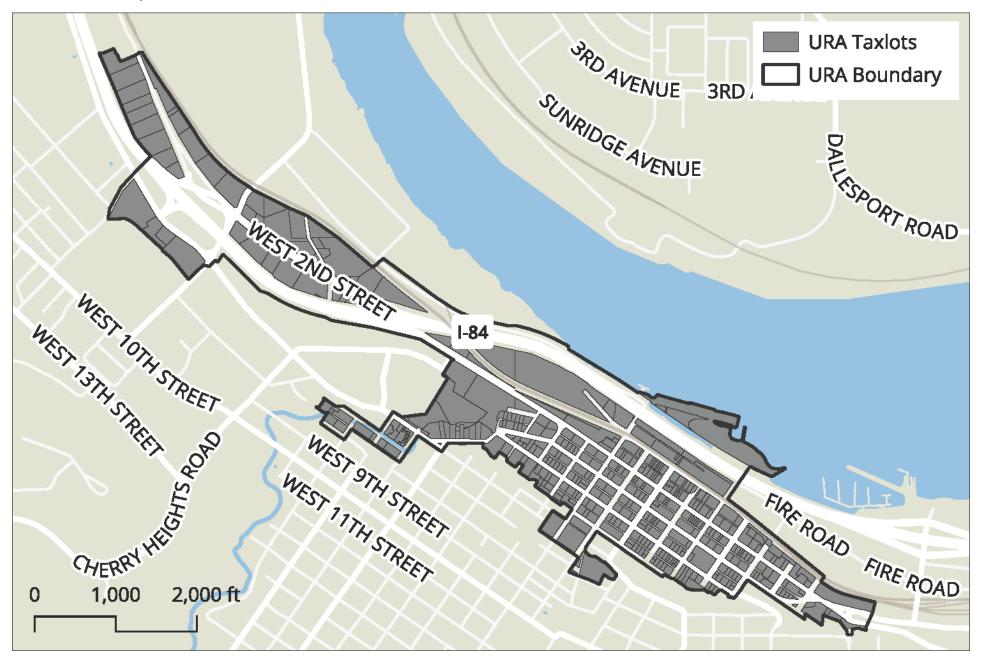
. · · ·

- 74. Thence easterly along the prolongation of the southerly right-of-way line of West 7th Street to the westerly lot line of tax lot 1100, Assessors Plat 2N 13 33CB;
- 75. Thence counter-clockwise around said tax lot 1100 to the southwest corner of tax lot 1800, Assessors Plat 2N 13 33C;
- 76. Thence southeasterly along the southerly lot line of said tax lot 1800 and its prolongation to the easterly right-of-way line of Webber Street;
- 77. Thence northerly along the easterly right-of-way line of Webber Street and its prolongation to the southerly right-of-way line of Interstate Highway 84;
- 78. Thence easterly along the southerly right-of-way line of said Highway 84 TO THE TRUE POINT OF BEGINNING.

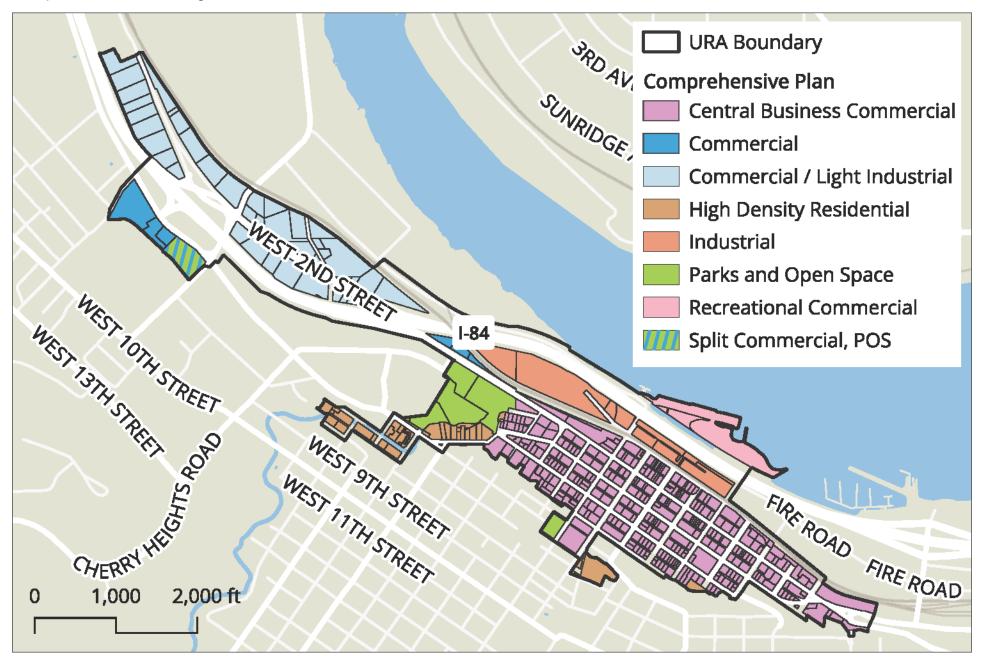
、 **°**

.

Columbia Gateway Urban Renewal District

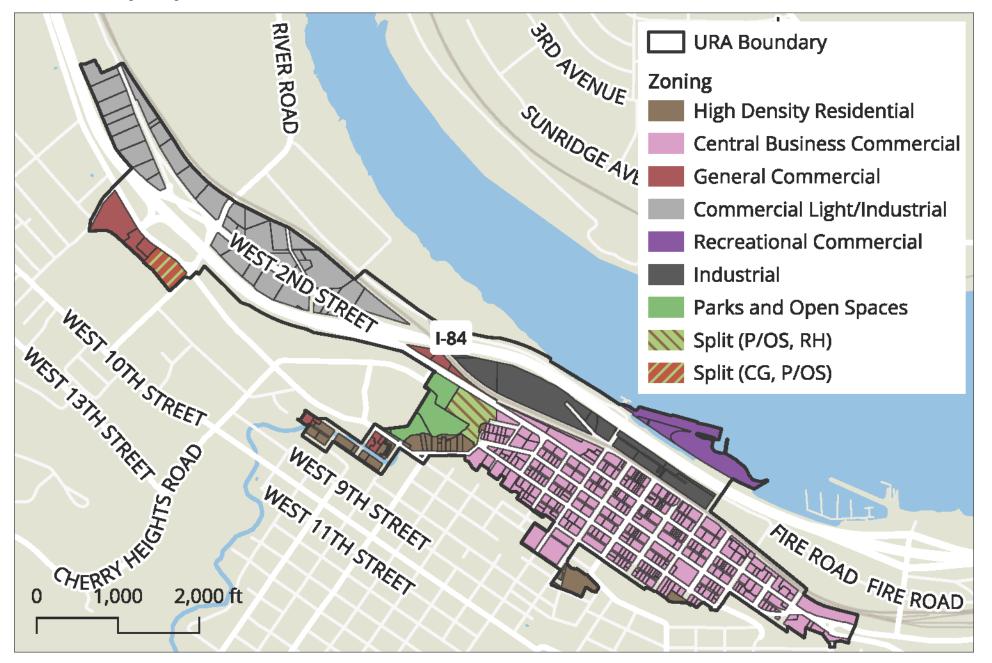


Comprehensive Plan Designations



Attachment 2 CGURA Plan Exhibit D

Land Use Zoning Designations



Total project Costs	Aug. 1990	Mar. 1998
Treatment Plant	\$2,500,000	\$4,500,000
New Force Main Construction	\$506.250	\$625.776
Collection System Replacement	\$1,100,000	\$1.359;710
West Sixth Street	\$195.000	\$241.040
West Sixth Street	\$28,000	\$34.611
West Second Street	\$1,275,120	\$1.576.176
New River Water Treatment Plant	\$4.050.000	\$5,006,205
New Raw Water Pump Station	\$1,316,250	\$1.627.017
New Raw Water River Intake	\$337,500	\$417,184
New Raw Water Transmission Pipeline	\$236.250	\$292.029
New Distrib. Pipeline & Reservoirs	\$810,000	\$1.001.241
Full Improvements	\$1.408.910	\$1.741.554
Basic Improvements	\$1,285,570	\$1.589.093
Alleys/Underground Utility Systems	\$1.917.000	\$2,369,604
Public Off-Street Parking	\$356.400	\$440.546
West Second to Sixth Street Connection	\$0	\$0
Traffic Signals	\$1.000.000	\$1.236.100
West Sixth Street Bridge	\$415.000	\$512.982
I-84 Freeway Landscape	\$755.980	\$934.467
West Second Street	\$168.470	\$208.246
Columbia Gorge Community College	\$0	\$0
Property Rehabilitation Loan	\$2.000.000	\$2,472,200
City's Swimming Pool	\$720.000	\$889.992
Mill Creek Pedestrian Path	\$186.610	\$230.669
Civic Auditorium	\$40.000	\$49.444
Commodore Apartments	\$35.000	\$43,264
Flour Mill	\$35.000	\$43.264
Riverfront Docks and Marina	\$30.000	\$37.083
Grain Elevator	\$35.000	\$43.264
Total Project Feasibility Analysis		
Disposition of City Property	\$1.020.000	\$1.260.822
District #12 High School	\$180.000	\$222.498
TOTAL PROJECT COST	\$23.943.310	\$31.006.075

ESTIMATED PROJECT COSTS UPDATED TO 1998 VALUES

501J. Administration

Section 501J is hereby changed to read:

Costs of administering the renewal plan are most appropriately covered from Agency revenues, or these costs become a burden on the City's general fund revenues. This amendment includes a 10 % administrative cost during the life of the plan. Total administrative costs are estimated to be \$ 3,345,413. This administrative cost is based upon information from the City of The Dalles staff.

The Dalles Columbia Gateway Urban Renewal Plan - 4th Amendment

Page 3

SECTION 600 - URBAN RENEWAL ACTIVITIES

i

In order to achieve the goals and objectives of this Plan, the following activities, subject to the availability of appropriate funding, may be undertaken by the Agency, or caused to be undertaken by others, in accordance with applicable Federal, State, County and City laws, policies and procedures and in compliance with the provisions of this Plan.

601. URBAN RENEWAL PROJECTS AND IMPROVEMENT ACTIVITIES

The following projects and activities are hereby deemed necessary to:

Eliminate blighting conditions and influences;

Reverse presently depreciating property values;

Make the Area attractive for stabilization, expansion, rehabilitation or redevelopment of existing businesses, industries and housing;

Create a physical, visual and economic environment that will attract new, job producing development on the Area's substantial vacant land; and to

Further the objectives of this Urban Renewal Plan as set forth in Sections 401, 402, 403, 404 and 405.

All public improvements herein proposed shall be complete with all required appurtenances and shall be constructed and implemented in conformance with the approved standards and policies of the City of The Dalles.

With funds available to it, The Dalles Urban Renewal Agency may fund in full, in part, a proportionate share, or cause to be funded, the following numbered projects and activities:

A. WASTEWATER (SANITARY SEWER) SYSTEM:

The City's Wastewater Treatment Plant and substantial portion of its collection system (pipes) is old, technologically deficient and under sized for the demands placed upon it. Blighting conditions presently found in the Urban Renewal Area and the potential for attracting new, commercial and industrial development within the Area are dependent upon the system's reconstruction. Twenty-five percent (25%) of the estimated share of the collection system and treatment facilities will be generated within the Urban Renewal Area. Projects include:

- 1. **TREATMENT PLANT -** new plant at new location 4.4 mgd.
- 2. NEW FORCE MAIN CONSTRUCTION
- 3. COLLECTION SYSTEM REPLACEMENT
- B. STORM SEWERS

Install appropriate sized storm drains in areas where flooding occurs and where no comprehensive system is in place. Projects include, but are not limited to:

- 1. WEST SIXTH STREET Walnut Street to Chenowith Loop Road;
- WEST SIXTH STREET Chenowith Loop Road to West Urban Renewal Boundary;
- 3. WEST SECOND STREET Lincoln Street west to West Urban Renewal Boundary except for short segment of existing pipe. The segment on West Second Street that lies outside the Urban Renewal Area, but between two segments of such Area, will also be installed with Agency funds to eliminate flooding within the Urban Renewal Area.

C. WATER SUPPLY AND DISTRIBUTION SYSTEM

To accommodate new development, an assumed, additional supply of water must be secured. Accordingly, rights to Columbia River water will be exercised. This additional water supply is needed city-wide. It is estimated that the Urban Renewal Area will consume about 25% of the supply and the Agency is authorized to fund its proportionate share. Projects will include, but not be limited to:

- 1. NEW RIVER WATER TREATMENT PLANT 20 mgd.
- 2. NEW RAW WATER PUMP STATION
- 3. NEW RAW WATER RIVER INTAKE
- 4. NEW RAW WATER TRANSMISSION PIPELINE
- 5. NEW DISTRIBUTION PIPELINE AND RESERVOIRS

D. DOWNTOWN PUBLIC IMPROVEMENTS

į.

FULL IMPROVEMENTS include: 1. Remove existing curbs, gutters and sidewalks. Construct: exposed aggregate sidewalks, curbs and gutters, planting beds at corner intersections, trees at 30' spacing, irrigation system, drinking fountains, benches, period street lights and special crosswalk treatment. Installation Area: West - Union Street North - South side of First Street East - Laughlin Street South - Fourth Street **BASIC IMPROVEMENTS** include: 2. Remove all sidewalks, replace broken sections of curbs and gutters. Construction: sidewalks, trees at 50' spacing, irrigation system and special crosswalk treatment. Installation Area: All remaining streets not included in D-1 above. West - Mill Creek North - Second and First streets East - Taylor Street South - So. Urban Renewal Boundary, Fifth Street

3. ALLEYS/UNDERGROUND UTILITY SYSTEMS:

12 Alleys with paving stones. Remaining alleys with Asphaltic Concrete Underground power, phone, TV and street lighting systems (12 blocks)

4. **PUBLIC OFF-STREET PARKING** Acquisition of property, relocation of occupants, if necessary, site clearance and construction.

- E. ROAD AND ROAD RELATED PROJECTS:
 - 1. WEST SECOND TO SIXTH STREET CONNECTION (Right-of-Way to be dedicated)
 - 2. TRAFFIC SIGNALS (8)

3. WEST SIXTH STREET BRIDGE Widen and accommodate pedestrians

4. I-84 FREEWAY LANDSCAPE

5. WEST SECOND STREET Pentland to Snipes streets, curbs and sidewalks: South side, full length except where existing. North side, complete length to approximately 1800 feet west of Webber Street (exclude portion under I-84 Freeway).

F. MISCELLANEOUS PROJECTS:

1. COLUMBIA GORGE COMMUNITY COLLEGE Property acquisition, site clearance, parking, landscaping and recreation for joint college and community use.

2. PROPERTY REHABILITATION LOAN FUND

With funds available to it, the Agency may establish below market interest rate loan programs for the rehabilitation of buildings within the Urban Renewal Area that are determined to be economically rehabitable. Prior to making any loans, the Agency shall prepare and adopt a comprehensive rehabilitation loan plan which sets forth:

- a. Criteria for eligibility;
- b. Interest rates and terms of various type loans;
- c. Procedures for recycling the funds as loan obligations are paid;
- d. Procedures where loan payments are not paid or are paid in an untimely manner;
- e. Procedures and conditions for which deferred payment loans may be offered;
- f. Procedures for administering and servicing the loan program; and
- g. Such other procedures and conditions which the Agency deems necessary.
- 3. CITY'S SWIMMING POOL RECONSTRUCTION
- 4. MILL CREEK PEDESTRIAN PATH

5. RELOCATE IRRIGATION LINE (36") TO ALLOW DEVELOPMENT Between West Sixth and West Second streets, the Agency may assist in land assemblage to allow for private development of vacant city and privately

G. PROJECT FEASIBILITY ANALYSES

owned property.

Retain professional consultants to determine the appropriate use and renovation costs of the following facilities:

- 1. CIVIC AUDITORIUM
- 2. COMMODORE APARTMENTS
- 3. FLOUR MILL

ł,

- 4. RIVERFRONT DOCKS AND MARINA
- 5. GRAIN ELEVATOR

In the event that Agency funded projects result from any of the feasibility analyses and to protect the Agency's investment in renovation and remodeling work, the Agency may impose certain conditions, restrictions and procedures on the management, operation and longterm maintenance of any of the above facilities.

H. POTENTIAL PROJECTS SUBJECT TO COMPREHENSIVE PLAN AMENDMENTS

The City's Urban Renewal Advisory Committee and others have expressed an interest in the following public facilities being undertaken as a part of the Urban Renewal Plan. Such facilities are not currently a part of the Public Facility Element of the City's Comprehensive Plan. Accordingly, should the City's Comprehensive Plan be amended and should the Agency have sufficient funds available to them, the following projects may be undertaken.

- 1. COMMUNITY PARK AND SCHOOL USE approximately 5.7 acres at the 14th Street reservoir property, no longer used for reservoir purposes.
- 2. **DISTRICT #12 HIGH SCHOOL -** recreation facilities available for joint school-community use.
- 3. LIGHTING TENNIS COURTS AT CPS/WHS (School District #9) for joint school-community use.

4. **GYMNASIUM-NEIGHBORHOOD CENTER AT CPS/WHS** (School District #9) for joint school-community use as a neighborhood instruction and recreation facility.

602. ACQUISITION OF REAL PROPERTY

- A. INTENT: It is the intent of this Plan to authorize the Urban Renewal Agency to acquire property within the Urban Renewal Area by any legal means to achieve the objectives of this Plan, and specifically, for any of the purposes listed in Subsection 602-B below.
- B. **PURPOSE OF PROPERTY ACQUISITIONS.** Property acquisition, including limited interest acquisition is hereby made a part of this Plan and may be used by the Agency to achieve the objectives of this Plan based on any one of the following criteria:
 - 1. Where existing conditions do not permit practical or feasible rehabilitation of a structure, by its owner, and it is determined by the Agency that acquisition of such properties and demolition or rehabilitation of the improvements thereon are necessary to remove substandard and blighting conditions;
 - 2. Where detrimental land uses or conditions such as incompatible uses, or adverse influences from noise, smoke or fumes exist, or where there exists over-crowding, excessive dwelling unit density or conversions to incompatible types of uses, and it is determined by the Agency that acquisition of such properties and the rehabilitation or demolition of the improvements are necessary to remove blighting influences;
 - 3. Where it is determined by the Agency that the property is needed to provide public improvements and facilities as follows:
 - a. Right-of-way acquisition for streets, alleys, bicycle paths or pedestrian ways.
 - b. Facilities for the benefit of the public which are to be developed by the Agency, the City, or any other public entity;
 - c. Property acquisition for public, off-street parking facilities; or

COLUMBIA GATEWAY/DOWNTOWN URBAN RENEWAL AGENCY

"Improving Our Community"

Plan and Report

Edition: March 21, 2023 Revised and updated: December 9, 2024

COLUMBIA GATEWAY/DOWNTOWN PLAN

An Urban Renewal Plan and Program of the City of The Dalles, OR. Oregon

Approved by the <u>The</u> Dalles City Council on August 23, 1990 By Council Ordinance No. 90-1113

<u>Amendment 1</u> – Minor Amendment Approved by <u>the Columbia Gateway</u> The Dalles Urban Renewal Agency on July 23, 1991 By Resolution No. 91-007

> <u>Amendment 2</u> – Substantial Amendment Approved by The Dalles City Council on March 15, 1993 By Council Ordinance 93-1161

<u>Amendment 3</u> – Minor Amendment Approved by <u>the Columbia Gateway</u> The Dalles Urban Renewal Agency on August 27, 1996 By Resolution No. 96-025

> <u>Amendment 4</u> – Substantial Amendment Approved by The Dalles City Council on June 22, 1998 By Council Ordinance 98-1223

General Ordinance No. 98-1223 was repealed by Referendum Measure No. 33-22 Adopted by a Vote of the People at the November 3, 1998 General Election

> <u>Amendment 5</u> – Substantial Amendment Approved by The Dalles City Council on December 14, 1998 By Council Ordinance 98-1229

> <u>Amendment 6</u> – Substantial Amendment Approved by The Dalles City Council on August 9, 1999 By Council Ordinance 99-1232

<u>Amendment 7</u> – Minor Amendment Approved by <u>the Columbia Gateway</u> The Dalles-</u>Urban Renewal Agency on May 14, 2001 By Resolution No. 01-040

Amendment 8 – Minor Amendment Approved by <u>the Columbia Gateway</u> The Dalles Urban Renewal Agency on November 10, 2003 By Resolution No. 03-052 <u>Amendment 9 – Minor Amendment</u> Approved by <u>the Columbia Gateway</u> The Dalles Urban Renewal Agency on

January 28, 2008 By Resolution No. 08-060

Amendment 10 – Substantial Amendment

Approved by <u>the Columbia Gateway</u> <u>The Dalles</u> Urban Renewal Agency on June 22, 2009 By Council Ordinance No. 09-1301

<u>Amendment 11 – Minor Amendment</u>

Approved by <u>the Columbia Gateway</u> The Dalles Urban Renewal Agency on April 12, 2010 By Resolution No. 10-068

Amendment 12 – Minor Amendment Approved by <u>the Columbia Gateway</u> The Dalles Urban Renewal Agency on May 10, 2010 By Resolution No. 10-069

Amendment 13 – Minor Amendment Approved by <u>the Columbia Gateway</u> The Dalles Urban Renewal Agency on May 12, 2014 By Resolution No. 14-001

Amendment 14 — -Minor Amendment Approved by the Columbia Gateway The Dalles-Urban Renewal Agency on February 9, 2015 By Resolution No. 15-001

Amendment 15 — Minor Amendment Approved by the Columbia Gateway The Dalles Urban Renewal Agency on March 23, 2015 By Resolution No. 15-002

Amendment 16 – <u>– Minor Amendment</u> Approved by <u>the Columbia Gateway</u> The Dalles Urban Renewal Agency on April 17, 2018 By Resolution No. 18-002

Amendment 17 – City Council Substantial Amendment Approved by the Columbia Gateway Urban Renewal AgencyThe Dalles City Council on XXXXXXXDecember 9, 2024 By Resolution No. 24-XXX1409

PLAN

TABLE OF CONTENTS

PART 1: PLAN TEXT

<u>SECTION 100 –</u>	INTRODUCTION	1
SECTION 200 -	DEFINITIONS	5
SECTION 300 -	LEGAL BOUNDARY DESCRIPTION	8
SECTION 400 -	LEGAL BOUNDARY DESCRIPTION MISSION STATEMENT, GOALS AND OBJECTIVES OF THE DALLES	
	URBAN RENEWAL AGENCY FOR THE COLUMBIA GATEWAY PLAN	9
SECTION 500 -	LAND USE PLAN	.12
SECTION 600 -	URBAN RENEWAL ACTIVITIES	.15
SECTION 700 -	FINANCING OF URBAN RENEWAL INDEBTEDNESS	.28
SECTION 800 -	ANNUAL FINANCIAL STATEMENT REQUIRED	.29
SECTION 900 -	CITIZEN PARTICIPATION	.30
SECTION 1000 -	- NON-DISCRIMINATION	.30
SECTION 1100 -	- RECORDING OF PLAN	.30
SECTION 1200 -	- RECORDING OF PLAN)
	URBAN RENEWAL PLAN	.31
SECTION 1300 -	VALIDITY OF APPROVED URBAN RENEWAL PLAN	
SECTION 100 -	INTRODUCTION	X
		111
SECTION 200-	DEFINITIONS	
		5 52
SECTION 300-	LEGAL BOUNDARY DESCRIPTION	
SECTION 400 -	MISSION STATEMENT, GOALS AND OBJECTIVES OF THE DALLES	
		X
	14	
SECTION 500	LAND USE PLAN	X
	21=	129
SECTION 600 -		X
	231	
SECTION 700	FINANCING OF URBAN RENEWAL INDEBTEDNESS	
	4124	822
SECTION 800 -	ANNUAL FINANCIAL STATEMENT REQUIRED	X
	422	923
SECTION 900 -	CITIZEN PARTICIPATION	
	433	
SECTION 1000 -	- NON-DISCRIMINATION	
	4330	
SECTION 1100 -	RECORDING OF PLAN	
	433	
SECTION 1200 -	- PROCEDURES FOR CHANGES OR AMENDMENTS IN THE APPROVED	
	URBAN RENEWAL PLAN	-
SECTION 1300 -	- DURATION AND VALIDITY OF APPROVED URBAN RENEWAL PLAN	X
	463	327
		<u> </u>

PART 2: PLAN EXHIBITS

ATTACHMENT H – General Ordinance 24-1409

EXHIBIT 5 – Fourth Amendment projects list (historic reference) EXHIBIT 6 – Original projects list (pages 14-19 of ORD 90-1113)

ATTACHMENTS

REPORT - Columbia Gateway/Downtown Plan, Adopted Report June 2009

SECTION 100 – INTRODUCTION

The Columbia Gateway/Downtown Plan (the "Plan"), as amended, governs the 318.12 acre Columbia Gateway/Downtown Urban Renewal -Area (the "Area") of the City of The Dalles, Oregon. _The Area was established in 1990, amended in 1993 to reduce its size, and amended further in 1998, also to reduce its size._ A substantial amendment of the Plan was adopted in 2009 to increase the size of the Area and the maximum indebtedness (MI)_allowed under the Plan. _The Area consists of a single geographic area with <u>a_an amended</u> certified <u>1998/99</u> base <u>year</u> assessed value of \$<u>24,866,02025,076,797</u>.

This Plan consists of two parts: Part 1, Text and Part 2, Exhibits, and has been prepared by the Urban Renewal Agency pursuant to the provisions of Chapter 457 of the Oregon Revised Statutes, the Oregon Constitution and all other applicable state and local laws.

SECTION 110 - CITY/AGENCY RELATIONSHIP

The Governing Body (Council) of the City of The Dalles on April 23, 1990, by Ordinance Number 90-1106, declared that blighted areas exist within the City and that there is a need for an urban renewal agency to function within the City. The City Council, by the approval of such Ordinance No. Number 90-1106, and in accordance with the provisions of ORS 457.045 (2), appointed an Urban Renewal Agency consisting of eleven (11) members. In 1998, the Council adopted oOrdinance No. Number 98---1228, designating the members of the Council as the Urban Renewal Agency. General Ordinance Number No. 90-1106 was amended in 1998 by General Ordinance No. 98-1228, which was adopted on December 14, 1998. This ordinance reduced the size of the Urban Renewal Agency to six (6) members, including the Mayor and the five City Councilors, and; these persons were designated as the Urban Renewal Agency pursuant to ORS 457.045(3). Pursuant to ORS 457.035, the Urban Renewal Agency is a public body corporate and politic. The relationship between the City of The Dalles, an Oregon Municipal Corporation and The Dalles Urban Renewal Agency, a public body corporate and politic, shall be as contemplated by Chapter 457 of the Oregon Revised Statutes. Nothing contained in this Plan, nor the City's supplying of services or personnel, nor the budgeting requirements of this Plan shall in any way be construed as departing from or disturbing the relationship contemplated by Chapter 457 of the Oregon Revised Statutes. The Governing Body (Council) of the City of The Dalles on April 23, 1990, by Ordinance Number 90-1106, declared that blighted areas exist within the City and that there is a need for an urban renewal agency to function within the City. The City Council, by the approval of such Ordinance Number 90-1106, and in accordance with the provisions of ORS 457.045 (2), appointed an Urban Renewal Agency consisting of eleven (11) members. In 1998, the Council adopted ordinance Number 98 - 1228, designating the members of the Council as the Urban Renewal Agency. General Ordinance No. 90-1106 was amended in 1998 by General Ordinance No. 98-1228, which was adopted on December 14, 1998. This ordinance reduced the size of the Urban Renewal Agency to 6 members, including the Mayor and the five City Councilors, and these persons were designated as the Urban Renewal Agency pursuant to ORS 457.045(3). Pursuant to ORS 457.035, the Urban Renewal Agency is a public body corporate and politic.

The relationship between the City of The Dalles, an Oregon Municipal Corporation and The Dalles Urban Renewal Agency, a public body corporate and politic, shall be as contemplated by Chapter 457 of the Oregon Revised Statutes. Nothing contained in this Plan, nor the City's supplying of services or personnel, nor the budgeting requirements of this Plan shall in any way

be construed as departing from or disturbing the relationship contemplated by Chapter 457 of the Oregon Revised Statutes.

Description of the Amendments

The Urban Renewal Plan has been amended on 16 occasions. The Plan defines criteria for minor and substantial amendments: Minor amendments clarify language, add or drop projects from the planPlan and change project scope, provided such changes do not alter the plan's goals and objectives. Substantial amendments expand district boundaries (limited by ORS 457.220) and increase maximum indebtedness. In addition to these changes through time, amendments also periodically shifted Agency governance authority between the City Council and Urban Renewal taxing districts. Following is a summary of all Plan amendments as of April 2024:

First Amendment (Resolution 91-007): Minor amendment adopted July 23, 1991, established that no bonded debt should be incurred beyond 2012-13 except through a Substantial Amendment to the Plan.

Second Amendment (Council Ordinance 93-1161): The first Substantial Amendment occurred March 15, 1993. This was a response to Oregon voters' approval of Measure- 5 (November 1991 general election) and subsequent enabling legislation in 1992 (HB 2550), which altered the calculation methodology for Tax Increment Financing. An unintended consequence was to create a significant disparity (7X) in tax burden between the two school districts serving The Dalles at that time, The Dalles School District 12 and Chenowith School District 9. The taxation disparity was resolved by removing all urban renewal district acreage from District 9 (deletion of either 32.14 or 71.86 acres – both estimates are referenced in various documentation). Included in the deletion was the western segment of West Second Street corridor (see Attachment B). This amendment also made various other changes to the Plan, including expansion of the Plan's Pproject list.

Third Amendment (Resolution 96-925): Minor amendment clarifying language regarding scope of proposed Projects and other public improvements.

Fourth Amendment (Council Ordinance 98-1223): The next Substantial Amendment occurred on June 22, 1998, when the Fourth Amendment established a maximum debt limit to comply with Oregon Constitutional changes approved by voters in 1997 (Measure 50). This amendment also established a table projecting costs of anticipated Urban Renewal Pprojects - (Attachment C) However, the enabling ordinance was repealed through a referendum (Measure 33-22) in the November 1998 general election.

Fifth Amendment (Council Ordinance 98-1229): This Substantial Amendment, adopted December 14, 1998, responded to Measure 33-22. City Council adopted two related ordinances that day: Ordinance No. 98-1228, which established the City Council as the Agency Board (**Board**), and Ordinance No. 98-1229, which again reduced the size of the district (see Attachment D, removing 238.04 acres from the original 628.02 acreage). These measures complied with terms of a mediation agreement in October 1998 between the City, Agency, Wasco County, The Dalles Trade Center Association and the Committee to Dissolve Urban Renewal. Sixth Amendment (Council Ordinance No. 99-1232): This Substantial Amendment, adopted August 9, 1999, provided context for developments in the preceding year. Concerns leading to mediation reflected a view that Uurban Rrenewal Pprojects did not contribute significantly to increased tax base. The Sixth Amendment revised the Pproject list, sought to ensure project compliance with Plan criteria, and reduced the amount of maximum indebtedness to \$14.23 million, a number later increased to \$29.13 million (see Tenth Amendment below). The amendment outlined a new list of Urban Renewal Pprojects. This list, which replaced the Fourth Amendment project list, together with minor, later changes in project descriptions, constitutes the first 13 projects that have carried forward ever since and provide the basis for projects identified in this plan revision.

Seventh Amendment (Resolution No. 01-040): Minor amendment allowed acquisition of a parking lot at First & and Court streets to support redevelopment of the Commodore Building, adopted May 14, 2001.

Eighth Amendment (Resolution 03-052): Minor amendment adding Wasco Warehouse & Milling Co. property as an Urban Renewal project, adopted November 10, 2003. (This became Project #14 in the Urban Renewal Plan, now the "Sunshine Mill." Project is complete.)

Ninth Amendment (Resolution 08-060): Minor amendment adding Union Pacific Railroad and Oregon Department of Transportation properties to the Wasco Warehouse & Milling Co. redevelopment Pproject, adopted January 28, 2008.

Tenth Amendment (Council Ordinance 09-1301): The latestlast Substantial Amendment to the Plan occurred June 22, 2009. The Tenth Amendment made various textual edits throughout the Plan. Aside from later minor amendments, the primary text carries through to the present day. The Tenth Amendment modified, added and deleted various items in the original Plan, including changes to the processes for property acquisition and land disposition. It modified the Mill Creek Greenway project from property acquisition to development, added East Gateway / Brewery Grade Reconstruction (this became Project #15 in the Urban Renewal Plan, the Sunshine Mill Roundabout), and Third Place Street improvements (Project #16 in the Urban Renewal Plan). Urban Renewal investment in the roundabout leveraged a \$2.4 million federal grant. Significantly, this Substantial Amendment increased maximum indebtedness Maximum Indebtedness of the Agency from \$14,227,353 to \$29,125,583, and deleted the provision regarding the duration of the District. That last change meant that the Agency does not necessarily sunset at any particular time, but rather when maximum indebtedness Maximum Indebtedness is achieved. The Tenth Amendment was accompanied by a detailed report and fiscal analysis.

Eleventh Amendment (Resolution 10-068): Minor amendment adding The Dalles Skateboard Park to West Gateway Project #10, adopted April 12, 2010.

Twelfth Amendment (Resolution 10-069): Minor amendment adding redevelopment of properties bordered by Washington and Court streets and First and Second streets (the Granada Block), adopted May 10, 2010, as Project #17.

Thirteenth Amendment (Resolution 14-001): Minor amendment adding a new goal of increasing value of properties within the district and enhancing opportunities for non-profit organizations to participate in the property rehabilitation and loan grant fund program. This allowed grants to for-profit, public, non-profit and civic organizations, and was approved May 12, 2014.

Fourteenth Amendment (Resolution 15-001): Minor amendment adding Thompson Park Pool as Urban Renewal Project #18 (slide, climbing wall, shade or other landscaping), adopted February 9, 2015.

Fifteenth Amendment (Resolution 15-002): Minor amendment adding redevelopment of the former Elks Lodge as an Urban Renewal Project #19, adopted March 23, 2015.

Sixteenth Amendment (Resolution 18-002): Minor amendment revising description of the proposed Mill Creek Trail Greenway Project, adopted April 17, 2018.

<u>Seventeenth Amendment (Ordinance 24-1409e</u>): Increased <u>MI</u>maximum indebtedness to \$35,262,100, added projects: Basalt Commons, Tony's site redevelopment and First Street reconstruction, local match for Federal Street Plaza, and performed overall review -and update of Plan. Adopted _____December 9, 2024.

In addition, the historical record should note for clarification Resolution 23-002, amending the Urban Renewal Incentive Program, adopted on April 18, 2023. This amended an Urban Renewal program established in August 2022 but did not constitute a minor amendment to the Plan itself.

On September 12, 2016, the City Council adopted General Ordinance No. 16-1346, which amended General Ordinance No. 90-1106. This restructured the Agency, removing the City Council as Agency Board and restoring authority to the Board as it exists in 2024, comprising representatives from each affected taxing district (Wasco County, Mid-Columbia Fire & Rescue, Northern Wasco Parks & Recreation, Port of The Dalles; three city councilors; and two citizens at large). The Urban Renewal Advisory Committee was eliminated at that time.

This summary does not attempt to document all of the changes, challenges and progress achieved through the Agency since 1990. Its intent is to offer a historical foundation for the next – and final – phase of the District, and to offer a foundation for decisions leading to the ultimate continuation or discontinuation of the Agency itself.

SECTION 200 - DEFINITIONS

<u>As used in the construction of this Plan, unless the context requires otherwise, the following</u> definitions shall apply:

- 201. AGENCY means The Dalles Urban Renewal Agency that, in accordance with the provisions of Chapter 457 of the Oregon Revised Statues, is the Urban Renewal Agency of the City of The Dalles, Wasco County, Oregon.
- 202. AREA means that geographic portion of the City which encompasses the Columbia Gateway/Downtown Area — an urban renewal area conceived pursuant to the provisions of ORS Chapter 457.
- 203. BLIGHTED AREAS means areas that by reason of deterioration, faulty planning, inadequate or improper facilities, deleterious land use or the existence of unsafe structures, or any combination of these factors, are detrimental to the safety, health or welfare of the community. A blighted area is characterized by the existence of one or more of the following conditions:
 - The existence of buildings and structures, used or intended to be used for living, commercial, industrial or other purposes, or any combination of those uses, which are unfit or unsafe to occupy for those purposes because of any one or a combination of the following conditions:
 - o Defective design and quality of physical construction;
 - o Faulty interior arrangement and exterior spacing;
 - Overcrowding and a high density of population;
 - Inadequate provision for ventilation, light, sanitation, open spaces and recreation facilities; or
 - o Obsolescence, deterioration, dilapidation, mixed character or shifting of uses;
 - An economic dislocation, deterioration or disuse of property resulting from faulty planning;
 - The division or subdivision and sale of property or lots of irregular form and shape and inadequate size or dimensions for property usefulness and development;
 - The layout of property or lots in disregard of contours, drainage and other physical characteristics of the terrain and surrounding conditions;
 - The existence of inadequate streets and other rights-of-way, open spaces and utilities;
 - > The existence of property or lots or other areas which are subject to inundation by water;
 - A prevalence of depreciated values, impaired investments, and social and economic maladjustments to such an extent that the capacity to pay taxes is reduced and tax receipts are inadequate for the cost of public services rendered;

- A growing or total lack of proper utilization of areas, resulting in a stagnant and unproductive condition of land potentially useful and valuable for contributing to the public health, safety and welfare; or
- A loss of population and reduction of proper utilization of the area, resulting in its further deterioration and added costs to the taxpayer for the creation of new public facilities and services elsewhere.
- 204. CITY means the City of The Dalles, Wasco County, Oregon.
- 205. CITY COUNCIL or COUNCIL means the governing body of the City of The Dalles.
- 206. COMPREHENSIVE PLAN means the Land Use Plan of the City of The Dalles including all of its policies, procedures and implementing provisions.
- 207. COUNTY means Wasco County, Oregon.
- 208. MAXIMUM INDEBTEDNESS (MI) means the amount of the principal of indebtedness included in a plan pursuant to ORS 457.190 and does not include indebtedness incurred to refund or refinance existing indebtedness
- 209. EXHIBIT means an attachment, either narrative or graphic, to this Urban Renewal Plan as set forth in Part 2 of this Plan.
- 210. ORS means Oregon Revised Statutes (State Law). ORS Chapter 457 is the chapter which regulates the renewal of blighted areas within the State of Oregon.
- 211. PLAN means the Amended Columbia Gateway/Downtown Plan, an Urban Renewal Plan of the City of The Dalles, Oregon.
- 212. REDEVELOPER means a party who acquires real property or receives financial assistance from the Urban Renewal Agency for the purposes of developing or redeveloping such property in conformity with the provisions of this Urban Renewal Plan.
- 213. STATE means the State of Oregon including its various departments, divisions and agencies.
- 214. TAX INCREMENT FINANCING means a method of financing indebtedness incurred by The Dalles Urban Renewal Agency in preparing and implementing the Urban Renewal Plan. Such tax increment method is authorized by ORS sections 457.420 through 457.450 and provides that all or a portion of the tax proceeds, if any, realized from an increase in the taxable assessed value of real and personal property within the Columbia Gateway/Downtown Urban Renewal Area above that existing on the County tax roll last equalized prior to the effective date of The Dalles City Council Ordinance approving the Urban Renewal Plan may be paid into a special fund of the Agency. Such special fund, if any, shall be used to pay the principal and interest on indebtedness incurred by the Agency in financing or refinancing the preparation and implementation of the approved Urban Renewal Plan including the administration of the Agency's activities.

- 215. TAXING BODY means any authorized entity which levies ad valorem taxes within the boundaries of the Urban Renewal Area.
- 216. U.R. means "urban renewal" as in Urban Renewal Boundary, Urban Renewal Area, Urban Renewal Plan, etc.
- 217. URBAN RENEWAL ADVISORY COMMITTEE means the committee established pursuant to General Ordinance No. 98-1228, whose duties include review of all projects and expenditures for the Agency to ensure compliance with the Agency's adopted budget and the Plan; making recommendations to the Agency concerning potential projects to be undertaken, public contracts to be awarded, potential plan amendments, and budget needs, policies and procedures for the Agency; and performance of other tasks and duties as requested by the Agency.
- 218 .URBAN RENEWAL LAW means Chapter 457 of the Oregon Revised Statutes as same exists on the effective date of this Urban Renewal Plan or as same may be amended from time to time by action of the Oregon Legislature.
- 219. URBAN RENEWAL PLAN means the Amended Plan for the Columbia Gateway/Downtown Area--an Urban Renewal Area of the City of The Dalles, Oregon.

SECTION 200 -- DEFINITIONS

AS USED IN THE CONSTRUCTION OF THIS PLAN, UNLESS THE CONTEXT REQUIRES OTHERWISE, THE FOLLOWING DEFINITIONS SHALL APPLY:

201. AGENCY MEANS ._ THE DALLES COLUMBIA GATEWAY URBAN RENEWAL AGENCY THAT, IN ACCORDANCE WITH THE PROVISIONS OF CHAPTER 457 OF THE OREGON REVISED STATUES, IS THE URBAN RENEWAL AGENCY OF THE CITY OF THE DALLES, WASCO COUNTY, OREGON.

202. AREA MEANS THAT . THAT GEOGRAPHIC PORTION OF THE CITY WHICH ENCOMPASSES THE COLUMBIA GATEWAY/DOWNTOWN AREA — AN URBAN RENEWAL AREA CONCEIVED PURSUANT TO THE PROVISIONS OF ORS CHAPTER 457.

203. BLIGHTED AREAS MEANS. AREAS AREAS THAT BY REASON OF DETERIORATION, FAULTY PLANNING, INADEQUATE OR IMPROPER FACILITIES, DELETERIOUS LAND USE OR THE EXISTENCE OF UNSAFE STRUCTURES, OR ANY COMBINATION OF THESE FACTORS, ARE DETRIMENTAL TO THE SAFETY, HEALTH OR WELFARE OF THE COMMUNITY. A BLIGHTED AREA IS CHARACTERIZED BY THE EXISTENCE OF ONE OR MORE OF THE FOLLOWING CONDITIONS:

A. THE EXISTENCE OF BUILDINGS AND STRUCTURES, USED OR INTENDED TO BE USED FOR LIVING, COMMERCIAL, INDUSTRIAL OR OTHER PURPOSES, OR ANY COMBINATION OF THOSE USES, WHICH ARE UNFIT OR UNSAFE TO OCCUPY FOR THOSE PURPOSES BECAUSE OF ANY ONE OR A COMBINATION OF THE FOLLOWING CONDITIONS:

, SUGGESTION: "THE PRESENCE OF BUILDINGS AND STRUCTURES – WHETHER FOR RESIDENTIAL, COMMERCIAL, INDUSTRIAL, OR OTHER USES, OR ANY COMBINATION THEREOF – THAT ARE CONSIDERED UNFIT OR UNSAFE FOR OCCUPANCY DUE TO ONE OR MORE OF THE FOLLOWING CONDITIONS:"DEFECTIVE DESIGN AND QUALITY OF PHYSICAL CONSTRUCTION;

FAULTY INTERIOR ARRANGEMENT AND EXTERIOR SPACING;

OVERCROWDING AND A HIGH DENSITY OF POPULATION;

INADEQUATE PROVISION FOR VENTILATION, LIGHT, SANITATION, OPEN SPACES AND RECREATION FACILITIES; OR

OBSOLESCENCE, DETERIORATION, DILAPIDATION, MIXED D

- CHARACTER OR SHIFTING OF USES;

AN ECONOMIC DISLOCATION, DETERIORATION OR DISUSE OF PROPERTY RESULTING FROM FAULTY PLANNING;

THE DIVISION OR SUBDIVISION AND SALE OF PROPERTY OR LOTS OF IRREGULAR FORM AND SHAPE AND INADEQUATE SIZE OR DIMENSIONS FOR PROPERTY USEFULNESS AND DEVELOPMENT;

THE LAYOUT OF PROPERTY OR LOTS IN DISREGARD OF CONTOURS, DRAINAGE AND OTHER PHYSICAL CHARACTERISTICS OF THE TERRAIN AND SURROUNDING CONDITIONS;

THE EXISTENCE OF INADEQUATE STREETS AND OTHER RIGHTS-OF-WAY, OPEN SPACES AND UTILITIES;

THE EXISTENCE OF PROPERTY OR LOTS OR OTHER AREAS WHICH ARE SUBJECT TO INUNDATION BY WATER;

A PREVALENCE OF DEPRECIATED VALUES, IMPAIRED INVESTMENTS, AND SOCIAL AND ECONOMIC MALADJUSTMENTS TO SUCH AN EXTENT THAT THE CAPACITY TO

PAY TAXES IS REDUCED AND TAX RECEIPTS ARE INADEQUATE FOR THE COST OF PUBLIC SERVICES RENDERED;

A GROWING OR TOTAL LACK OF PROPER UTILIZATION OF AREAS, RESULTING IN A STAGNANT AND UNPRODUCTIVE CONDITION OF LAND POTENTIALLY USEFUL AND VALUABLE FOR CONTRIBUTING TO THE PUBLIC HEALTH, SAFETY AND WELFARE; OR

A LOSS OF POPULATION AND REDUCTION OF PROPER UTILIZATION OF THE AREA, RESULTING IN ITS FURTHER DETERIORATION AND ADDED COSTS TO THE TAXPAYER FOR THE CREATION OF NEW PUBLIC FACILITIES AND SERVICES ELSEWHERE.

204. CITY. MEANS THE THE CITY OF THE DALLES, WASCO COUNTY, OREGON.

205. CITY COUNCIL OR COUNCIL. MEANS THE THE GOVERNING BODY OF THE CITY OF THE DALLES.

206. COMPREHENSIVE PLAN. MEANS THE THE LAND USE PLAN OF THE CITY OF THE DALLES INCLUDING ALL OF ITS POLICIES, PROCEDURES AND IMPLEMENTING PROVISIONS.

207. COUNTY. MEANS WASCO COUNTY, OREGON.

208. EXHIBIT. MEANS AN AN ATTACHMENT, EITHER NARRATIVE OR GRAPHIC, TO THIS URBAN RENEWAL PLAN AS SET FORTH IN PART 2 OF THIS PLAN.

209. ORS. MEANS OREGON REVISED STATUTES (STATE LAWSTATE LAW). ORS CHAPTER 457 IS THE CHAPTER WHICH REGULATES THE RENEWAL OF BLIGHTED AREAS WITHIN THE STATE OF OREGON. <u>SUGGESTION: ORS CHAPTER 457 GOVERNS</u> THE PROCESS FOR RENEWING BLIGHTED AREAS WITHIN THE STATE OF OREGON.

210. PLAN. MEANS THE THE AMENDED COLUMBIA GATEWAY/DOWNTOWN PLAN, AN URBAN RENEWAL PLAN OF THE CITY OF THE DALLES, OREGON.

211. REDEVELOPER. MEANS A <u>A</u> PARTY WHO ACQUIRES REAL PROPERTY OR RECEIVES FINANCIAL ASSISTANCE FROM THE URBAN RENEWAL AGENCY FOR THE PURPOSES OF DEVELOPING OR REDEVELOPING SUCH PROPERTY IN CONFORMITY WITH THE PROVISIONS OF THIS URBAN RENEWAL PLAN.

212. STATE. MEANS THE THE STATE OF OREGON INCLUDING ITS VARIOUS DEPARTMENTS, DIVISIONS AND AGENCIES.

213. TAX INCREMENT FINANCING._MEANS AA METHOD OF FINANCING INDEBTEDNESS INCURRED BY THE THE DALLES COLUMBIA GATEWAY URBAN RENEWAL AGENCY IN PREPARING AND IMPLEMENTING THE URBAN RENEWAL PLAN. SUCH TAX INCREMENT METHOD IS AUTHORIZED BY ORS SECTIONS 457.420 THROUGH 457.450 AND PROVIDES THAT ALL OR A PORTION OF THE TAX PROCEEDS, IF ANY, REALIZED FROM AN INCREASE IN THE TAXABLE ASSESSED VALUE OF REAL AND PERSONAL PROPERTY WITHIN THE COLUMBIA GATEWAY/DOWNTOWN URBAN RENEWAL AREA, ABOVE THAT EXISTING ON THE COUNTY TAX ROLL LAST EQUALIZED PRIOR TO THE EFFECTIVE DATE OF THE DALLES CITY COUNCIL ORDINANCE APPROVING THE URBAN RENEWAL PLAN, MAY BE PAID INTO A SPECIAL FUND OF THE AGENCY._SUCH SPECIAL FUND, IF ANY, SHALL BE USED TO PAY THE PRINCIPAL AND INTEREST ON INDEBTEDNESS INCURRED BY THE AGENCY IN FINANCING OR REFINANCING THE PREPARATION AND IMPLEMENTATION OF THE APPROVED URBAN RENEWAL PLAN, INCLUDING THE ADMINISTRATION OF THE AGENCY'S ACTIVITIES.

214. TAXING BODY. MEANS ANY ANY AUTHORIZED ENTITY WHICH LEVIES AD VALOREM TAXES WITHIN THE BOUNDARIES OF THE URBAN RENEWAL AREA.

215. U.R. MEANS "URBAN "URBAN RENEWAL" AS IN URBAN RENEWAL BOUNDARY, URBAN RENEWAL AREA, URBAN RENEWAL PLAN, ETC.

216. URBAN RENEWAL ADVISORY COMMITTEE. MEANS THE THE COMMITTEE ESTABLISHED PURSUANT TO GENERAL ORDINANCE NO. 98-1228, WHOSE DUTIES INCLUDE REVIEW OF ALL PROJECTS AND EXPENDITURES FOR THE AGENCY TO ENSURE COMPLIANCE WITH THE AGENCY'S ADOPTED BUDGET AND THE PLAN; MAKING RECOMMENDATIONS TO THE AGENCY CONCERNING POTENTIAL PROJECTS TO BE UNDERTAKEN, PUBLIC CONTRACTS TO BE AWARDED, POTENTIAL PLAN

AMENDMENTS, AND BUDGET NEEDS, POLICIES AND PROCEDURES FOR THE AGENCY; AND PERFORMANCE OF OTHER TASKS AND DUTIES AS REQUESTED BY THE AGENCY.

217. URBAN RENEWAL LAW. MEANS CHAPTER 457 OF THE OREGON REVISED STATUTES AS SAME EXISTS ON THE EFFECTIVE DATE OF THIS URBAN RENEWAL PLAN OR AS SAME MAY BE AMENDED FROM TIME TO TIME BY ACTION OF THE OREGON LEGISLATURE.

218. URBAN RENEWAL PLAN. MEANS THE THE AMENDED PLAN FOR THE COLUMBIA GATEWAY/DOWNTOWN AREA - AN URBAN RENEWAL AREA OF THE CITY OF THE DALLES, OREGON.

SECTION 300 - -- LEGAL BOUNDARY DESCRIPTION

The legal description of the boundaries of the Urban Renewal Area is set forth in Part 2 of this Plan as follows:

- 301. Amended Exhibit 1___Narrative Legal Description of Urban Renewal Area.
- 302. Amended Exhibit 2___Graphic (Map) Description of Urban Renewal Area.

<u>303.</u> Added Exhibit 3 – Comprehensive Plan Designations of Urban Renewal Area.

<u>304.</u> Added Exhibit 4 – – Zoning Designations of Urban Renewal Area Zoning Designations of Urban Renewal Area.

SECTION 400 — - MISSION STATEMENT, GOALS AND OBJECTIVES OF THE DALLES URBAN RENEWAL AGENCY FOR THE COLUMBIA GATEWAY DOWNTOWN PLAN

MISSION STATEMENT

The mission of the <u>Uu</u>rban <u>renewal Renewal agency Agency</u> is to eliminate blight and depreciating property values within the <u>agency's Agency's</u> jurisdiction and in the process, attracts aesthetically pleasing, job producing private investments that will stabilize or increase property values and protects the area's historic places and values.

401. GOALS AND OBJECTIVES

To accomplish its mission, the Agency will develop and implement an urban renewal program, the goals and objectives of which are:

- A. To foster public participation in all urban renewal activities, including but not limited to strategic planning, through semi-annual in-person and virtual town halls and other civic outreach, and to regularly communicate urban renewal achievements and activities through social and traditional media engagement, signage, website, and public presentations.
- B. To make strategic investments of urban renewal funds and engage in various urban renewal activities which increase the value of properties within the Urban Renewal District so that the area will contribute its fair share to the costs of public services.
- C. To make strategic investments that return unused and underused public and private properties to productive condition, consistent with the City's Comprehensive Plan and implementing ordinances;
- D. To participate through land acquisition and disposition, rehabilitation loans and other activities in specific opportunities for business, civic, residential, cultural, and tourist-related property to be developed, redeveloped, improved, rehabilitated and conserved in ways which will accomplish any or all of the following goals:
 - 1.- Encourage the expansion and development of businesses that will expand property values, produce jobs for the people of The Dalles and Wasco County;-or
 - 2.- Ensure a more attractive, functional and economically viable city; or
 - <u>3.-</u> Restore historically significant properties to productive use when such use aligns with Goals A and B above, or
 - <u>4.-</u> Recognize, maintain awareness of, and when feasible, mitigate the fiscal impact of Urban Renewal on local tax districts, or
 - 5.- Expand availability of family-wage housing, including but not limited to vertical downtown housing and multi-family residential housing.

6.- Support the development of public spaces downtown.

- E. To expand access and connections from downtown to the Riverfront and to provide facilities that enhance public use of the Riverfront;
- F. To provide an adequate amount of properly located and designed off-street accessible parking in the downtown area;
- <u>G.</u> To improve the visual appearance, capacity, and traffic flow of public streets where such improvements will foster adjacent commercial or residential investment and/or support public services.
- H. To install and maintain coordinated street furniture, night lighting and landscaping in areas of maximum pedestrian concentration; including alley rights-of-way in the downtown area;
- In conjunction with urban renewal projects, leverage other funding sources to install or upgrade public utilities, including but not limited to underground services in downtown alley rights-of-way.
- J. To identify and actively pursue external grant and private resources in order to leverage the Agency's financial resources to the maximum extent possible.

A. To make strategic investments of urban renewal funds and engage in various urban renewal activities which increase the value of properties within the Urban Renewal District.

B. To make strategic investments of urban renewal funds so that unused and underused properties can be placed in productive condition and utilized in a manner consistent with the City's Comprehensive Plan and implementing ordinances;

C. To participate by means of various urban renewal activities (e.g. land acquisition and disposition, rehabilitation loans, etc.) in specific opportunities for business, civic, residential, cultural, and tourist-related property to be developed, redeveloped, improved, rehabilitated and conserved in ways which will:

1. Encourage the expansion and development of businesses that will produce jobs for the people of The Dalles and Wasco County; or

2. Increase property values so that the area will contribute its fair share to the costs of public services, provided by the city, county, schools, community college, port and park and recreation district; or

3. Insure a more attractive, functional and economically viable city; or

4. Conserve historically significant places and properties;

D. To be responsive to the needs and the concerns of all people of the City of The Dalles in the details of amending and implementing the Urban Renewal Plan using multiple forms of outreach including: town hall meetings, the internet, news releases, and signs on projects; and

E. To encourage the maximum amount of public involvement and citizen participation in the formation and implementation of the Urban Renewal Plan by explaining and discussing the details of the Urban Renewal process:

To the public at town hall type gatherings;
 To special interest groups, public service organizations, public bodies and the general public by invitation to Agency meetings;
 By issuing periodic news releases;
 By cooperating with the print and electronic news media by being available to discuss the Urban Renewal Plan and process;

5. By use of the Internet;

F. To provide an adequate amount of properly located and designed off-street parking, including disabled parking, in the downtown area, including a plan and program to effectively pay for, manage and maintain such parking;

G. To create positive linkages among the two sectors of the Urban Renewal Area i.e. the Downtown and the West Gateway Area;

H. To cooperate, coordinate and assist in funding with the program to improve access and connections from downtown to the Riverfront and to provide facilities, such as trails and a public dock, to enhance public use of the Riverfront;

I. To improve the visual appearance, capacity, and traffic flow of streets that carry the major share of vehicular and pedestrian traffic in areas where development would otherwise be inhibited;

J. To assist property owners in the rehabilitation of their buildings and property to the extent that it helps implement the intent of redevelopment goals, policies, and standards, especially where rehabilitation may spur additional redevelopment activity;

K. To install and maintain coordinated street furniture, night lighting and landscaping in areas of maximum pedestrian concentration; including alley rightsof-way in the Downtown area;

L. In conjunction with specific urban renewal development or redevelopment projects, supplement existing funding sources to construct, install or replace publicly owned utility systems such as water, storm drains, and sanitary sewers where existing facilities are inadequate, undersized or otherwise substandard; and

M. To leverage the Agency's financial resources to the maximum extent possible with other public and private investments and other public and private funding sources.

N. To install underground utilities in areas of urban renewal projects including alley rights-of-way in the downtown area.

403402. RELATIONSHIP OF THE PLAN TO LOCAL OBJECTIVES

This plan is intended to further the objectives of the City's Comprehensive Land Use Plan. Further, this plan is intended to improve land uses, traffic flow, off-street parking, pedestrian amenities, and other public improvements.

404403. CONSISTENCY WITH THE CITY'S COMPREHENSIVE PLAN—

This plan has been prepared in conformity with the City's adopted Comprehensive Land Use Plan including its goals, policies, procedures, and implementing provisions.

The following analysis is of the specific goals of the comprehensive plan which are implemented through this Plan.

Goal 5: Open Spaces, Scenic and Historic areas, and Natural Resources

- To conserve and protect the open space, natural, and scenic resources of the area.
- To recognize, protect and enhance the historical and cultural importance of the community, and to promote increased public awareness and participation in historic preservation.

Finding: Federal Street Plaza is one of the projects in the Plan. The urban renewal funds would be used as a match for other sources of financing. This plaza would create open space in the downtown, supporting the other commercial uses and encouraging activity in the Area. The Plan conforms to the Open Spaces, Scenic and Historic areas, and Natural Resources goal.

Goal 8: Recreation Needs

• To develop, acquire, and maintain a balance of recreation opportunities and open spaces in order to improve the livability within the Urban Growth Boundary.

Finding: Federal Street Plaza is one of the projects in the Plan. The urban renewal funds would be used as a match for other sources of financing. This plaza would create open space in the downtown, supporting the other commercial uses and encouraging activity in the Area. The Plan conforms to the Recreation Needs goal.

Goal 9: Economic Development

- Diversify the economic base of the community.
- Increase the tax base needed to provide an adequate level of community services for <u>The Dalles citizens.</u>
- Encourage the growth of existing employers and attract new employers to The Dalles that complement the existing business community.
- Implement the objectives and activities of the Columbia Gateway/Downtown Urban Renewal Plan, enhancing opportunities for the improvement and redevelopment of business, civic, cultural, and residential uses in the area.

- Provide employment opportunities, environments, and choices whichchoices, which are <u>a vital part of a high quality of life in The Dalles.</u>
- Support the maintenance and enhancement of The Dalles Commercial Historic District.
- Encourage redevelopment and adaptive reuse of commercial space downtown as an alternative to commercial sprawl.

Finding: The Incentive Program provides funds to encourage rehabilitation in the Area. The program offers assistance to improve the façade of a building, add residential units, provide interior improvements and to provide overall improvements to buildings in the Area which included The Dalles Commercial Historic District. These improvements will help facilitate healthy businesses and economic activity in the Area. The Plan conforms to the Economic Development goal.

Goal 10: Housing

- Promote and provide an adequate supply of safe, healthy and affordable housing for all members of the community in a variety of housing types recognizing the needs and desires of the community's residents.
- Promote the development of housing that minimizes or avoids impacts to the natural environment and surrounding land uses.
- Provide and maintain adequate public facilities in all parts of the community and promote a logical and orderly development of those facilities. Require new housing developments to pay an equitable share of the cost of required capital improvements.
- Promote the efficient use of vacant land by encouraging infill development which is developed at a scale that is allowed in existing neighborhoods, and by encouraging new development which achieves the density allowed by the comprehensive planComprehensive Plan.
- Strengthen existing and promote new neighborhood centers as focal points for neighborhood services and activities.
- Adopt standards and incentives to increase residential land use efficiency.
- Continue to provide opportunities for a full range of rental housing.

Finding: The improvements to First Street and the development of the Federal Plaza will enhance the Area for further redevelopment which redevelopment, which could include future residential development. Building owners may apply to the Incentive Program for assistance in rehabilitating or adding residential units. The Plan conforms to the Housing goal.

Goal 12: Transportation

• To provide a transportation system that supports the safety and mobility needs of local residents, business and industry, affords choice between transportation modes, is convenient and affordable to use, and supports planned land uses.

Finding: The improvements to First Street including the reconstruction, improved pedestrian system, street trees, and a bike lane will serve the needs of the commercial businesses, residents and tourists in the Area by providing a more safe, multi-modal transportation experience. This project will improve the experience of traveling between downtown and the Lewis and Clark Festival Park, and enhance the opportunity for development of, and connectivity to, a Federal Street plaza. These improvements will complete the overall transportation plan to improve the streets and pedestrian atmosphere in the Area. The Plan conforms to the Transportation goal.

405. CONSISTENCY WITH ECONOMIC DEVELOPMENT POLICY

The Economic Development Goal of the City's Comprehensive Land Use Plan (Goal 9) discusses, among other things, the need to:

- 1. Provide family wage employment opportunities for The Dalles citizens.
- 2. Diversify the economic base of the community.
- 3. Increase the tax base needed to provide an adequate level of community services for The Dalles citizens.
- 4. Encourage the growth of existing employers and attract new employers to The Dalles that complement the existing business community.
- 5. Implement the objectives and activities of the Columbia Gateway/Downtown Urban Renewal Plan, enhancing opportunities for the improvement and redevelopment of business, civic, cultural, and residential uses in the area.
- 6. Provide for tourism-related employment as part of the effort to diversity The Dalles' economy.
- 7. Provide employment opportunities, environments, and choices, which are a vital part of a high quality of life in The Dalles.
- 8. Support the maintenance and enhancement of The Dalles commercial historic district.
- 9. Encourage redevelopment and adaptive reuse of commercial space downtown as an alternative to commercial sprawl.

The Urban Renewal Plan addresses these goals in conformity with the provisions of the Economic Element.

406404. COORDINATION WITH THE LANDMARK COMMISSION POLICIES

In the implementation of this Urban Renewal Plan, and in particular with the Rehabilitation Program project, the Urban Renewal Agency shall coordinate their efforts with those of the

Historic Landmarks Commission in the Urban Renewal Area in which the Historic Landmarks Commission has review authority.

SECTION 500 – LAND USE PLAN

The use and development of all land within the Urban Renewal Area shall conform to the City's Comprehensive Land Use Plan, the Land Use and Development Ordinance, and any other implementing ordinances of the City.

501. LAND USE DESIGNATIONS

The land use designations of the City's Comprehensive Plan which affect the Urban Renewal Plan Area are shown on Exhibit 3 of this Plan. Current zoning districts, shown on Exhibit 4 of this Plan, are described in full in the City's Land Use and Development Ordinance (General Ordinance #98-1222) and generally are as follows:

1. Central Business Commercial District, CBC-

The purpose is... "To provide an area for commercial uses, along with civic and certain residential uses, and to provide all basic services and amenities required to keep the downtown area the vital pedestrian-oriented center of the community". Approximately <u>33</u>-<u>36</u> percent of the Urban Renewal Area is in this zoning district.

2. Industrial District, I

The purpose is... "To establish areas which provide for a variety of commercial and industrial uses". _Approximately <u>33-11</u> percent of the Urban Renewal Area is in this zoning district.

3. General Commercial District, CG.

The purpose is... "To provide areas for a wide range of retail, wholesale, and service businesses commensurate with the needs of the marketing region. <u>New development shall be</u> designed to promote clustering of businesses, use of common access and traffic controls, and use of cross access for vehicles, pedestrians and bicycles between contiguous sites. Safe and convenient pedestrian and bicycle circulation between the particular use and the adjoining street, sidewalk, or public right-of-way shall also be provided". Approximately 4–5 percent of the Urban Renewal Area is in this zoning district.

4. Commercial/Light Industrial District, CLI-

The purpose is... "To provide an area for commercial uses and certain industrial uses. <u>New</u> development shall be designed to promote clustering of businesses where appropriate, and use of common access and traffic controls. Where appropriate, safe and convenient pedestrian and bicycle circulation between the particular use and the adjoining street/sidewalk shall also be provided.

This district also accommodates business parks that provide for a mixture of commercial and light industrial uses in a campus-like setting where business activities are conducted indoors.

5. High/Medium Density Residential District, RH-

The purpose is... "To provide areas where single family detached dwellings, single family attached dwellings, duplexes, town houses, condominiums, and multi-family developments may be constructed under various ownership patterns. Adequate urban services shall be available to all development without exception"... Approximately 3-6 percent of the Urban Renewal Area is in this zoning designation.

6. Parks and Open Space District, P/OS

The purpose is... "To <u>ei</u>nsure sufficient open space areas throughout the community to safeguard public need for visual and environmental resources and to provide areas for recreational activities. <u>Allowed uses show lower level activity and potentially less offsite impact</u> than uses allowed conditionally". Approximately 5 percent of the Urban Renewal Area is in this zoning district.

7. Recreational Commercial District, CR

The purpose is... "To provide areas for mixed business, commercial, service, recreational, and light industrial uses. Site planning for permitted uses shall ensure protection and enhancement of the significant environmental areas located along the Columbia River and related streams and creeks. Streets, sidewalks, bikeways, and water, sewer, and storm drainage systems shall be constructed or improved as needed." Approximately 5 percent of the Urban Renewal Area is in this zoning district.

- **502.** The City's acknowledged Comprehensive Plan and its implementing ordinances, codes, policies, regulations, including The Dalles Riverfront Plan, as they exist on the effective date of this Urban Renewal Plan, or as they may be amended from time to time, are incorporated hereby by reference as if they were included in full.
- **503.** The use, development or redevelopment of all land within the Urban Renewal Area shall comply with the provisions of the City's Comprehensive Plan, implementing Ordinances ordinances, codes, policies, and regulations described in Sections 501 and 502 above, and with all other applicable Federal federal, Statestate, County county and City-city regulations.

SECTION 600 – URBAN RENEWAL ACTIVITIES

In order to achieve the goals and objectives of this plan, the following projects and activities, subject to the availability of appropriate funding, may be undertaken by the Agency or caused to be undertaken by others, in accordance with applicable <u>Federalfederal</u>, <u>Statestate</u>, <u>Countycounty</u>, and <u>City-city</u> laws, policies, and procedures and in compliance with the provisions of this <u>plan-Plan</u> and the Cooperation Agreement between the City and Agency.

601. URBAN RENEWAL PROJECTS AND ACTIVITIES

Projects and activities listed under this section <u>as "completed, partially completed, pending, or</u> <u>on-going"</u> were recommended by the Urban Renewal Advisory Committee <u>in 2009</u>, based in part on project selection criteria. -<u>New projects identified by the Urban Renewal Agency Board</u> as part of this 2024 Plan revision will follow. Selection These criteria are as follows:

GENERAL CRITERIA

Acceptable projects must comply with all of the following:

- A.I. Selected projects must address any one, or any combination of, blighted conditions as described in the <u>Columbia Gateway/Downtown</u> Urban Renewal Plan.
- B.II. Selected projects must be consistent with the goals, policies, and designated uses of the City's <u>Comprehensive Land Use Plan</u> and implementing ordinances.
- C-III. Selected projects must be consistent with the development policies of the Historic Landmarks Commission in those areas where the Historic Landmarks Commission has review authority.
- D.IV. Selected projects must, in aggregate, increase property values and tax collections to a level that will produce a reasonable return of the Urban Renewal contribution.

SPECIFIC CRITERIA

Acceptable projects must meet any one or any combination, of the following:

- •i. Increases the value of the property on which the project is located.
- •ii. Increases the property value of the surrounding properties next to the property, or rightof-way, on which the project is located.
- •iii. Places unused or underused property in a productive condition.
- •<u>iv.</u> Enhances opportunities for business, civic, residential, cultural, and tourist-related property to be developed, redeveloped, improved, rehabilitated, and/or conserved.
- •v. Provides for an adequate amount of properly located off-street parking in the downtown area.

- Creates positive linkages between the two sectors of the commercial areas of the community, i.e. the Downtown and the West Gateway areas.
- •vi. Promotes the program to improve the riverfrontriverfront improvements as determined in <u>The Dalles Riverfront Plan</u>.
- •<u>vii.</u> Improves the visual appearance, capacity, and traffic flow of streets in areas where development would otherwise be inhibited.
- •<u>viii.</u> Assists property owners with the rehabilitation of their buildings and property.
- •ix. Enhances storm drainage capacity of streets.
- •x. Leverages the Agency's financial resources to the maximum extent possible with other public and private investments and other public and private funding.
- •xi. Encourages investment in the core commercial area.
- •xii. Promotes housing opportunities in the Downtown area.

The following projects and activities are hereby deemed necessary to:

- •____Eliminate blighted conditions and influences;
- Stabilize or increase depreciating property values;
- Create an attractive area for the stabilization, expansion, rehabilitation or redevelopment of existing businesses, industries, and housing;
- Create a physical, visual, and economic environment that will attract new, job producing development on the area's vacant land and redevelopment property; and
- Further the objectives of this Urban Renewal Plan as set forth in Section 400.

All public improvements herein proposed shall be complete with all required appurtenances and shall be constructed and implemented in conformance with the approved standards and policies of the City of The Dalles.

With monies available to it, the Urban Renewal Agency may fund in full, in part, a proportionate share, or cause to be funded, the following numbered projects and activities:

PROJECTS COMPLETED

Note: Project descriptions carried over from 2009 Urban Renewal Plan are italicized in bold, followed by status as of April 2024.

Grain Elevator Demolition

• "This project consists of removing the structures and other appurtenances that make up the three major components of the grain elevator; the wooden elevator, concrete storage silos, and metal storage bins. Removing the grain elevator allows for the construction of the Downtown / Riverfront Access project and the new sewer treatment plant."

✓ The former grain elevator was destroyed in a fire in 1999; Urban Renewal purchased the property and paid for cleanup following the fire, establishing land base for the City's sewer treatment plant expansion and Lewis & Clark Park. Status: Complete.

Commodore Building Redevelopment

- <u>Redevelopment of the Commodore building involves purchase, and total</u> <u>renovation of the building's interior for an identified use or uses, and restoration</u> <u>of the building's historic exterior.</u>
 - ✓ Agency purchased the Commodore and leased it to Commodore II Limited Partnership on April 10, 2001. Agreement included an Agency loan of \$282,445. Loan is payable on or before Dec. 31, 2026. Status: Renovations completed; Agency interest continues until loan is repaid.

Civic Auditorium Remodel and Reconstruction

- The project involves a total remodel and reconstruction of the entire building including: the Fireside room, ballroom, theater, gym, and basement areas, as well as electrical, plumbing, heating and cooling, and exterior repairs.
 - ✓ The Civic Auditorium was saved from demolition when City of The Dalles conveyed ownership to the Civic Auditorium Historic Preservation Committee in 1990. Major and minor phases of repair and restoration continued for more than 30 years, including Urban Renewal investments and many other sources. The Civic celebrated its centennial on May 12, 2023. Status: All major renovations complete.

Mill Creek Bridge Reconstruction (West Sixth Street)

- The Mill Creek Bridge reconstruction consists of two phases, the first of which has already been completed. The first phase included improving the four sidewalk approaches to the bridge and related road, drainage, and bank stabilization work. The second phase involves a complete restoration of the bridge in its original historic character including the sidewalks, railings, and light standards and deck.
 - <u>Reconstruction used a combination of Urban Renewal and City of The Dalles</u> <u>street funds. Completed in the early 2000s, this included deck reconstruction,</u> <u>replacement of the historic parapet and period lighting. In September 2024</u> <u>Oregon Department of Transportation informed the City of surface and structural</u> <u>concerns requiring remediation, potentially requiring bridge replacement. Further</u> <u>information pending as of the date of this Substantial Amendment.</u> <u>Status:</u> <u>Complete.</u>

Thompson Park Sidewalk

 This is a small project that includes construction of a natural rock retaining wall, sidewalk, and curb. It begins at the drive entrance to the Thompson Park swimming pool and ends at the intersection of West Second Street and Cherry Heights.

 Urban Renewal paid for sidewalk along West Second Street west from Mill Creek, adjacent to pool extending to and along Cherry Heights Road, including rock retaining wall. There was no sidewalk previously. Status: Complete.

Redevelopment of Wasco Warehouse & Milling Company Property

- Redevelopment of the Wasco Warehouse & Milling Company property involves purchase and may include partial renovation and historic preservation for an identified use or uses. Additional land will be acquired from the Oregon Department of Transportation and the Union Pacific Railroad.
 - ✓ This project was completed through acquisition and redevelopment as the Sunshine Mill. Urban Renewal assisted through its loan program, beginning with a loan agreement to Discovery Development LLC in 2009. Loan was paid in full and mortgage satisfied on Jan-uary 1, 2020. Status: Complete.

East Gateway/Brewery Grade Street Reconstruction

- The existing streets will be realigned and improved and a roundabout installed to help facilitate a better flow of traffic within the Area.
 - Brewery Grade roundabout was completed in 2010. This was a \$3.5 million project, combining urban renewal with other public funding sources. Improvements included public parking lot, redesigned access from East Second and East Third streets, and parking upgrades at the former Great Southern Railroad Depot (later Cannon Packer). Status: Complete.

Thompson Park Pool Project

- The project will allow for additional amenities to the construction of a new pool, which was approved as the result of a bond measure passed by the voters of the Northern Wasco County Parks & Recreation District. The alternate features for the project, which will be visible from I-84 freeway, are designed in part to attract tourists to the City.
 - ✓ Urban Renewal paid for sidewalk along West Second Street west from Mill Creek, adjacent to pool extending to and along Cherry Heights Road, including rock retaining wall. There was no sidewalk previously. **Status: Complete.**

Redevelopment of the Elks Lodge Building

- The project anticipates acquisition of the Elks Lodge Building by the Agency, and conveyance of the property to a private developer for creation of a museum for the display of neon signs.
 - ✓ Urban Renewal Agency acquired the building in March 2015 and entered a Development and Disposition Agreement with David and Kirsten Benko on April 3, 2015, with the goal of establishing a museum dedicated to the preservation and display of vintage neon signs. Property title was conveyed in 2015. The National Neon Sign Museum opened in 2018. Status: Complete. In 2023 the Benkos and Restore Oregon announced plans to relocate the historic Jantzen Beach Carousel to a parcel adjoining the building. This project is on-going.

Downtown Parking Structure and Surface Parking Lots

- Increase in demand for easy parking in the Downtown area will require the construction of a multi-level parking structure. Estimates are for 150 parking spaces to help accommodate the additional demand. Smaller surface lots in the core area may be located on a temporary basis or permanently constructed.
 - ✓ Initial plans called for acquisition and demolition of the former J. C. Penny's Sstore on Second between Court and Washington, with construction of a multi- level parking structure on that site and the adjoining parking lot. This project was later abandoned. Focus instead was on construction of smaller, surface parking lots near St. Peter's Landmark, Sunshine Mill Roundabout and (in 2024) East Third. All of these have been completed or are pending completion. No further surface parking lots are proposed. Status: Surface lots complete. Parking structure abandoned.

Redevelopment of Armory Property / Public Works site

- This project includes the redevelopment of the commercial property on the south side of West Sixth Street from Webber to Walnut. The current City Public Works office and yard would be relocated to another site.
 - ✓ Requiring nearly three decades of effort, this project concluded with construction of Ft. Dalles Readiness Center on the Columbia Gorge Community College campus in 2014 – a \$19.4 million project. The college leased part of its campus to the Oregon Military Department. This allowed demolition of the former armory (a 1940s-circa Quonset hut at West Sixth & Webber Streets) by Urban Renewal and enabled Wasco County to regain site control at that location. A separate, nearby project was the Urban Renewal-funded demolition of the former City of The Dalles Public Works building on West Sixth Street. Public Works relocated to West First Street, making way for an automotive dealership on West Sixth Street, representing a significant private investment on property formerly owned by Wasco County. Commercial property redevelopment resides with Wasco County as property owner. Status: Complete.

Projects partially completed, pending or on-going

Note: Most of these projects have changed in scope significantly since 2009. While some major elements have been completed, such as the maritime terminal and Union Street undercrossing, the original visions may still be considered works in progress.

Downtown Streetscape Improvements

- The location of the Downtown Streetscape Improvements project may include all areas designated on the City's official Zoning map as "Central Business Commercial" and includes 1st, 2nd, 3rd, and 4th Streets and connecting side streets. Streetscape improvements may include: Removal of existing curbs, gutters, sidewalks, street lighting, hollow sidewalks, street grades, and other associated elements. Construction The project includes construction of curbs and gutters, decorative concrete sidewalks and paving stones, period street lights, street trees, irrigation systems, plazas, signs, drinking fountains, benches, planting areas, special crosswalk treatment, and other associated elements. This would include the ability to install Opticom GPS Systems and to upgrade the water system in the area.
 - ✓ Second Street downtown was redeveloped in 2002 using a combination of Urban Renewal and City of The Dalles street funds. Opticom GPS was not installed downtown. Third Street redevelopment was scheduled for 2007-08 but postponed amid an economic downturn, then never resumed. First Street has received priority because of failing sidewalks between Union and Washington, the need for separated traffic/pedestrian passage east of Washington, and inadequate infrastructure overall. Architecture and engineering is at 95% completion as of April 2024. Urban Renewal Agency has conveyed \$3.8 million to the city in preparation for this project, with all funding anticipated to come from the Agency. However, cost escalation has resulted in a significant budget gap

from original estimates. Research is under way through April 2024 to resolve this urgent challenge. Status: One major element completed.

✓ First Street reconstruction to address hollow sidewalk between Union and Washington and other improvements. Given potential fiscal impact on the Agency's capacity, this is called out as a new project below.

Downtown / Riverfront Access

- The Downtown / Riverfront Access project links the Downtown area to the <u>Columbia Riverfront via a non-vehicular pathway</u>. It includes development of a <u>trailhead and parking lot</u>, access tunnels under the railroad, First Street and the I-<u>84 freeway</u>, a commercial marine terminal dock near the site of the old pier, a <u>twelve-foot wide trail with associated landscaping elements between the trailhead</u> <u>and dock</u>, and a plaza on Washington Street.
 - ✓ Access including "boat dock near the old pier" was accomplished through construction of the Union Street portal in 2003, Maritime Terminal (Cruise Ship Dock) in 2012 and Lewis & Clark Park with associated vehicle parking. The undercrossing alone was a \$6 million project. Urban Renewal funding leveraged at least \$2.25 million in state and federal funds. Washington Street plaza, railroad and I-84 under-crossings were envisioned but later cancelled. There is significant potential for additional riverfront development within the current urban renewal district boundaries and west along West First Street and Bargeway Road. Status: Two major elements completed.

Mill Creek Greenway Property Development

- A main feature of the Mill Creek Trail/Greenway, primarily the section between 2nd Street and West 8th Place, will be the construction of the 10-foot-wide paved pedestrian bicycle trail, to be utilized for recreation and as a connector for pedestrian and bicycle travel in the City. An additional pedestrian bridge over Mill Creek will be constructed as part of connecting the trail to a terminus with the West 8th Place cul-de-sac. A connection is also proposed from 2nd Street via a pedestrian-/bicycle signaled crosswalk or other approved method of passage, then continuing along property between the Union Pacific Railroad right-of-way, Urness Motors (Assessor Map No. 1N 13E 3BB Tax Lots 900 & 1000), and the United States Postal Service properties (Assessor Map No. 1N 13E 3BB Tax Lots 700 & 800) to Union Street, with the trail ultimately connecting to the Riverfront Trail. Construction of the Mill Creek Trail Greenway is anticipated to be done in phases. Anticipated expenses include, but are not limited to engineering and design for the Mill Creek Trail/Greenway, consultant review of the compatibility of the location of the proposed trail with existing and planned improvements for the Thompson Park property owned by the Northern Wasco County Parks & Recreation District, landscaping, lighting, irrigation, trash receptacles, toilets, benches, interpretive and trail signage, creek overlooks, a native plant garden, picnic area, and sculpture.
 - ✓ Ongoing partnership with Northern Wasco County Parks & Recreation and Agency. Urban Renewal Agency in 2023 transferred \$300,000 to the parks

district for an elevated boardwalk the District plans as part of this Project. There are no immediate plans for the linkage across West Second Street to Riverfront Trail near Mill Creek, although public partners recognize the need for this connection. Urban Renewal bought and demolished older structures prior to transferring property to Parks District. **Status: Pending.**

West Gateway Project

- West Second Street from Lincoln Street to western boundary of Urban Renewal; street and property redevelopment, redesign and reconstruction. Amended April 12, 2020, by Resolution No. 10-068 adding Skateboard Park. The Gateway project is a large project that includes redesign and reconstruction of sections of I-84, West Second, and Webber Streets, and property redevelopment and realignment to provide for better access and redevelopment opportunities. The urban renewal portion of the project is focused on West Second Street and associated properties.
 - ✓ Skateboard park was completed, including a \$100,000 commitment from Urban Renewal. Limited intersection improvement occurred at Cherry Heights and West Second Street intersection. The urban renewal district includes multiple parcels along West Second Street west of Webber Street, extending to and including tax lot BC900. Webber Street undercrossing and realignment of West Second Street north of Interstate 84 were part of a proposed transportation improvement project in 2011 (estimated cost \$3.7 million) but later postponed. Status: Incomplete.

Third Place Street Improvements

- The 3rd Place improvements include street, utilities, curbs, sidewalks, lighting, landscaping, and associated improvements.
 - ✓ This project would correct a tight curve on West Third Place just south of the West Fourth Street intersection. Status: Indefinitely postponed.

Redevelopment of properties located within the block bordered by Washington and Court Streets, and First and Second Streets.

- The project may include the acquisition of the Granada Theater for possible use as a fine arts community center through a development and disposition agreement.
 - This became the Granada Block redevelopment. The Agency acquired the Granada Theatre, former Washington Hotel/Model Laundry ("Blue Building") and Recreation parcels on Second Street, and conducted alley vacations preparatory to development of a downtown hotel and associated conference center. This plan was later discarded and the individual properties sold through Development and Disposition Agreements. All are fully or partially occupied as of April 2024. The Granada Theatre, constructed in 1929, operates in its original function as a movie theatre. The Washington Hotel houses limited retail and is the subject of a pending agreement for retail/residential development with the Agency, approved by the board in February 2024. Two of theAll three individual Recreation parcels have been redeveloped and sold; the third is scheduled for completion by June 2024, with a DDA amendment approved in February 2024 to expire in, with final

property transferred from Agency ownership in October 2024. Status: Major elements completed.

Property Rehabilitation Grants and Agreements

- This is on-going, having current form (2023-24) as the Incentive Program and, for larger projects, Development Funding Agreements.
- This program has three areas that are designed to further the objectives of the Urban Renewal program and address the many individual projects on private and public property identified throughout the amendment process that meet the project selection criteria. The three program areas include:
 - a. Land Assemblage: The Agency may assist in land assemblage to allow for private development of City and/or privately owned property.
 - b. Historic Design and Restoration: The Agency may provide architectural and engineering design services for existing or new buildings in the National Historic Districts for restoration or compatible design work. The Agency may also provide low interest loans for the portion of the construction work necessary to meet the historic compatibility requirements.
 - c. Redevelopment of Unused and Underused Land and Buildings and other Civic Improvements: The Agency may provide grants and low interest loans for business, civic, residential, cultural, and tourist-related property to be developed, redeveloped, improved, rehabilitated, and/or conserved. Grants shall be made to for-profit, public, non-profit, and civic organizations. Projects must meet the project selection criteria in order to be eligible to receive a grant. These grant and loans may include sprinkler systems for existing and new structures.
 - The Agency may establish a below market interest rate loan program for the redevelopment of properties within the urban renewal area. Prior to making any loans, the Agency shall prepare and adopt a comprehensive rehabilitation loan plan that sets forth:
 - Criteria for eligibility;
 - Interest rates and terms for various loans;
 - Procedures for recycling the funds as loan obligations are paid;
 - Procedures for delinguent loan payments or defaults;
 - Procedures and conditions for which deferred payment loans may be offered;
 - Procedures for administering and servicing the loan program; and
 - Such procedures and conditions the Agency deems necessary.
 - ✓ The property rehabilitation grant and loan fund program has been applied on numerous occasions and provides the basis for its current variation, adopted in 2023, the Urban Renewal Incentive Program. Earlier projects (as of 2009-10) included renovation and repairs to the Wasco Milling Co. Warehouse (Sunshine Mill), Columbia River Bank building, Sigman's Flowers Building, Gayer's Building, Granada Theatre, Civic Auditorium, The Dalles Art Center, Masonic Lodge / Second Courthouse (Clock Tower Ales), American Legion, Old St. Peter's

Landmark, IOOF Lodge façade, Craig's Office Building, Hilco gas station demolition, Creek View townhouse demolition, and Mill Creek Greenway land donation.

- ✓ Another project, which has yet to conclude, is the Tony's Town & Country building redevelopment, which began under Programs A (Land Assemblage) and C (Redevelopment) with acquisition of the structure. After determining that the Tony's building could not be salvaged, the Agency had the structure demolished in 2023 for later redevelopment.
- The loan program is presently discontinued. <u>Status: Modified and ongoing.</u>

NEW PROJECTS added in 2024:

- Basalt Commons: A mixed-use commercial and residential development at 523 East 3rd Street. Developer will demolish existing structure (a former auto dealership) and replace it with a five-story commercial and residential complex.
- Tony's Town & Country building acquisition, demolition and site rehabilitation.
- First Street reconstruction to include sidewalk replacement, street and sub-street reconstruction, tree plantings with irrigation, related infrastructure and public safety measures.
- Federal Street Plaza: Establish public plaza, green space and other improvements to create a community gathering space between First and Second streets. Urban Renewal to help leverage external resources such as state and federal grants by contributing toward local match.

1. DOWNTOWN STREETSCAPE IMPROVEMENTS:

The location of the Downtown Streetscape Improvements project may include all areas designated on the City's official Zoning map as "Central Business Commercial" and includes 1st, 2nd, 3rd, and 4th Streets and connecting side streets. Streetscape improvements may include:

Removal of existing curbs, gutters, sidewalks, street lighting, hollow sidewalks, street grades, and other associated elements. Construction of curbs and gutters, decorative concrete sidewalks and paving stones, period street lights, street trees, irrigation systems, plazas, signs, drinking fountains, benches, planting areas, special crosswalk treatment, and other associated elements. This would include the ability to install Opticom GPS Systems and to upgrade the water system in the area.

2. DOWNTOWN / RIVERFRONT ACCESS

The Downtown / Riverfront Access project links the Downtown area to the Columbia Riverfront via a non-vehicular pathway. It includes development of a trailhead and parking lot, access tunnels under the railroad, First Street and the I-84 freeway, a commercial marine terminal dock near the site of the old pier, a twelve-foot wide trail with associated landscaping elements between the trailhead and dock, and a plaza on Washington Street.

3. GRAIN ELEVATOR DEMOLITION

This project consists of removing the structures and other appurtenances that make up the three major components of the grain elevator; the wooden elevator, concrete storage silos, and metal storage bins. Removing the grain elevator allows for the construction of the Downtown / Riverfront Access project and the new sewer treatment plant.

4. COMMODORE BUILDING REDEVELOPMENT

Redevelopment of the Commodore building involves purchase, and total renovation of the building's interior for an identified use or uses, and restoration of the building's historic exterior. (Project numbers 4, 5, and 6 may be combined into one project depending on timing and on how various decisions are made.)

5. PENNEY'S BLOCK REDEVELOPMENT

Redevelopment of this Downtown core block may include the demolition of the existing Penney's building and reconstruction of a new commercial building and off-street parking on the same site.

6. DOWNTOWN PARKING STRUCTURE AND SURFACE LOTS

Increase in demand for easy parking in the Downtown area will require the construction of a multi-level parking structure. Estimates are for 150 parking spaces to help accommodate the additional demand. Smaller surface lots in the core area may be located on a temporary basis or permanently constructed.

7. CIVIC AUDITORIUM REMODEL AND RECONSTRUCTION

The project involves a total remodel and reconstruction of the entire building including: the Fireside room, ballroom, theater, gym, and basement areas, as well as electrical, plumbing, heating and cooling, and exterior repairs.

8. MILL CREEK BRIDGE RECONSTRUCTION (WEST 6TH ST.)

The Mill Creek Bridge reconstruction consists of two phases, the first of which has already been completed. The first phase included improving the four sidewalk approaches to the bridge and related road, drainage, and bank stabilization work. The second phase involves a complete restoration of the bridge in its original historic character including the sidewalks, railings, and light standards and deck.

9. MILL CREEK GREENWAY PROPERTY DEVELOPMENT

A main feature of the Mill Creek Trail/Greenway, primarily the section between 2nd Street and West 8th Place, will be the construction of the 10 foot wide paved pedestrian bicycle trail, to be utilized for recreation and as a connector for pedestrian and bicycle travel in the City. An additional pedestrian bridge over Mill Creek will be constructed as part of connecting the trail to a terminus with the West 8th Place cul-de-sac. A connection is also proposed from 2nd Street via a pedestrian /bicycle signaled crosswalk or other approved method of passage, then continuing along property between the Union Pacific Railroad right-of-way, Urness Motors (Assessor Map No. 1N 13E 3BB Tax Lots 900 & 1000), and the United States Postal Service properties (Assessor Map No. 1N 13E 3BB Tax Lots 700 & 800) to Union Street, with the trail ultimately connecting to the Riverfront Trail. Construction of the Mill Creek Trail Greenway is anticipated to be done in phases.

Anticipated expenses include, but are not limited to engineering and design for the Mill Creek Trail/Greenway, consultant review of the compatibility of the location of the proposed trail with existing and planned improvements for the Thompson Park property owned by the Northern Wasco County Parks & Recreation District, landscaping, lighting, irrigation, trash receptacles, toilets, benches, interpretive and trail signage, creek overlooks, a native plant garden, picnic area, and sculpture.

10. GATEWAY PROJECT. WEST 2ND-STREET FROM LINCOLN STREET TO WESTERN BOUNDARY OF URBAN RENEWAL, STREET AND PROPERTY REDEVELOPMENT, REDESIGN AND RECONSTRUCTION. AMENDED APRIL 12, 2010 BY RESOLUTION NO.10-068 ADDING SKATEBOARD PARK.

The Gateway project is a large project that includes redesign and reconstruction of sections of I-84, West Second, and Webber Streets, and property redevelopment and realignment to provide for better access and redevelopment opportunities. The urban renewal portion of the project is focused on West Second Street and associated properties.

11. REDEVELOPMENT OF ARMORY PROPERTY / PUBLIC WORKS SITE

This project includes the redevelopment of the commercial property on the south side of West Sixth Street from Webber to Walnut. The current City Public Works office and yard would be relocated to another site.

12. THOMPSON PARK SIDEWALK

This is a small project that includes construction of a natural rock retaining wall, sidewalk, and curb. It begins at the drive entrance to the Thompson Park swimming pool and ends at the intersection of West Second Street and Cherry Heights.

13. PROPERTY REHABILITATION GRANT AND LOAN FUND PROGRAM

This program has three areas that are designed to further the objectives of the Urban Renewal program and address the many individual projects on private and public property identified throughout the amendment process that meet the project selection criteria. The three program areas include:

1. Land Assemblage

The Agency may assist in land assemblage to allow for private development of City and/or privately owned property.

2. Historic Design and Restoration

The Agency may provide architectural and engineering design services for existing or new buildings in the National Historic Districts for restoration or compatible design work. The

Agency may also provide low interest loans for the portion of the construction work necessary to meet the historic compatibility requirements.

3. Redevelopment of Unused and Underused Land and Buildings and other Civic Improvements

The Agency may provide grants and low interest loans for business, civic, residential, cultural, and tourist-related property to be developed, redeveloped, improved, rehabilitated, and/or conserved. Grants shall be made to for-profit, public, non-profit, and civic organizations. Projects must meet the project selection criteria in order to be eligible to receive a grant. These grant and loans may include sprinkler systems for existing and new structures.

The Agency may establish a below market interest rate loan program for the redevelopment of properties within the urban renewal area. Prior to making any loans, the Agency shall **prepare and adopt a comprehensive rehabilitation loan plan that** sets forth:

- a. Criteria for eligibility;
- b. Interest rates and terms for various loans;
- c. Procedures for recycling the funds as loan obligations are paid;

d. Procedures for delinquent loan payments or defaults;

- e. Procedures and conditions for which deferred payment loans may be offered;
- f. Procedures for administering and servicing the loan program; and
- g. Such other procedures and conditions the Agency deems necessary.

14. REDEVELOPMENT OF WASCO WAREHOUSE & MILLING COMPANY PROPERTY

Redevelopment of the Wasco Warehouse & Milling Company property involves purchase and may include partial renovation and historic preservation for an identified use or uses. Additional land will be acquired from the Oregon Department of Transportation and the Union Pacific Railroad.

15. EAST GATEWAY/BREWERY GRADE STREET RECONSTRUCTION

The existing streets will be realigned and improved and a roundabout installed to help facilitate a better flow of traffic within the Area.

16. 3rd PLACE STREET IMPROVEMENTS

The 3rd Place street improvements include street, utilities, curbs, sidewalks, lighting, landscaping, and associated improvements.

17. REDEVELOPMENT OF PROPERTIES LOCATED WITHIN THE BLOCK BORDERED BY WASHINGTON AND COURT STREETS, AND 1ST AND 2ND STREETS

The project may include the acquisition of the Granada Theater for possible use as a fine arts community center through a development and disposition agreement.

18. THOMPSON PARK POOL PROJECT

The project will allow for additional amenities to the construction of a new pool, which was approved as the result of a bond measure passed by the voters of the Northern Wasco County Parks & Recreation District. The alternate features for the project, which will be visible from I-84 freeway, are designed in part to attract tourists to the City.

19. REDEVELOPMENT OF THE ELKS LODGE BUILDING

The project anticipates acquisition of the Elks Lodge Building by the Agency, and conveyance of the property to a private developer for creation of a museum for the display of neon signs.

602. ACQUISITION OF REAL PROPERTY

The Plan authorizes the acquisition and disposition of property as described in this section. Property includes any and all interests in property, including fee simple ownership, lease, easements, licenses or other rights to use. -Eminent domain would only be used <u>only</u> if necessary for the acquisition of land for public improvements and after the Agency has taken all steps required by law to attempt to acquire the land by voluntary agreement with the property owner.

A. Property Acquisition for Public Improvements

The Agency may acquire any property within the Area necessary for the public improvement projects undertaken pursuant to the Plan by all legal means. The Agency action approving an acquisition will specify the need for the acquisition in relation to the public improvement undertaken.

B. Property Acquisition – From Willing Sellers

The Plan authorizes the Agency acquisition of any interest in property within the Area that the Agency finds is necessary to support private redevelopment pursuant to the Plan, but, except as noted below, only in those cases where the property owner wishes to convey such interest to the Agency. The Agency action approving an acquisition will specify the need for the acquisition to support private redevelopment. The Plan does not authorize the Agency to use the power of eminent domain to acquire property other than in the case described in Section 602.A. above, which allows the acquisition of land for public improvements using the power of eminent domain.

C. Land Disposition

The Agency will dispose of property acquired for a public improvement project by conveyance to the appropriate public agency responsible for construction and/or maintenance of the public improvement. The Agency may retain such property during construction of the public improvement. The schedule for disposition of land for a public improvement project will be determined based on the timing of the construction of the public improvement.

The Agency may dispose of property acquired under Subsection B. of this Section 602 by conveying any interest in the property. The schedule for disposition of land acquired

under Subsection B. of this Section 602 will be determined by the Agency when the Agency determines the acquisition is necessary pursuant to Section 602. B above. These determinations may be made by Resolution of the Agency.

Property shall be conveyed at its fair reuse value. Fair reuse value is the value, whether expressed in terms of rental or capital price, at which the Urban Renewal Agency in its discretion determines such land should be made available in order that it may be developed, redeveloped, cleared, conserved or rehabilitated for the purposes specified in such plan. Because fair reuse value reflects limitations on use of the property to those purposes specified in the Plan, the value may be lower than the property's fair market value.

Where land is sold or leased, the purchaser or lessee must agree to use the land for the purposes designated in the Plan and to begin and complete the building of its improvements within a period of time that the Agency determines is reasonable.

605. RELOCATION ACTIVITIES

If in the implementation of this Plan, persons or businesses should be displaced by action of the Agency, the Agency shall provide assistance to such persons or businesses to be displaced. Such displaces will be contacted to determine their individual relocation needs. They will be provided information on available space and will be given assistance in moving. All relocation activities will be undertaken and relocation payments made in accordance with the requirements of ORS 35.500 – 35.530. Payments made to persons displaced from dwellings will be assured that they will have available to them habitable, safe, and sanitary dwellings at costs or rents within their financial reach. Payment for moving expense will be made to occupants displaced.

Prior to the Agency acquiring any property which will cause households, businesses, industries, offices or other occupants to be displaced, the Agency will prepare, adopt, and maintain a Relocation Policy. Such policy will be available to interested parties at the Agency's office and will set forth the relocation program and procedures, including eligibility for and amounts of relocation payments, services available and other relevant matters.

606. PROPERTY DISPOSITION AND REDEVELOPER OBLIGATIONS

- PROPERTY DISPOSITION. The Agency is authorized to dispose of, sell, lease, exchange, subdivide, transfer, assign, pledge, or encumber by mortgage, deed of trust, or otherwise any interest in property which has been acquired by them in accordance with the provisions of this Plan and with the terms and conditions set forth in a Disposition and Development Agreement or other legal instrument as determined by the Agency.
- REDEVELOPER'S OBLIGATION. Any redeveloper and his/her successors or assigns within the Urban Renewal Area, in addition to the other controls and obligations stipulated and required of the Redeveloper by the provisions of this Plan, shall also be obligated by the following requirements:

- <u>The Redeveloper shall obtain necessary approvals of proposed developments</u> from all Federal, State and/or local agencies that may have jurisdiction on properties and facilities to be developed or redeveloped within the Urban <u>Renewal Area;</u>
- <u>The Redeveloper shall develop or redevelop such property in accordance with</u> the land use provisions and other requirements specified in this Plan;
- The Redeveloper shall submit all plans and specifications for construction of improvements on the land to the Agency or such of its agents as the Agency may designate for review prior to distribution to appropriate reviewing bodies as required by the City;
- <u>The Redeveloper shall commence and complete the development of such</u> property for the use provided in this Plan within a reasonable period of time as determined by the Agency;
- The Redeveloper shall not effect or execute any agreement, lease, conveyance, or other instrument whereby the real property or a part thereof is restricted upon the basis of age, race, color, religion, sex, marital status, or national origin in the sale, lease or occupancy thereof;
- The Redeveloper shall accept all conditions and agreements as may be required by the Agency. In return for receiving assistance from the Agency, if any, the Agency may require the redeveloper to execute a development agreement acceptable to the Agency as a condition of the Agency providing assistance.
- <u>The Redeveloper shall maintain property under his/her ownership within the Area</u> in a clean, neat and safe condition.

A. PROPERTY DISPOSITION. The Agency is authorized to dispose of, sell, lease, exchange, subdivide, transfer, assign, pledge, or encumber by mortgage, deed of trust, or otherwise any interest in property which has been acquired by them in accordance with the provisions of this Plan and with the terms and conditions set forth in a Disposition and Development Agreement or other legal instrument as determined by the Agency.

B. REDEVELOPER'S OBLIGATION. Any redeveloper and his/her successors or assigns within the Urban Renewal Area, in addition to the other controls and obligations stipulated and required of the Redeveloper by the provisions of this Plan, shall also be obligated by the following requirements:

1. The Redeveloper shall obtain necessary approvals of proposed developments from all Federal, State and/or local agencies that may have jurisdiction on properties and facilities to be developed or redeveloped within the Urban Renewal Area;

2. The Redeveloper shall develop or redevelop such property in accordance with the land use provisions and other requirements specified in this Plan;

3. The Redeveloper shall submit all plans and specifications for construction of improvements on the land to the Agency or such of its agents as the Agency may designate for review prior to distribution to appropriate reviewing bodies as required by the City; 4. The Redeveloper shall commence and complete the development of such property for the use provided in this Plan within a reasonable period of time as determined by the Agency;

5. The Redeveloper shall not effect or execute any agreement, lease, conveyance, or other instrument whereby the real property or a part thereof is restricted upon the basis of age, race, color, religion, sex, marital status, or national origin in the sale, lease or occupancy thereof;

6. The Redeveloper shall accept all conditions and agreements as may be required by the Agency. In return for receiving assistance from the Agency, if any, the Agency may require the redeveloper to execute a development agreement acceptable to the Agency as a condition of the Agency providing assistance.

7. The Redeveloper shall maintain property under his/her ownership within the Area in a clean, neat and safe condition.

607—_OWNER PARTICIPATION

Property owners within the Urban Renewal Area proposing to improve their properties and receiving financial and/or technical assistance from the Agency shall do so in accordance with all applicable provisions of this Plan and with all applicable codes, ordinances, policies, plans and procedures of the City.

608. ADMINISTRATIVE ACTIVITIES AND SERVICES TO THE AGENCY

- A-__The Agency may hire its own staff or it may obtain its administrative support staff from the City of The Dalles; and the City may provide the personnel necessary to staff the Urban Renewal Agency on such financial terms and conditions as the Agency and the City may from time to time agree in writing. In the event the Agency elects to use City personnel in all or part of its staffing, the Agency will evaluate and make recommendations to the City regarding their personnel support needs. The costs of Agency staffing recommendations shall be included in the annual budget proposal of the Agency.
- B.-_.Further, the Agency may retain and budget for the services of independent professionals, firms, or organizations to provide technical services such as, but not limited to:
 - 1-__Legal Counsel counsel and Bond bond Counsel counsel;
 - 2--_Preparation of market, feasibility or other economic studies or plans;
 - 3.-...Preparation of design, architectural, engineering, landscape architectural, planning, redevelopment, or other developmental feasibility studies;
 - 4....Preparation of construction contract documents for Agency's improvement activities by appropriately licensed professionals;
 - 5--.- Providing accounting or audit services;

- 6-.__Providing special rehabilitation, restoration or renovation feasibility and cost analysis studies or plans;
- <u>7.</u> Assisting in -preparation of the annual financial report required under Section 800 of this Plan;
- 8.—. Property acquisition and disposition appraisals;
- 9..._Licensed real estate professionals for real property acquisition, disposition or negotiation services;
- 10–.Bond issuance and renewal financing consultants.
- C. The Agency may prepare and adopt design standards, themes, guidelines and implementation procedures that would be applied in various sectors of the Urban Renewal Area as the Agency deems appropriate to:

1. Assure architectural continuity and compatibility in new or remodeled buildings that are located in areas in which buildings with unique and distinctive historical or architectural character exists;

2. Advance the role of The Dalles Riverfront Plan as a unique element of visual and civic value to the City and to the properties that abut the <u>Riverriver</u>. As such, promote the development and redevelopment of these abutting properties so as to advance and protect these values; and

3. Assure that the developments on the large vacant lands within the Urban Renewal Area will have a design consistency and will advance the objectives of this Urban Renewal Plan.

- D.-_The Agency may acquire, rent or lease office space within the Urban Renewal Area and may purchase, rent or lease office furniture, equipment and facilities necessary for it to conduct its affairs in the management and implementation of this Plan.
- E... The Agency may invest its reserve funds in interest—__bearing accounts or securities consistent with the provisions of City, State and Federalcity, state and federal law.
- F.-_To implement this Plan, the Agency may borrow money, accept advances, loans or grants from any legal source, issue urban renewal bonds (also known as tax allocation bonds, governmental bonds, qualified redevelopment bonds and tax increment bonds), and receive tax increment proceeds as provided for in Section 700 of this Plan. _Regardless of the form of borrowing of funds, the approval of such borrowing shall comply with the provisions of the Agency's adopted by-laws and all applicable legal requirements.
- G-_Without limiting any other provision, power or authorization of this Plan, the Agency shall have all of the powers and responsibilities allowed under the provisions of ORS Chapter 457.

SECTION 700 _---FINANCING OF URBAN RENEWAL INDEBTEDNESS

The Urban Renewal Agency may borrow money and accept advances, loans, grants and any other legal form of financial assistance from the Federal Government, the State, City, County, federal government, the state, city, county or other public body, or from any legal sources, public or private, for the purposes of undertaking and carrying out this Plan, or may otherwise obtain financing as authorized by ORS Chapter 457.

701. -TAX INCREMENT FINANCING AND MAXIMUM INDEBTEDNESS

The projects may be financed, in whole or in part, by tax increment financing as provided in Article IX Section 9(1)(c) of the Oregon Constitution and ORS 457.420 through 457.450.

The maximum amount of indebtedness that may be issued or incurred under the Plan, as amended in 2024, is \$29,125,58335,262,100.1

702. PRIOR INDEBTEDNESS

Any indebtedness permitted by law and incurred by the Agency, or the City of The Dalles in connection with preplanning for this Urban Renewal Plan may be repaid from Agency funds when and if such funds are available.

703. ANNUAL BUDGET

The Agency shall adopt and use a fiscal year ending June 30 accounting period. Each year, by July 1, the Agency shall adopt a budget in conformance with the provisions of ORS 294 and ORS 457.460 which shall describe its sources of revenue, proposed expenditures and activities.

The Agency shall submit its proposed budget to the Urban Renewal Agency's Budget Committee for its review and approval, and the Agency shall not undertake any activities nor expend any funds except as provided in the approved budget.

¹ Maximum remaining indebtedness from this and prior bonded obligation was calculated at \$5.7 million (June 30, 2023) but did not reflect FY 2024 expenditures and commitments. <u>MI-Maximum indebtedness</u> is projected to be reached in 2029, at which time the District shall terminate taking division of taxes-<u>unless</u> the Agency or City Council determines otherwise.

SECTION 800 --- ANNUAL FINANCIAL STATEMENT REQUIRED

801. REQUIRED FINANCIAL STATEMENT

The Agency shall conform to all statutory requirements for reporting financial information.

802. STATEMENT FILED AND PUBLISHED

The statement required by Subsection 801 shall be filed with the City Council and notice shall be published in the "The Dalles ChronicleColumbia Gorge News", a newspaper of general circulation in the City, that the statement has been prepared and is on file with the City and with the Urban Renewal Agency and the information contained in the statement is available to all interested persons.

SECTION 900 __-CITIZEN PARTICIPATION

The activities and projects identified in this Plan, the development of subsequent plans, procedures, activities and regulations, and the adoption of amendments to this Plan shall be undertaken with the participation of citizens, owners and tenants as individuals and organizations who reside within or who have financial interest within the Urban Renewal Area and with the general citizens of the City.

In particular, the Agency intends to give substantial weight to the recommendations of the Urban Renewal Advisory Committee established by the Agency. This Committee is charged with reviewing issues, programs and projects related to the Plan and its implementation. Membership on the Committee shall be representative of the interests of the City of The Dalles and of the Area. The Committee may establish such rules and procedures as it doems necessary to conduct its work.

SECTION 1000 __-NON-DISCRIMINATION

In the preparation, adoption and implementation of this Plan, no public official or private party shall take any action or cause any persons, group or organization to be discriminated against on the basis of age, race, color, religion, sex, marital status, <u>family status</u>, or national origin.

SECTION 1100 -- RECORDING OF PLAN

A copy of the City Council's Non-Emergency Ordinance approving this Plan or amendments to this Plan under ORS 457.095 shall be sent by the Council to the Urban Renewal Agency. Following receipt of such Ordinanceordinance, this Plan or such amendments shall be recorded by the Agency with the Recording Officer, Wasco County.

SECTION 1200 – PROCEDURES FOR CHANGES OR AMENDMENTS IN THE APPROVED URBAN RENEWAL PLAN

The Plan will be reviewed and analyzed periodically and will continue to evolve during the course of project execution and ongoing planning. The Plan may be changed, clarified, modified or amended as future conditions may warrant. Where, in the judgment of the Agency the proposed modification will substantially change the Plan, the modification must be duly approved by the City Council in the same manner as the original Plan and in accordance with the requirements of State and local law. The provisions of ORS 457.085 and ORS 457.220 and of Section 1203 of this Plan shall apply.

The various types of Plan changes, clarifications, modifications or amendments and the official actions that shall be taken prior to their implementation are as follows:

1201. MINOR CHANGES

Minor changes shall not modify the goals and objectives of the Plan or any of its provisions. Such minor changes may include:

- A. Clarification of language or the State Legislature's changes in ORS Chapter and Section references.
- B. Clarification of written or graphic Exhibits to this Plan.
- C. Modification in this location of project improvements authorized by this Plan, resulting from detailed architectural, engineering or planning analysis.
- D. The identification of property to be acquired as provided for in this Plan.
- E. Changes to the scope, cost or location or projects or addition of projects that do not modify the goals and objectives or the basic procedural, planning or engineering principles of this Plan.

Such minor changes, if any, shall be made only by a duly approved resolution of the Agency in which the details of the minor change shall be described.

1202—____AMENDMENT TO THE CITY'S COMPREHENSIVE PLAN OR TO ANY OF ITS IMPLEMENTING ORDINANCES

From time to time during the implementation of this Urban Renewal Plan, the Planning Commission and the City Council of the City of The Dalles may approve amendments or modifications to the City's Comprehensive Plan or to codes, policies, procedures or ordinances whichordinances, which are established to implement such Comprehensive Plan. Further, the City Council may from time to time amend or approve new Buildingbuilding, Health-health Safety safety and other Codes codes that affect the implementation of this Urban Renewal Plan.

A-. Where such amendments, modifications or approvals have been officially adopted by the City Council, such amendments, modifications or approvals – which affect the

provisions of this Urban Renewal Plan – shall, by reference become a part of the Plan as if such amendments, modifications or approvals were herein stated in full.

B-_The City Council shall forward to the Agency copies of such Council actions as are herein above described, and the Agency shall prepare and approve a resolution recognizing that such City Council amendments, modifications or approvals are to be considered as minor changes to this Urban Renewal Plan as provided in Section 1201 above.

1203—COUNCIL APPROVED AMENDMENTS

Changes to the Plan that are not minor changes as described in Section 1202 or substantial changes as described in Section 1204 shall be approved by the City Council in the manner described in ORS 457.085(4), (5) and (6) except that the additional notice provisions of ORS 457.120 shall not apply.

Council approved amendments include any change in any provision of this Plan which would modify the goals and objectives or the basic procedural, planning or engineering principles of this Plan.

1204 _____ SUBSTANTIAL CHANGES

Substantial changes, if any, shall be approved by the City Council in the same manner as the Council's approval of the original plan and in compliance with the provisions of ORS 457.095 and ORS 457.220.

Substantial changes shall include the following:

- A. An increase in the maximum amount of indebtedness that may be issued or incurred under this Plan as set forth in Section 701 of this Plan; and
- A.
- B. Adding land to the urban renewal area that <u>results in a cumulative additions of</u>totals more than one percent of the existing area of the urban renewal area.

Should a court of competent jurisdiction find any word, clause, sentence, section or part of this Plan to be invalid, the remaining words, clauses, sentences or parts shall be unaffected by such finding and shall remain in force and effect.

Page 51 of 51

RESOLUTION NO. 24-004

A RESOLUTION DIRECTING STAFF TO COMMENCE THE SUBSTANTIAL AMENDMENT PROCESS FOR MAKING CHANGES TO THE COLUMBIA GATEWAY/DOWNTOWN PLAN

WHEREAS, on August 23, 1990, the City of The Dalles City Council (**Council**) approved and adopted the *Columbia Gateway/Downtown Plan* (**Plan**), an urban renewal plan as defined by ORS 457.010(19);

WHEREAS, consistent with the provisions of ORS Chapter 457 (*Urban Renewal*), the Council and Agency Board have amended the Plan from time to time;

WHEREAS, the Agency Board now desires to further amend the Plan to add projects, revise the goals and objectives, add property under twenty percent cumulative of the original boundary, increase the maximum indebtedness, and generally update the Plan;

WHEREAS, consistent with Section 1204 of the Plan, the Agency Board's proposed amendments must be processed as a *substantial amendment* to the Plan; and

WHEREAS, consistent with ORS 457.220(2), such substantial changes made to the Plan shall (before being carried out) be approved and recorded in the same manner as adopting the Plan originally.

NOW, THEREFORE, THE URBAN RENEWAL AGENCY BOARD RESOLVES AS FOLLOWS:

- <u>Directs Staff to Proceed with Adoption Process</u>. The Agency Board directs Agency staff to proceed consistent with the provisions of ORS Chapter 457 (*Urban Renewal*) to commence the process of approving a substantial amendment to the Plan to add projects, revise the goals and objectives, add property under twenty percent cumulative of the original boundary, increase the maximum indebtedness, and generally update the Plan in accordance with the *Columbia Gateway Urban Renewal Plan Amendment* (attached to and made part of this Resolution as its **Exhibit A**), and the *Report on the Columbia Gateway Urban Renewal Plan Amendment* (attached to and made part of this Resolution as its **Exhibit B**).
- //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 //
 <

Resolution No. 2024-01

2. Effective Date. This Resolution shall be effective upon adoption.

PASSED AND ADOPTED THIS 21ST DAY OF OCTOBER, 2024.

		Coburn Hege, Lillvik, Long, McGlothlin, Richardson,
Voting Yes	Board Members:	CODUM Hege Lillvik Long. McGlothlin Richardson
Voting No	Board Members:	Denstedt
Abstaining	Board Members:	
Absent	Board Members:	

AND APPROVED BY THE CHAIR THIS 21ST DAY OF OCTOBER, 2024.

hair ur A Darcy Long, Board Chair

ATTEST:

Paula Webb, Planning Secretary

Page 2 of 2

Columbia Gateway Urban Renewal District: Projects List – October 2024

Committed Projects:

- First Street Project: Reconstruction, streetscaping
 - **\$7 million** total project estimate; \$3.8 million reserved; \$3.2 million delta

Requested Projects (*Currently Deferred*):

- <u>Project A</u>: Historic downtown event center, upper story residential (11 units in two buildings) and Second Street façade: \$1.8 million private investment to date, 23 employees hired to date. Needed for completion: \$1.45 million loan requested. *
- <u>Project B</u>: Historic downtown hotel/retail space (4 units): \$200,000 Main Street grant approved for façade. Private equity investment: \$350,000. **\$240,000 grant requested.**
- <u>Project C</u>: Historic building interior renovation for commercial production. Total project \$346,202 does not include prior investments by owner. **\$232,000 grant requested.**
- <u>Project D</u>: East Second St. downtown upper-floor apartment. **\$56,000 requested.**
- <u>Project E</u>: West Second historic bldg. Upper story offices. **\$50,000 grant requested**

Prospective Projects (Active discussions with preliminary estimates):

- <u>Project F</u>: Historic downtown building façade restoration, apartment (1 unit), utilities, façade. **\$368,914** total project cost.
- <u>Project G</u>: East Second St. retail, event center: Kitchen, fire suppression, roof repair. **\$120,000** project estimate does not include room. Total budget pending.
- <u>Project H</u>: Historic downtown retail building façade restoration: **\$316,612** total project.
- <u>Project I</u>: Historic downtown retail building façade restoration: **\$523,118** total project.
- <u>Project J</u>: East Second Street historic building: Needs new HVAC, brick façade repair, restore historic windows and awning, roof repair. **\$250,000** estimated project cost.
- <u>Project K</u>: Downtown retail space HVAC, interior upgrades. *Budget pending*.
- <u>Project L</u>: Wash. St. historic building. Awning, window glazing, tile. *Budget pending*.
- <u>Project M</u>: East Second St. apartments: Estimated total project **\$700,000** does not include second floor egress, potential seismic. Includes HVAC, sprinklers, windows.
- <u>Project N</u>: East Third historic bldg.: Sprinklers, structural, egress, elevator, other code upgrades to support commercial/retail. Three levels, masonry walls. *Estimate pending*.
- <u>Project O</u>: East Second: Street-level retail, upper story residential. **Total project \$745,000. Urban renewal request: \$200,000.**
- <u>Project P</u>: East Second Street vacant structure: Street-level retail; upper story residential. *Estimate pending.*
- <u>Federal Street Plaza</u>: Public plaza total estimated at \$721,000 (Value escalation to start of project). Agency funding would leverage external grant.
- <u>Tony's site redevelopment</u>: Two of three RFEI responses received October 2024 propose Agency as development partner.

*Would require Agency to revisit property loan program.

Attachment 6



MEMO

TO:	Columbia Gateway Urban Renewal Agency
FROM:	Elaine Howard, Elaine Howard Consulting, LLC
RE:	Revenue Sharing Projections Columbia Gateway Urban Renewal Plan Amendment
DATE:	October 15, 2024

Mandatory revenue sharing targets are projected to be reached in the proposed Columbia Gateway Urban Renewal Plan Amendment. Whenever an Agency adopts a substantial amendment to increase maximum indebtedness, the Plan then turns into a Permanent Rate Plan which requires revenue sharing.

Revenue sharing means that, at thresholds defined in ORS 457.470, the impacted taxing jurisdictions will receive a share of the taxes from the incremental growth in the Area. The division of taxes of a Plan after a substantial amendment is limited to the greater of the 10 to 12.5% percent of the initial maximum indebtedness of the Plan or the transition amount. The "transition amount" is "the maximum division of taxes for a plan in the year in which the plan is first substantially amended to increase maximum indebtedness on or after January 1, 2010."

The first threshold is when annual tax increment finance revenues exceed 10% of the original maximum indebtedness of the Plan (\$14,227,353 x.10% is \$1,422,735) At the 10% threshold, the Agency will receive the full 10% of the initial maximum indebtedness plus 25% of the increment above the 10% threshold, and the taxing jurisdictions will receive 75% of the increment above the 10% threshold.

The second threshold is set at 12.5% of the maximum indebtedness is 1,778,419 (14,227,353 x.12.5%). If this threshold is met, revenue for the Area would be capped at 12.5% of the maximum indebtedness, with all additional tax revenue being shared with affected taxing districts.

The transition amount in this Plan is \$1,840,216.70. This is greater than either the 10% or 12.5% thresholds, so is the amount used for the revenue sharing threshold. This amount is reached in the fiscal year this Plan is being amended, FY 2024/2025, so the revenue sharing begins in FY 2025/2026. The overall revenue sharing projections and revenue sharing annually per taxing district are shown in Figure 1. Voluntary revenue sharing happens at the end of the plan (FYE 2029 in Figure 1) as the Plan is projected to reach the maximum indebtedness limit that year and is not projected to need the full TIF in the final year of tax increment collections.



FYE	Mandatory Revenue	Voluntary Revenue	Total Revenue	Wasco County	Port of the Dalles	Northern Wasco Park &	Mid Columbia Fire & Rescue	City of the Dalles
	Share	Sharing	Sharing			Rec		
2025	-	-	-	-	-	-	-	-
2026	62,610	0	62,610	15,295	722	2,446	7,555	10,846
2027	194,204	0	194,204	47,442	2,239	7,585	23,434	33,643
2028	262,323	0	262,323	64,083	3,025	10,246	31,653	45,444
2029	332,320	360,310	692,630	169,202	7,986	27,054	83,577	119,989
Total	851,456	360,310	1,211,766	296,022	13,972	47,331	146,218	209,923

Figure 1. Revenue Sharing Projections by Taxing District

FYE	Wasco County Soil Conservation	4H & Extension Service District	Wasco County Library District	Columbia Gorge Community College	Columbia Gorge ESD	School District 21 North Wasco	Total
2025	-	-	-	-	-	-	-
2026	899	899	2,446	972	1,683	18,847	62,610
2027	2,789	2,789	7,587	3,016	5,219	58,460	194,204
2028	3,768	3,768	10,248	4,073	7,050	78,966	262,323
2029	9,948	9,948	27,058	10,755	18,614	208,500	692,630
Total	17,404	17,404	47,338	18,817	32,566	364,773	1,211,766

Source: Tiberius Solutions LLC



(541) 296-5481 FAX (541) 296-6906

AGENDA STAFF REPORT

AGENDA LOCATION: Item # 10A

MEETING DATE:	December 9, 2024
TO:	Honorable Mayor and City Council
FROM:	Dave Anderson, Public Works Director
ISSUE:	Adoption of 2024 Water System Master Plan Update

BACKGROUND: The City awarded Contract No. 2022-005 to Consor North America in October 2022 to update its Water System Master Plan. Oregon drinking water regulations require that public water utilities develop 20-year master plans. It is recommended practice to update these 20-year plans every 10 years. The City's existing Water Master Plan is 18 years old having been completed in 2006. Under this contract, City staff has worked with Consor over the last two years to develop the draft Water System Master Plan (WSMP or Plan) that is being presented with this report.

The key elements of the WSMP include:

- A description of the City's water service area and existing systems,
- An assessment of the current and future water demands,
- Establishment of performance criteria for the City's water system,
- A water supply analysis,
- Evaluations of the water treatment and distribution systems,
- Development of a Capital Improvement Plan (CIP) identifying needed system improvements to meet future demands and regulations,
- A Financial Evaluation to fund future operating costs and implementation of CIP projects.

In addition, the draft Plan includes an evaluation of climate change impacts to the City's future surface water supplies. A security assessment of the City's water facilities was also conducted.

A major finding of the draft Plan is that there is a need for generational investment in the City's water infrastructure similar to those that occurred in the early 1900s, around 1950, and again in the 1970s-1980s. Some of the City's critical water system infrastructure is reaching the end of its useful life and it is now more expensive to rehabilitate and expand existing facilities than it is to build new ones. This is true for the Wicks Water Treatment Plant (Wicks) and for the water transmission pipelines that transport treated drinking

water 7 miles from Wicks to town. The original portions of Wicks are now 75 years old with significantly deteriorated concrete and piping systems. Similarly, the water transmission lines are also about 80 years old and made of unlined steel pipe which is deteriorated and leaking. Replacement of these critical systems are estimated to cost \$88 and \$59 million respectively.

The draft Plan also identifies projects to improve water service (quantity and pressure) in developing areas of the City and improve the water distribution system's resilience to natural hazards such as earthquakes. Replacement of 70 to 100-year-old distribution piping systems is anticipated and will take decades to complete. The total cost of all the projects included in the 20-year CIP is estimated at \$259 million when adjusted for inflation.

Water Storage

Water storage projects are needed to store more source water to meet near-term demands through implementation of Aquifer Storage and Recovery (ASR) and Aquifer Recharge (AR) programs. ASR and AR are technologies wherein excess water that is available in the winter and spring months is treated at Wicks and injected down wells into the aquifer for use later in the summer. A major water supply project included in the Plan to increase the capacity of Crow Creek Reservoir is scheduled to occur after the immediate 20-year planning period but significant work to prepare for that project needs to occur. The draft WSMP identifies that development of ASR and AR systems is a financially viable option to supplement water supplies and address climate resiliency in the near term thereby deferring the need to raise Crow Creek Dam. This strategy reduced the CIP costs and the amount of water utility revenues required in the 20-year planning period.

The need for increased storage is as much about climate resiliency as it is about water use. Historically, the City stored much of its water for summer use in The Dalles Municipal Watershed in the form of snowpack. That is changing. A Climate Resilience Assessment was conducted as part of the WSMP update which took into account climate forecasts that predict annual snow fall will continue to decrease in the coming decades and more of the precipitation that occurs will be as rain. This transition will necessitate that the City adapt by increasing its capabilities to store more source water or face water shortages in the future due to insufficient storage facilities.

Datacenters

The City anticipated the future need to increase water supply storage when it applied for a water right to increase the capacity of Crow Creek Reservoir in 1994 and identified a project to raise Crow Creek Dam in the 2006 Water Master Plan; both of these decisions occurred before the development of any datacenters. When the first two datacenters were constructed, they utilized unused water system capacity that the City had allocated to support industrial development in its 2006 Water Master Plan. The datacenters that are currently under development transferred water rights from the aluminum plant to City ownership and developed new water wells with capacities greater than their projected demand. The datacenters are also constructing the City's first ASR well.

The need for replacement of aged infrastructure as shown in the draft Plan is due to its age and deteriorated condition, not due to having large industrial water users such as datacenters. Without these industrial users, the residents and businesses would be faced

with paying the full cost of operating, maintaining and modernizing the water system. Large industrial water users pay the same rates for the water they consume as all other non-residential users in the City. The rate revenues collected from these industrial customers go a long way toward supporting the costs to operate, maintain and improve the City's water system. Under the proposed water rate schedule, non-residential customers will pay about 54% of the water utility's costs in FY24-25 and about 61% of costs in FY23-31. It is largely due to the rate revenues received from industrial users that the City has not needed to raise any of its water rates in over 10 years, and that the City's water rates are currently below average for comparable systems in the state. Inflation has caught up with the existing water utility revenues and water system improvement needs are now known, resulting in a need to raise more revenue to meet generational needs.

Financials

The proposed water system CIP is expensive. Implementation of the CIP will require a combination of increased water utility rates and debt financing. The City has a unique opportunity to help pay for the needed water system improvements and mitigate the magnitude of water rate increases. The data centers that are currently under construction received development incentives through the Oregon Strategic Investment Program (SIP). Under SIP, the new data centers will pay the City and County annual SIP fees. The Financial Evaluation and water utility rate schedule developed as part of the draft WSMP anticipate that \$3 million per year from SIP will be allocated to fund water system improvements thereby significantly reducing the amount that water utility rates will need to be increased. Should this Plan be adopted Council, staff intends to bring a Resolution to the Council affirming this policy direction.

The Financial Evaluation also analyzed the cost of service to each of its water utility customer classes. The intent of this analysis was to ensure that water users are billed equitably for the service they receive, and that one class of water customers does not subsidize another class. The City charges water users as either residential or non-residential (which includes commercial, industrial and government users). This analysis found that since 2006, there had been some slight shifting in the cost of service and that residential customers were currently paying about 3% more than their share of the water utility's cost of service. The water rate schedule in the draft WSMP corrects this inequity.

Water Base Amount, Rate Schedule, and System Development Charges (SDCs)

The proposed water rate schedule adjusts the amount of water that is included in the monthly base rate for residential customers. The current residential water base rates include 10,000 gallons of water per month. A comparison to other water utilities found that it is rare for a utility to include any water in its base rates. Staff learned during the Dog River Pipeline Replacement Project that the inclusion of such a large amount of water in its base rate is problematic when applying for state and federal funding because it complicates the normalization of water rates used in funding applications which assume 7,500 gallons per month residential use. For years staff has heard from its water customers that they wanted more control over their water bill and not pay for 10,000 gallons when they used less. The financial analysis found that 70% of customers use less than 10,000 gallons and 52% use less than 7,500 gallons per month. The draft WSMP anticipates reducing the amount of water included in the residential base rate from 10,000 to 7,500 gallons per month. This change will result in an initial decrease in the monthly water bill for residential customers that use less than 7,500 gallon per month. No change

is proposed to the 5,000 gallons currently included in the non-residential monthly base rate.

The Financial Evaluation also analyzed the scaling factors used to calculate base water rates for customers that have water meters larger than ³/₄". The existing scaling factors are obsolete and not supported by current industry standards. The new scaling factors align with current industry standards and better reflect the actual cost of service for the larger meter sizes, and will result in higher monthly base rates for non-residential customers that are served by larger water meters.

The result of all the infrastructure, capital and financial analyses conducted as part of the Plan update is a proposed water rate adjustment to be effective in the first quarter of 2025 intended to increase water utility **revenues** by 7.3% with similar annual adjustments for several years thereafter. With the proposed rate adjustment, the typical residential customer's water bill will increase by about \$4.50 per month each year for the first 10 years, and about \$5.00 per month during the second 10 years of the Plan. Initially, the water bills for residential customers who use less than 7,500 gallons per month will go down before increasing in subsequent years. Without the contribution of SIP funding from the data centers, the first two years of water rate increases for City residents and businesses would have been about 31-38%. The Financial Evaluation should be updated every 3-5 years. If industrial water use ramps up more quickly than anticipated or if inflation is less than assumed in the Plan, future water rate increases for all customers may increase by lesser amounts.

Tables 8-7, 8-8 and 8-9 in the draft Plan outline the proposed new water rate schedules and provide example water bills for both customer classes.

Lastly, the Financial Evaluation analyzed the City's Water System Development Charges (SDCs) which are one-time fees charged to new development. The current Water SDCs were set in 2007 and have not been adjusted for inflation since that time. The analysis identified that the City could justify charging about four times as much Water SDC as it currently does with adoption of the updated WSMP; Water SDCs could be increased to as much as \$9,334 per new residence compared to the current \$2,317. However, Council directed staff to not make such adjustments at this time.

Public Outreach

The City Council held three public work sessions on April 29, August 19, and October 23 to present the developing plan and receive Council input. City staff also created specific webpages on the City's website to convey the developing information.

The draft WSMP was posted on the City website for public review and comment on November 27, 2024. A notice was posted on the City website and a press release was issued announcing the availability of the draft Plan for review on that same date. Comments received will be forwarded to the City Council for consideration. Following this report, the City Council will conduct a public hearing for informational purposes to receive additional comments on the draft Plan.

Following the public hearing, the City Council will have the opportunity to adopt the updated Water System Master Plan or provide direction for amending the Plan which can

be brought back for consideration at a future meeting.

BUDGET ALLOCATION: If adopted, staff will bring a water rates adjustment to the City Council in the first quarter of 2025, with subsequent adjustments per the adopted Plan. The Water Utility Fund will receive an estimated 7.3% increase in water rate revenues from the proposed rate adjustment in 2025 with subsequent increases as the Plan is implemented.

ALTERNATIVES:

- A. Staff Recommendation: Move to adopt the 2024 Water System Master Plan Update.
- B. Decline to adopt the 2024 Water System Master Plan as presented and provide additional direction to staff.





City of The Dalles

Water System Master Plan Update October 2024

PREPARED BY:

Consor

Point of Contact: Emily Flock, PE One SW Columbia Street, Suite 1700 Portland, OR 97204 p: 503.225.9010 e: emily.flock@consoreng.com

In Association With

PREPARED FOR:

City of The Dalles Point of Contact: Dave Anderson, PWD 1215 W 1st Street The Dalles, OR 97058







Page 232 of 664

THIS PAGE INTENTIONALLY LEFT BLANK

Water System Master Plan Update

City of The Dalles

October 2024



Consor

One SW Columbia Street Suite 1700 Portland, OR 97204 THIS PAGE INTENTIONALLY LEFT BLANK

Table of Contents

Chapter 1 Introduction and Existing Water Sys	stem 1-1
1.1 Purpose	1-1
1.2 Service Area and System Description	1-1
1.3 Supply	1-3
1.3.1 Surface Water Supply	
1.3.2 Groundwater Supply	
1.4 Water Treatment Plant	1-11
1.4.1 Finished Water Transmission Pipelines	1-11
1.5 Distribution System	1-11
1.5.1 Pressure Zones	1-11
1.5.2 Pressure Reducing Valves	1-15
1.5.3 Reservoirs	1-15
1.5.4 Pump Stations	1-15
1.5.5 Distribution Pipe	1-16
Chapter 2 Water Requirements	
2.1 Water Service Area	2-1
2.1.1 Existing Service Area	2-1
2.1.2 Future Service Area	2-1
2.2 Planning Period	2-1
2.3 Water Demand Description	2-1
2.3.1 Water Consumption vs. Production	2-2
2.3.2 Non-Revenue Water (Water Loss)	2-2
2.4 Historical Water Demand	2-2
2.4.1 Historical Demand and Peaking Factors	2-3
2.4.2 Historical Water Demand by Pressure Zone	2-3
2.4.3 Historical Per Capita Residential Water Demand	
2.5 Future Water Demand Forecast	2-4
2.5.1 Population Projections	2-5
2.5.2 System Wide Demand Forecast	2-6

2.6 Projected Water Demand by Pressure Zone	2-6
Chapter 3 Performance Criteria	
3.1 Introduction	3-1
3.2 Performance Criteria	3-1
3.3 Water Supply Criteria	3-1
3.4 Transmission Mains	3-1
3.5 Service Pressures and Distribution Piping	3-1
3.5.1 Normal Service Pressure	
3.5.2 Service Pressure in an Emergency	
3.5.3 Distribution Main Criteria	
3.6 Fire Flow Recommendations	3-2
3.6.1 Low Density Residential	
3.6.2 Medium and High Density Residential	
3.6.3 Commercial, Industrial, and Institutional	
3.7 Storage Capacity	3-3
3.7.1 Operational Storage	
3.7.2 Equalization Storage	
3.7.3 Standby Storage	
3.7.4 Fire Suppression Storage	
3.7.5 Dead Storage and Seismic Volume	
3.8 Pump Station Capacity	3-6
3.8.1 Pump Station Supplying Pressure Zone with Gravity Storage	
3.8.2 Standby Power	
3.9 Performance Criteria Summary	3-6
Chapter 4 Water Supply Analysis	
4.1 Introduction	4-1
4.2 Supply Overview	4-1
4.3 Performance Criteria	4-2
4.4 Max Day Demand Evaluation	4-3
4.5 Peak Season and Annual Supply Considerations	4-4
4.5.1 Surface Water Availability (Streamflow)	4-4
4.5.2 Natural Flow Surface Water Rights	4-6

4.5.3 Raw Water Storage	4-6
4.5.4 Wicks WTP Capacity	4-7
4.5.5 Surface Water Supply	4-7
4.5.6 Critical Groundwater Area	
4.5.7 Groundwater Rights	
4.5.8 Annual Water Balance Analysis	4-9
4.6 Supply Expansion Options	4-10
4.6.1 ASR	4-11
4.6.2 Artificial Groundwater Recharge (AR)	4-12
4.6.3 Expanded Raw Water Storage – Crow Creek Dam Expansion	4-14
4.6.4 Deep Groundwater (Grande Ronde Basalt)	4-16
4.6.5 Columbia River	4-18
4.7 Summary and Supply Program Recommendations	4-20
Chapter 5 Distribution System Evaluation	
5.1 Water Distribution System Model Update	5-1
5.2 Model Demands	5-1
5.2.1 Existing System Demand Allocation	5-1
5.2.2 Future System Demand Allocation	5-3
5.2.3 Diurnal Patterns	5-3
5.2.4 Fire Flow Demand Allocation	5-4
5.3 Model Calibration	5-6
5.4 Existing System Evaluation	5-6
5.4.1 System Pressures	5-6
5.4.2 System Piping Velocity	5-7
5.4.3 System Fire Flow Capacity	5-7
5.5 Future System Evaluation	5-11
5.5.1 System Pressures	5-11
5.5.2 System Piping Velocity	5-11
5.5.3 System Fire Flow Capacity	5-11
5.6 Distribution Pipeline Seismic Hazard Evaluation	5-15
5.6.1 Critical Facilities and Water System Backbone	5-16
5.6.2 Geotechnical and Seismic Hazard Evaluation	5-19
5.7 Pipe Condition Assessment	5-24

5.7.1 Assessment Criteria	5-24
5.7.2 Analysis	5-25
5.8 Pumping Analysis	5-28
5.8.1 Firm Pumping Capacity Analysis	5-28
5.8.2 Back Up Power Supply	5-29
5.8.3 BPS Resilience Considerations	5-29
5.8.4 BPS Security	5-30
5.8.5 Summary of BPS Recommended Improvements	5-30
5.9 Supply Pumping	5-30
5.10 Storage Analysis	5-31
5.10.1 Operational Storage	5-31
5.10.2 Equalization Storage	5-32
5.10.3 Standby (Emergency) Storage	5-32
5.10.4 Fire Suppression Storage	5-33
5.10.5 Seismic Storage	5-33
5.10.6 Dead Storage Capacity	5-34
5.10.7 Summary of Total Storage Capacity Requirements	5-34
5.10.8 Reservoir Seismic Considerations	5-35
5.10.9 Reservoir Security	5-35
5.10.10 Reservoir General Conditions and Operations	5-36
5.10.11 Summary of Reservoir Recommended Improvements	5-36
5.11 Distribution SCADA Considerations	5-37
5.12 Distribution Operational Challenges	5-37
5.12.1 Garrison Reservoir	5-37
5.12.2 Sorosis Reservoir	5-37
5.12.3 Vista Reservoir	5-38
5.12.4 Winter Operations of Columbia View Service Area	5-38
5.12.5 352 Zone PRVs	5-38
5.12.6 395 Zone Sediment Buildup	5-38
5.13 Finished Water Transmission Lines	5-39
Chapter 6 Wicks WTP Analysis	
6.1 Purpose	6-1

Chapter 7 Capital Improvement Plan	
7.1 Purpose	7-1
7.1.1 System Development Charges	7-1
7.1.2 Prioritization and Scheduling	7-1
7.2 Cost Estimating Data	7-1
7.3 Capital Improvement Program	7-1
Chapter 8 Financial Evaluation	
8.1 Introduction	8-1
8.2 Water System Revenue Requirements	8-1
8.2.1 Operation and Maintenance Costs	
8.2.2 Capital Expenditures	
8.2.3 Projected Requirements and Rate Increases	8-6
8.3 Rate Analysis	8-10
8.3.1 COS Framework	
8.3.2 Rate Design	
8.4 Conclusions	8-15
Tables	
Table 1-1 Surface Water Rights Summary	1-6
Table 1-2 Well Summary	
Table 1-3 Groundwater Rights Summary	1-9
Table 1-4 Existing Pressure Zone	1-12
Table 1-5 Existing Reservoirs	1-15
Table 1-6 Existing Pump Stations	1-16
Table 1-7 Pipe Inventory by Diameter and Approximate Age	1-16
Table 2-1 Historical Water Demand	2-3
Table 2-2 Historical ADD and MDD	2-3
Table 2-3 Historical Water Demand by Pressure Zone	2-4
Table 2-4 Historical Residential Water Demand per Capita	
Table 2-5 Historical and Projected Population Estimates	2-5
Table 2-6 Projected Water Demand Summary	2-6
Table 2-7 Projected 2044 Water Demand by Pressure Zone	
Table 3-1 Recommended Service Pressure Criteria	
Table 3-2 Recommended Fire Flow Summary	

Table 3-3 Performance Criteria Summary	3-6
Table 4-1 MDD Supply Evaluation	4-3
Table 4-2 Wicks WTP Average Monthly Capacity	4-7
Table 4-3 Annual Water Balance Summary (MG)	4-9
Table 4-4 Permit S-49653 Fish Flow Targets	4-19
Table 5-1 2023 Minimum and Maximum Demands	5-2
Table 5-2 Fire Demand per Zone Type	5-4
Table 5-3 MDD Plus Fire Flow Results	5-7
Table 5-4 Key Water System Facilities and Mitigation Prioritization	5-17
Table 5-5 Pipe Classification Summary	5-25
Table 5-6 Pumping Performance Criteria Summary	5-28
Table 5-7 BPS Firm Capacity Analysis	5-29
Table 5-8 Storage Performance Criteria Summary	5-31
Table 5-9 Operational Storage Requirements	5-32
Table 5-10 Equalization Storage Requirements	5-32
Table 5-11 Standby Storage Requirements	5-33
Table 5-12 Fire Suppression Storage Requirements	5-33
Table 5-13 Dead Storage Capacity Summary	5-34
Table 5-14 Storage Capacity Analysis	5-35
Table 7-1 Capital Improvement Plan (CIP) in 2024 Dollars	7-5
Table 7-2 Capital Improvement Plan (CIP) with Inflation	7-6
Table 8-1 Projected O&M Cost Summary (\$ Millions)	8-2
Table 8-2 Capital Improvement Plan	8-3
Table 8-3 Projected Cash Flow Capital (\$ Millions)	8-4
Table 8-4 Summary of Projected Revenues, Requirements, Debt Service Coverage (\$ Millions)) 8-9
Table 8-5 Allocation of Costs to Service Characteristics	8-10
Table 8-6 Costs by Service Characteristic and Customer Class (\$ Million)	8-11
Table 8-7 Current (Effective December 2014) and Updated Water Rates	8-12
Table 8-8 Meter Factors	8-13
Table 8-9 Current and Projected Residential Water Rates and Typical Bills ¹	8-14
Table 8-10 Current and Projected Sample Non-residential Water Bills ¹	8-15

Figures

Figure 1-1 Existing Service Area	1-2
Figure 1-2 Existing Water System Schematic	1-4
Figure 1-3 Water Supply System Overview	1-5

Figure 1-4 Existing Water System	1-13
Figure 1-5 Existing Pipes by Pressure Zone	1-14
Figure 2-1 Historical and Projected Population Estimates	2-6
Figure 3-1 Storage Volumes	
Figure 4-1 Water Supply System Overview	4-2
Figure 4-2 Historical Dog River Average Monthly Streamflow	4-6
Figure 4-3 Estimated Average Monthly Existing Surface Water Supply	4-8
Figure 4-4 Annual Water Balance Summaries	
Figure 4-5 Groundwater Levels and Pumping Volumes in WASC 50922 (Permit G-15094)	
Figure 4-6 Conceptual Monthly Supply Source Management for 20-Year Horizon	
Figure 5-1 Existing Demand Allocation	5-3
Figure 5-2 Diurnal Patterns	5-4
Figure 5-3 Assigned Fire Flow Demands per Zoning	5-5
Figure 5-4 Minimum Existing System Pressures	5-8
Figure 5-5 Maximum Existing System Velocities	5-9
Figure 5-6 MDD Plus Fire Flow Evaluation	5-10
Figure 5-7 Future Minimum Pressures During PHD	5-12
Figure 5-8 Future Maximum Velocities During PHD	5-13
Figure 5-9 Recommended Short-Term Piping Improvements	5-14
Figure 5-10 Target State of Recovery for Water Systems (Central/Eastern Oregon)	5-16
Figure 5-11 Water System Backbone	5-18
Figure 5-12 Peak Ground Velocity Hazard	5-21
Figure 5-13 Liquefaction Susceptibility	5-22
Figure 5-14 Landslide Susceptibility	5-23
Figure 5-15 Pipe Replacement Prioritization Categories	5-27
Figure 8-1 Projected CIP Cash Flow and Capital Reserves	
Figure 8-2 Projected Water Rate Revenues, Requirements, and Operating Cash Reserves*	

Appendices

Appendix A Climate Change Impacts Technical Memorandum

Appendix B Hydraulic Model Data

Appendix C Distribution System Evaluation Technical Memoranda

Appendix D Wicks WTP Expansion Alternatives Analysis

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 1

Introduction and Existing Water System

1.1 Purpose

The purpose of this Water System Master Plan Update (WSMP) is to perform an analysis of the City of The Dalles' (City's) water system and:

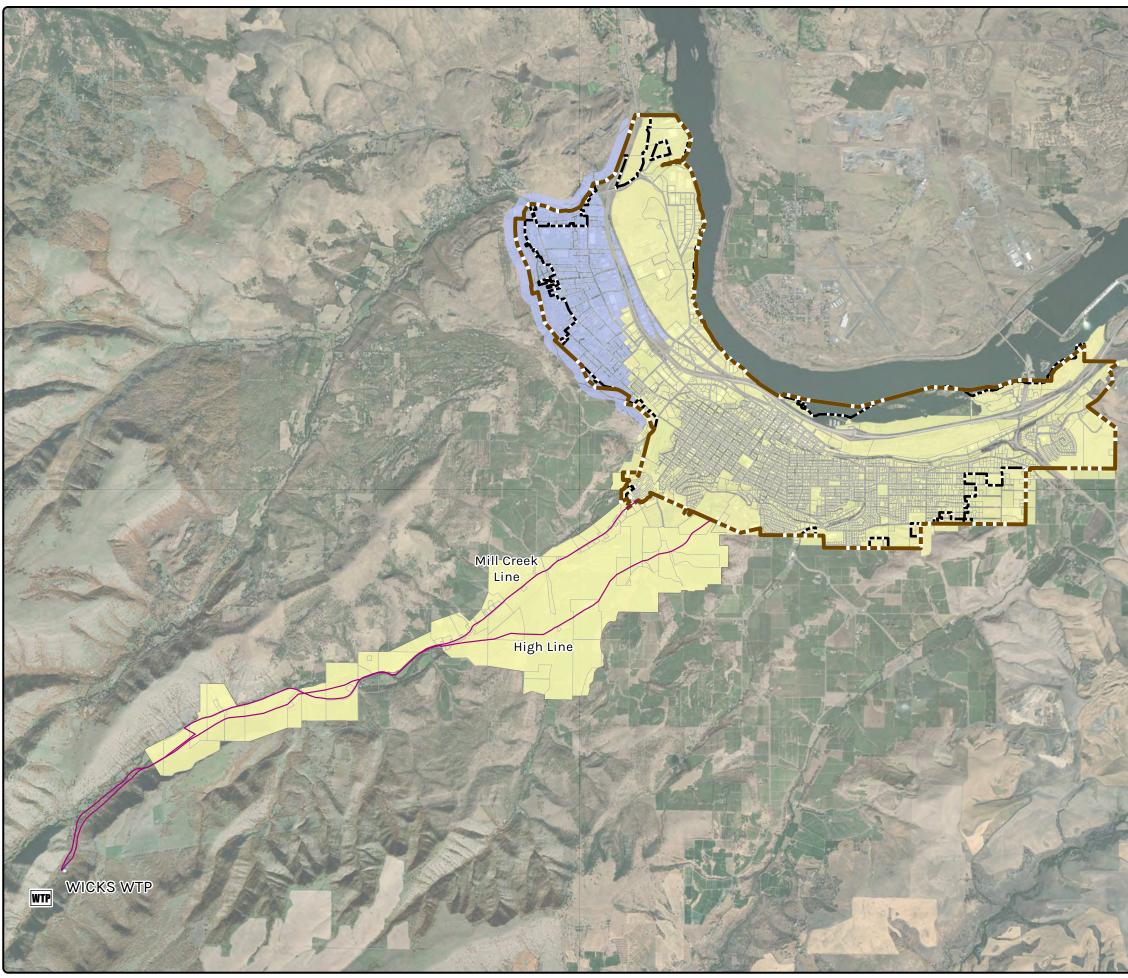
- > Document water system upgrades, changes, and growth since the 2006 Water Master Plan
- Estimate future water requirements including infill development within the City's existing Urban Growth Area (excluding the Chenowith Water PUD service area)
- Identify deficiencies and recommend water facility improvements that correct deficiencies and provide for growth
- > Document a high-level system seismic resilience evaluation
- > Provide a recommended, prioritized Capital Improvement Program (CIP) for the water system
- Comply with water system master planning requirements for Public Water Systems established under Oregon Administrative Rules (OAR)

This report is divided into eight chapters to address the goals described above. **Chapter 1**, **Chapter 2**, and **Chapter 3** summarize the existing system and water demands, estimate future water demands, and list the performance criteria used to analyze the system. **Chapter 4**, **Chapter 5**, and **Chapter 6** build off the prior chapters to identify system deficiencies, vulnerabilities, and development improvements projects for the supply, distribution system, and water treatment plant respectively. **Chapter 7** compiles the proposed projects into a CIP prioritized in 5-year increments. **Chapter 8** presents the financial analysis completed as part of the WSMP. The planning and analysis efforts presented in this WSMP are intended to provide the City with the information needed to inform long-term water supply, treatment, and distribution infrastructure decisions.

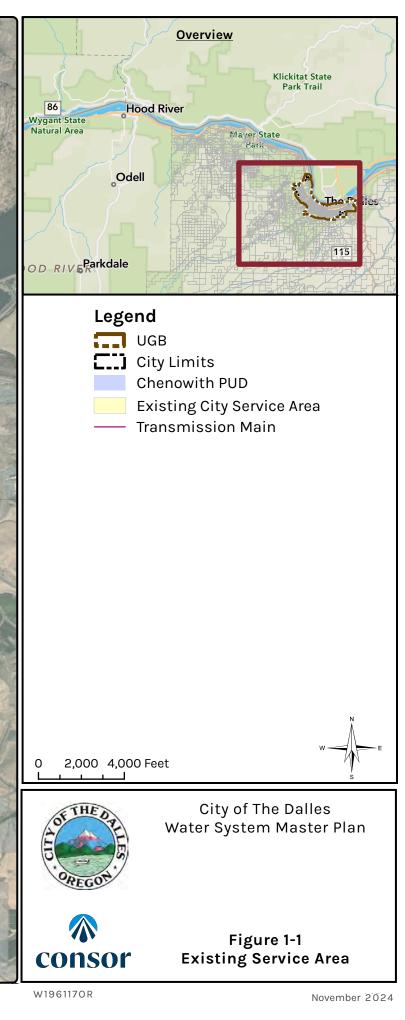
This plan complies with water system master planning requirements established under Oregon Administrative Rules for Public Water Systems, Chapter 333, Division 61 (OAR 333-061-0060(5)).

1.2 Service Area and System Description

The City operates a community water system serving most residents of The Dalles, Oregon, and a small number of customers located outside the city limits. The City's water system has been assigned the state and federal Public Water System Identification No. 4100869. **Figure 1-1** provides an overview map of the City service area. The estimated service population for 2023 is 13,417 out of a total City population of approximately 16,417. Most of the City's residents who are not served by the City water system obtain their drinking water from the Chenowith Water Public Utility District (Chenowith PUD).



Data Sources: City of The Dalles, 2023;Community: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS World Imagery: Maxar <u>Coordinate System</u>: <u>Disclaimer</u>: Consor and CLIENT make no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, or surveying purposes. Notification of any errors is appreciated.



Page 245 of 664

The City water system is generally comprised of raw water storage, water treatment plant (WTP), transmission mains, groundwater wells, and distribution system which includes piping, reservoirs, booster pump stations (BPS), and pressure relief valves (PRVs). A schematic of the system is shown in **Figure 1-2**. Existing water system components are described in the following sections.

1.3 Supply

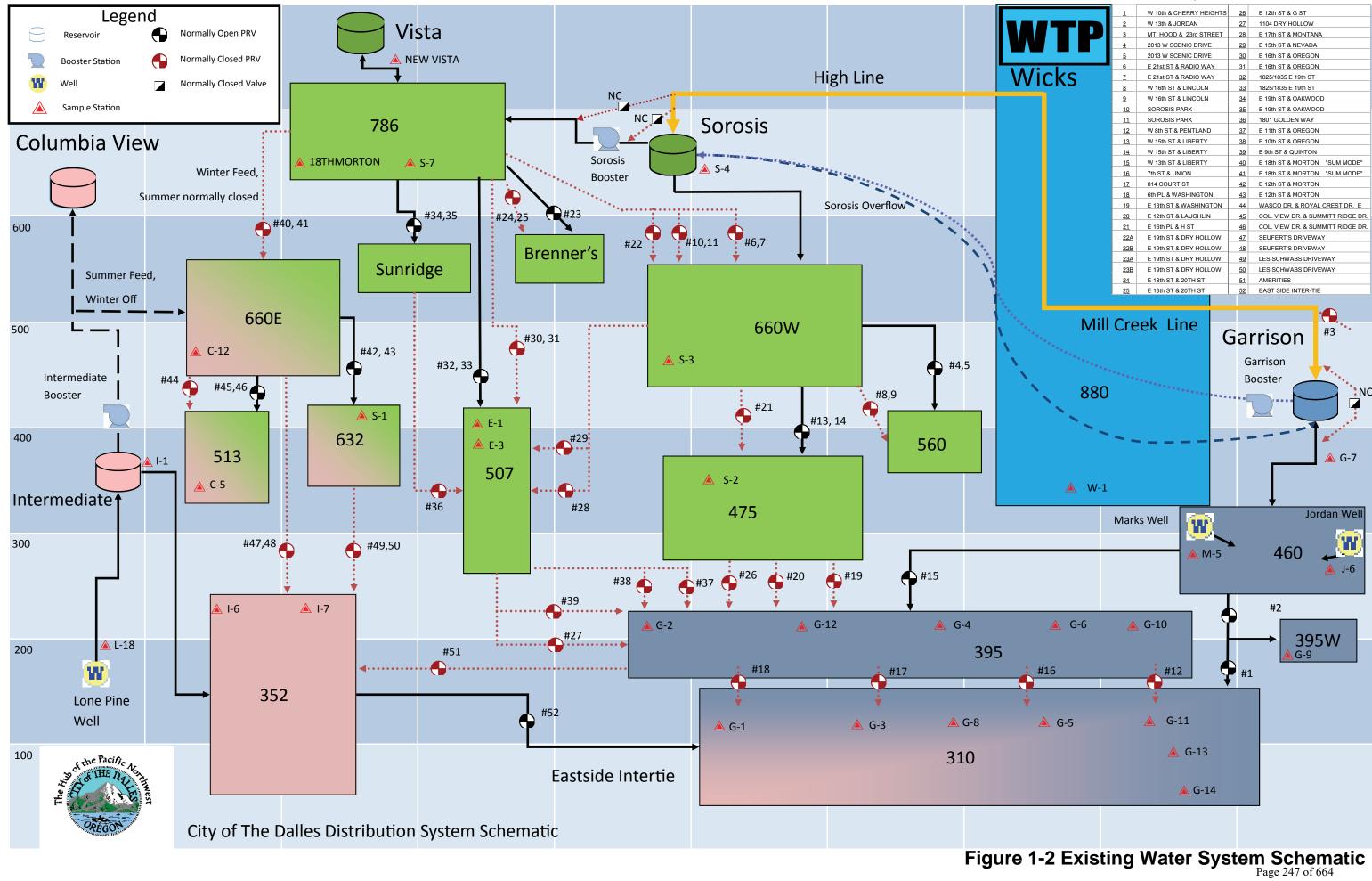
The City supplies both surface water and groundwater to their customers. An overview of the City's water supply system is illustrated in **Figure 1-3**. The City treats surface water at the Wicks WTP from the South Fork Mill Creek which includes flows supplemented by water diverted from the Dog River watershed. The City currently operates three groundwater wells – Lone Pine, Marks, and Jordan Wells. All three wells are in the city limits and draw groundwater from the Dalles Groundwater Reservoir (DGWR, also known as the Dalles Pool Aquifer).

Historically, surface water has been the primary source water for the City. In recent years, the City has obtained approximately 78 percent of its water from surface water supplies located south of the City. The remaining 22 percent is provided by groundwater wells which are utilized in late spring through early fall to supplement supply during peak demand season. This split between surface water and groundwater supplies represents an increase in groundwater usage in comparison to the 2006 WSMP data.

1.3.1 Surface Water Supply

The City obtains its surface water supply from the South Fork Mill Creek which includes flow diverted from the Dog River watershed. The City installed Crow Creek Dam to store the higher winter and spring flows for release during the drier summer and fall months. The dam was installed downstream of the Dog River pipeline discharge to South Fork Mill Creek and creates the Crow Creek Reservoir. The City's surface water supply system, illustrated schematically in **Figure 1-3**, consists of the following major components (in order from upstream to downstream):

- Dog River Diversion Pipeline. The original 20-inch wood-stave pipeline constructed in 1913-1914 was replaced in 2022 and 2023 with a new 30-inch diameter Ductile Iron Pipe Size (DIPS) High Density Polyethylene (HDPE) pipeline which conveys up to 26.3 cubic feet per second (cfs) (17.9 million gallons per day [MGD]) three and one-half miles from the Dog River watershed to the South Fork Mill Creek watershed. The Dog River diversion includes a fish screen and rock ramp fish passage structure, constructed in 2023 and 2024.
- Crow Creek Dam and Reservoir. This dam is located at the confluence of the South Fork Mill Creek with Crow Creek. It impounds up to 800 acre-feet (260 million gallons [MG]) in the Crow Creek Reservoir.
 - The City holds two storage water right permits, one of which has been perfected (certificated).
 The storage rights exceed the physical capacity of the existing Crow Creek Dam at this time.
 Table 1-1 summarizes the information pertaining to these rights.
- South Fork Mill Creek Intake. The intake facility, which was constructed in 2002 to comply with fish screening requirements, is located near the Wicks Water Treatment Plant (WTP). It has a capacity of 12 MGD. Water flows by gravity from the intake to the plant.



PRV Summary Table

Wicks WTP. This plant, described in Section 1.4, has an estimated capacity of approximately 5.6 MGD based on recently replaced media in the filters. Additional discussion and analysis of the WTP capacity is included in Chapter 6.

The City holds five surface water right permits, three of which have been perfected (certificated). **Table 1-1** summarizes information pertaining to these rights.

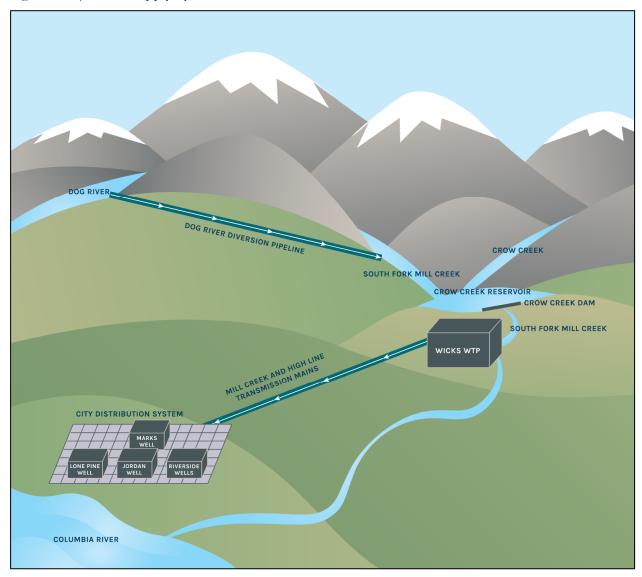


Figure 1-3 | Water Supply System Overview

Table 1-1 | Surface Water Rights Summary

Source	Application	Permit	Claim, Decree, or Transfer	Certificate	Priority Date	Type of Beneficial Use	Authorized Rate (cfs)	Authorized Volume (AF)	Authorized Date for Completion
Surface Water									
South Fork Mill Creek, a tributary of Mill Creek	-	-	Mill Creek Decree	5691	12/31/1862	Municipal	2.0	-	N/A
Dog River, a tributary of East Fork Hood River	-	-	Hood River Decree	14954	8/1/1870	Municipal use for irrigation, domestic, power and stock	"All the water in stream at point of diversion"	_ 1	N/A
Crow Creek Reservoir, a tributary of South Fork Mill Creek	S-43668	S-32479	-	60410	5/29/1967	Municipal	-	955	N/A
Crow Creek Reservoir, a tributary of South Fork Mill Creek	S-84050	S-53930	-	-	1/21/1999	Municipal	-	2100	10/1/2041
Columbia River, a tributary of the Pacific Ocean	S-55346	S-49653	-	-	1/13/1986	Municipal	40	-	10/1/2073
Storage									
South Fork Mill Creek, Dog River	R-43667	R-4988	-	44917	5/29/1967	Storage for Municipal Use	-	955	N/A
South Fork Mill Creek, Dog River	R-84049	R-13105	-	-	1/21/1999	Storage for Municipal Use	-	2100	11/20/2031

Note:

1. Through Special Use Agreement with USDA Forest Service, the City has agreed to bypass to Dog Rover a minimum of 0.5 cfs at the Dog River diversion during August, September, and October annually.

1.3.2 Groundwater Supply

The Dalles currently uses three wells as part of its water supply: Lone Pine, Marks, and Jordan. Together, the three wells have supplied approximately 22 percent of the City's water supply on an annual basis over the past 5 years. All three wells are located within the city limits (shown in Figure 1-4). The Jordan and Marks Wells are located in the west-central area and have design capacities of 1,750 gallons per minute (gpm) and 1,500 gpm respectively. Lone Pine Well is located on the east edge of the City near the I-84 Freeway and has a design capacity of 2,100 gpm. As of May 2024, OWRD has approved a water right transfer (T-13904) authorizing the use of Riverside Wells 1 and 2 under multiple groundwater rights. It is anticipated that this transfer will be assigned to the City. Descriptions of well capacity and the authorized rates and volumes of water use anticipate that T-13904 will be assigned to the City. Riverside Wells 1 and 2 were under construction at the time of the WSMP. The wells are anticipated to be online in early 2025. Data for these wells is summarized in Table 1-2. In addition, the 660 gpm Wicks Well located near the Wicks WTP provides an emergency supply. Water from this well requires treatment at the Wicks WTP prior to distribution. The Stadelman Well is not currently in use for water quality issues. The Mill Creek Well water right was transferred to Mark's Well and the Mill Creek Well is not currently in use. The City's wells are completed in the DGWR (also known as the Dalles Pool Aquifer), which is comprised of several flows of the Columbia River Basalt Group, including the Sentinel Gap flow, Sand Hollow (I and II) flows, and Ginkgo flow.

Table 1-3 summarizes the City's groundwater rights. Use of the municipal water supply wells shown in **Table 1-2** is authorized by the 26.834 cfs (equivalent to 17.34 mgd) of groundwater rights, including 15.7 cfs (10.15 mgd) of certificate water rights and 11.50 cfs (7.43 mgd) evidenced by an inchoate transfer (T-13904) and groundwater claim registration (GR-4258). The available capacity for meeting the City's needs is significantly lower than the City's groundwater rights because of three factors:

- The production from the Jordan, Marks, and Lone Pine Wells is limited to the pumping capacities of individual wells and the capacity of the distribution system at the locations to which the wells are connected.
- The area in which the City's wells are located has been designated The Dalles Critical Groundwater Area (CGWA) by the Oregon Water Resources Department (OWRD) because of historically declining water levels in the aquifer. Groundwater levels stabilized in the mid-1990s when annual pumping was roughly between 5,000 and 5,500 ac-ft (1,629-1,792 MG) (Golder, 1999). Although the levels have remained stabilize in recent years, OWRD may restrict annual withdrawals by the City and other groundwater users if water levels begin again to decline.
- The groundwater quality from the Marks and Jordan Wells is less desirable than that of the surface water supply due to their higher mineral content, so the City limits their contribution to the system. Both wells produce water with higher manganese levels.

The City also holds a limited license for testing of aquifer storage and recover (ASR) in the DGWR (ASR LL#25). The limited license allows the City to use up to four proposed ASR wells to store up to 1,200 MG of treated surface water in the DGWR.

THIS PAGE INTENTIONALLY LEFT BLANK

Table 1-2 | Well Summary

Well	Well ID	Target Aquifer	Year Drilled	Depth Drilled (ft)	Pump Depth (ft)	Instantaneous Capacity (cfs)/ (gpm)	Daily Capacity (MGD)	Horsepower	Last Maintenance/ Replacement	Treatment Systems
Jordan Street	WASC 2428	Sand Hollow Flows	1954	291	300	3.90/1,750	2.52	300	Pump & Motor Rehab 2013	Sodium hypochlorite; Corrosion control (polyphosphate)
Marks Well	WASC 2431	Sentinel Gap and Sand Hollow Flows	1931	570	300	3.34/1,500	2.16	200	Pump & Motor Rehab 2012	Sodium hypochlorite; Corrosion control (polyphosphate)
Lone Pine Well	WASC 2385	Ginkgo Flow	1979	385	292	4.67/2,100	3.02	300	Rewound Motor 2019	Fluoride; Sodium hypochlorite; Corrosion control (polyphosphate)
Riverside Well 1	Not Yet Assigned	Sentinel Gap and Sand Hollow Flows	2024	320	195	4.01/1,800	2.59	TBD	New 2024	Sodium hypochlorite; Corrosion control (polyphosphate)
Riverside Well 2	Not Yet Assigned	Sentinel Gap and Sand Hollow Flows	2024	320	TBD	4.01/1,800	2.59	TBD	New 2024	Sodium hypochlorite; Corrosion control (polyphosphate)

Table 1-3 | Groundwater Rights Summary

Source	Application	Permit	Claim, Decree, or Transfer	Certificate	Priority Date	Type of Beneficial Use	Authorized Rate (cfs)	Authorized Volume (AF)	Authorized Date for Completion
Groundwater: Municipal System Connection									
4 wells: Lone Pine, Jordan, Marks, and ASR 1 Wells	-		GR 4258, Modification T-12893		10/11/1923	Municipal, Domestic, Irrigation, Manufacturing, and Industrial	5.124	-	-
A well - Marks Well	U-135	U-127		15543	11/1/1940	Municipal	2.68	-	N/A
A well - Marks Well	U-181	U-189	T-7258	86380	10/4/1945	Municipal	0.69	-	N/A
A well - Jordan Street Well	G-23	G-7806	-	48991	10/16/1953	Municipal	5.5	-	N/A
A well - Lone Pine Well	G-1415	G-7807	-	60026	3/13/1959	Municipal	4.46	-	N/A
Wicks Well	G-2076	G-2132	-	44915	7/2/1962	Municipal	1.56	-	N/A
A well - Mill Creek Well	U-181	U-189	T-7258	85886	10/4/1945	Municipal	0.81	-	N/A
A well - Stadelman Well (not in use)	-	-	GR 4257	-	12/31/1910	Domestic / manufacturing	0.368	-	-
Riverside Wells 1 & 2	G-471	G-338		46835	9/7/1956	Municipal	2.9	-	
Riverside Wells 1 & 2	G-734	G-645	T 12004	46836	8/19/1957	Municipal	1.11	-	10/1/2014
Riverside Wells 1 & 2	G-737	G-648	T-13904	46839	8/19/1957	Municipal	1.6	-	10/1/2044
Riverside Wells 1 & 2	G-735	G-646		82480	8/19/1957	Municipal	0.4	-	
Dog River, a tributary of Hood River (under Cert 14954); South Fork Mill Creek (under Cert 5691); and Crow Creek Reservoir (under Cert 60410)	ASR LL#25	LL#25	-	-	None - diversion of water for ASR testing retains priority date of source water rights (14954, 5691, 60410)	ASR testing	16.7 cfs diverted from surface water sources; max injection rate of 1,875 gpm per well (up to four wells); max recovery rate of 2,500 gpm per well	Up to 1,200 MG stored in aquifer	Limited License expires 3/21/2028

DRAFT

THIS PAGE INTENTIONALLY LEFT BLANK

DRAFT

1.4 Water Treatment Plant

The Wicks WTP was constructed in 1949 and is located about 7 miles south of the City. It treats water from South Fork Mill Creek, which is fed by the Crow Creek Reservoir and the Dog River diversion. The Wicks WTP includes flocculation/sedimentation basins with tube settlers followed by media filters. Chlorination is used for disinfection before the clearwells. The Wicks WTP consistently provides high-quality drinking water to the community at a relatively low cost. The finished water quality meets all current drinking water standards. A primary reason for the low cost is that water flows by gravity to and from the plant. Additional discussion of plant capacity and condition are included in **Chapter 6**.

1.4.1 Finished Water Transmission Pipelines

Finished water from the Wicks WTP is delivered to the City's customers by gravity flow, mostly without the need for pumps. The two finished water transmission pipelines connect to the outlet of the plant clearwell and transmit water approximately 7 miles north to the city limits. One is called the High Line and the other the Mill Creek Line. The High Line original pipe is 14-inch diameter welded steel; some sections have been replaced with 20-inch diameter ductile iron. The Mill Creek Line original pipe is 12-inch diameter welded steel; some sections have been replaced with 20-inch diameter ductile iron. Both were originally installed approximately 50 years ago. Their combined capacity as reported in the 2006 WSMP is approximately 7.5 MGD (5,200 gpm). There has been no additional testing to confirm capacities since the previous WSMP.

The pipelines parallel each other and are located along South Fork Mill Creek for approximately the first 4.5 miles from the plant. At this point, the High Line alignment turns northeast and runs across private and public lands on a mostly direct route to Sorosis Reservoir, which is located behind Sorosis Park. The Mill Creek Line continues along Mill Creek Road right-of-way to 16th Street, just west of Skyline Road, where its alignment turns east. This pipeline connects to Garrison Reservoir.

In addition to supplying water to the City's distribution system, each transmission line serves a limited number of customers on properties adjacent to the pipeline alignments. Most of these services were granted many years ago in exchange for having the customers provide pipeline easements while others have been authorized more recently.

1.5 Distribution System

Figure 1-4 illustrates the City's distribution system as described in the following sections.

1.5.1 Pressure Zones

The Dalles' distribution system is divided into 16 service zones. They are labeled numerically, the label generally being reflective of the hydraulic grade line (HGL) for service within the zone. The zones have been developed to provide acceptable pressures to customers. Two pressure zones, Brenner and Sunridge, are small areas created within the former 660 and 507 pressure zones. The distribution system pressure zones are illustrated in **Figure 1-4** and **Figure 1-5**. **Figure 1-5** illustrates the existing distribution piping by pressure zone. Table 1-4 summarizes the pressure zones with minimum and maximum elevations and approximate static pressures. Four of the pressure zones are governed by the HGL of storage tanks and the others are governed by the HGL set at pressure reducing valves (PRV) serving them.

Finished water from the Wicks WTP enters the system by gravity through the two transmission lines: one feeds Garrison Reservoir, and one feeds Sorosis Reservoir. The Sorosis Booster Pump Station moves water from the Sorosis Reservoir up to the Vista Reservoir. The higher elevation zones are fed from the Sorosis

and Vista Reservoirs or directly from one of the transmission pipelines. The lower zones are fed from the Garrison Reservoir and through a number of PRVs.

A smaller portion of water is supplied from the City's three existing wells. As shown in the system schematic, **Figure 1-2**, the Marks and Jordan Wells pump directly into the distribution system (460 Zone), and the Lone Pine Well has a dedicated pump line to the Intermediate Reservoir.

Table 3-1 lists the existing pressure zones with associated elevation range for customer connections, approximate minimum and maximum static pressure, and the facility governing HGL. Pressure zones are illustrated on the hydraulic schematic in **Figure 1-2** and in **Figure 1-4**.

The largest demand area is the 310 Zone. This area encompasses the downtown as well as the port. It includes the majority of commercial and industrial customers. During peak summertime demand periods, this zone accounts for approximately 45% of the total system demand.

The gorge on the east side of the City, through which Highway 197 is located, restricts water movement in the east and west directions. This physical barrier does not completely eliminate movement of water into or out of the eastern zones (660E, 632, 513, and 352 zones), but it does limit the transfer of water. This results in two system conditions. One is that the City is unable to make full use of the Lone Pine Well because the demand in 660E, 632, 513, and 352 zones is insufficient to fully use the 2 MGD pumping capacity of this well. The second, related condition is that there is insufficient turnover in the Columbia View Reservoir when all water is being supplied from the Wicks WTP and the Lone Pine Well is offline because of a single combined inlet/outlet configuration. The City currently removes this reservoir from service during the winters because of water quality concerns due to stagnation.

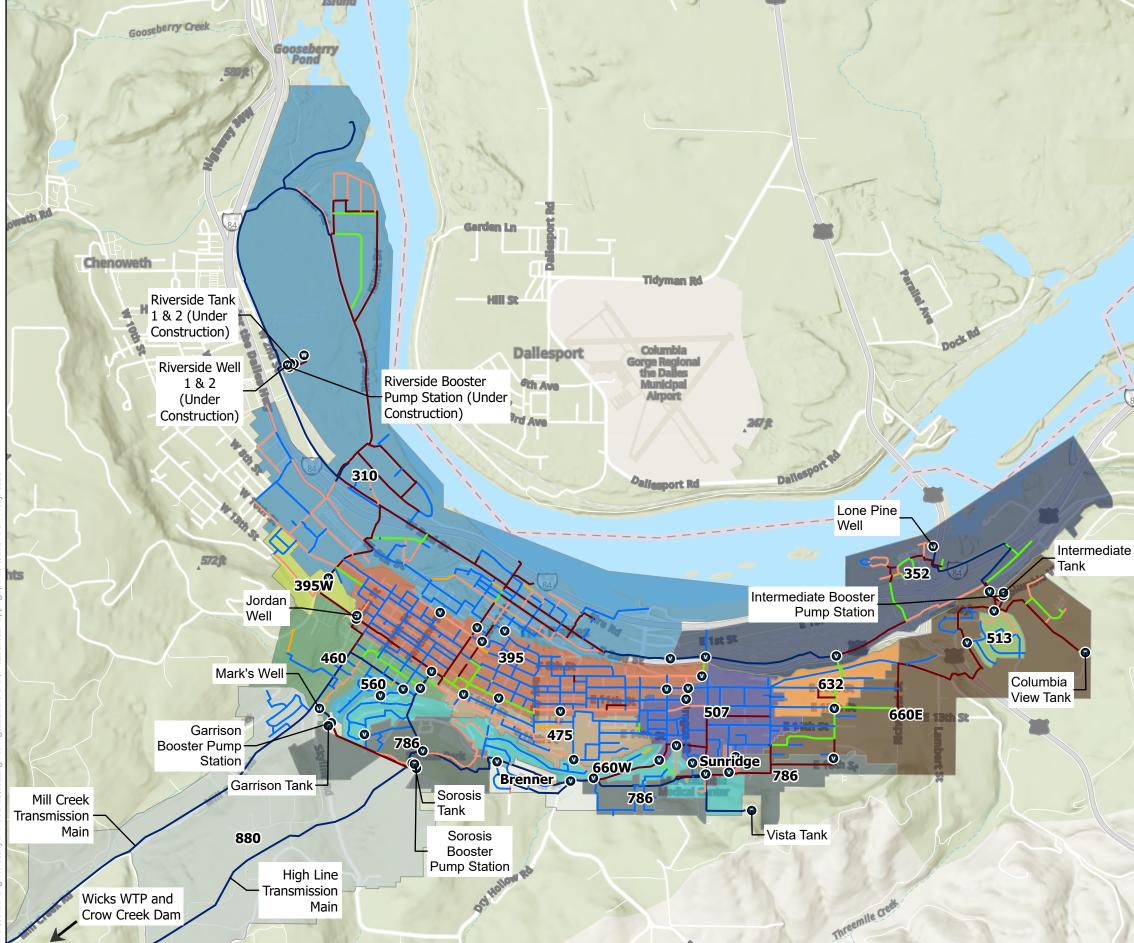
Pressure Zone	Minimum Elevation (ft)	Maximum Elevation (ft)	Minimum Static Pressure ¹ (psi)	Maximum Static Pressure ² (psi)	Facility Governing Hydraulic Grade Line (HGL)
310	86	195	52	99	PRV 1B HG: 314 ft
352	94	246	36	112	Intermediate Tank HG: 352 ft
395	103	329	30	128	PRV 15 HG: 399 ft
395W	174	215	68	86	PRV 2 HG: 373 ft
460	193	393	11	116	Garrison Tank HG: 460 ft
475	286	389	47	91	PRV 13 HG: 497 ft
507	242	472	26	125	PRV 32 HG: 531 ft
513	323	421	42	84	PRV 45 HG: 517 ft
560	339	418	58	92	PRV 4 HG: 552 ft
632	125	442	40	178	PRV 42 HG: 535 ft
660E	249	578	13	166	Columbia View Tank HG: 632 ft
660W	352	631	9	133	Sorosis Tank HG: 659 ft
786	429	635	50	156	Vista Tank HG: 790 ft
880	223	667	79	272	Wicks Water Treatment Plant HG: 850 ft
Brenner	463	576	52	101	PRV 23A HG: 696 ft
Sunridge	376	460	71	107	PRV 34 HG: 623 ft

Table 1-4 | Existing Pressure Zone

Note:

1. Tanks that govern the hydraulic grade of a pressure zone, the minimum water level was used to calculate minimum static pressure.

2. Tanks that govern the hydraulic grade of a pressure zone, the maximum water level was used to calculate maximum static pressure.



Data Sources: City of The Dalles, 2023;Community: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS World Imagery: Maxar Coordinate System:

Disclaimer: Consor and CLIENT make no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, or surveying purposes. Notification of any errors is appreciated.

Legend



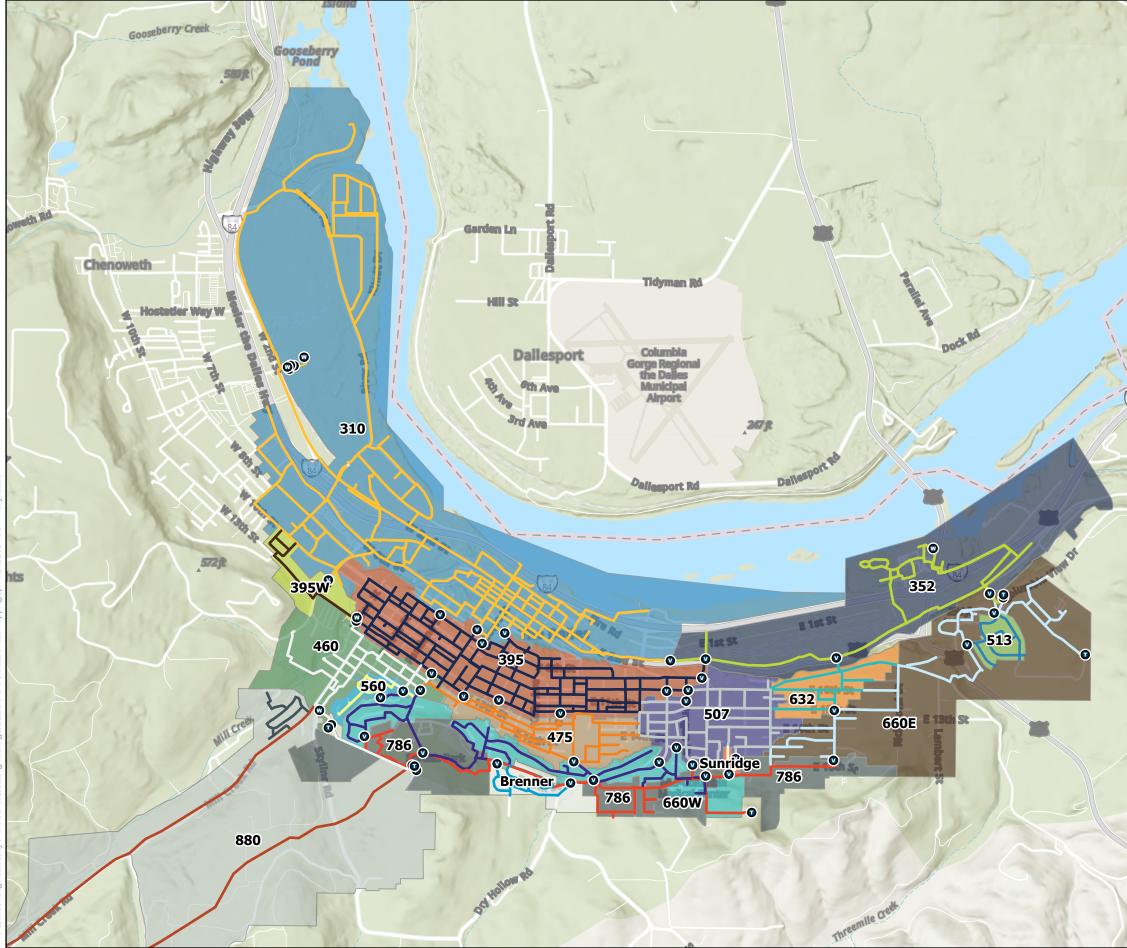


City of the Dalles Water System Master Plan

Figure 1-4. Existing Water Distribution System

W1961170R

November 2024



Data Sources: City of The Dalles, 2023;Community: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS World Imagery: Maxar Coordinate System:

Disclaimer: Consor and CLIENT make no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, or surveying purposes. Notification of any errors is appreciated.

Legend



Sunridge Piping per Pressure Zone ---- 310 ---- 352 - 395 **—** 395W 460 - 475 - 507 - 513 560 - 632 660E --- 660W - 786 ----- 880-HighLine

- ---- Brenner
 - Sunridge



City of the Dalles Water System Master Plan

> Figure 1-5. Existing Water Distribution System Piping by Pressure Zone

W1961170R

November 2024

Page 257 of 664

1.5.2 Pressure Reducing Valves

There are 37 PRV stations in the City's water distribution system. Ten PRV stations maintain the hydraulic grades for 10 pressure zones. **Table 1-4** in the previous subsection lists those PRV and their hydraulic grade. The other 27 PRV stations are set to a lower hydraulic grade and are on standby. These PRVs provide additional flow to the zone if demands are large or during fire flow conditions. **Figure 1-4** shows all the PRVs in the system between zone boundaries.

1.5.3 Reservoirs

The City's water distribution system has five (5) storage tanks with a combined storage volume of 16 million gallons (MG). The existing reservoirs are illustrated in **Figure 1-4**. **Table 1-5** lists the storage reservoirs and summarizes general information on each. In addition to the reservoirs listed in **Table 1-5**, two Riverside Reservoirs are currently under construction. They will have a combined storage of 2.5 MG when complete.

Reservoir	Material	Base Elevation (ft)	Low Water Setting (ft)	Maximum Water Level (ft)	Diameter (ft)	Volume (MG)	Pressure Zone Served
Columbia View	Steel	602	20	27.7	130	3.0	660E, 513, and 632
Garrison	Steel	408	28	52	140	6.0	460, 395, 395W, and 310
Intermediate	Steel	325	17	27	80	1.0	352 and 310
Sorosis	Steel	630.5	18	25.7	135	3.0	660W, 560, and 475
Vista	Steel	750.5	28	35	116	3.0	786, 660W, 507, Brenner, and Sunridge

Table 1-5 | Existing Reservoirs

1.5.4 Pump Stations

The City's water distribution system has three (3) booster pump stations (BPS) that lift water to three reservoirs: the Sorosis Pump Station, the Intermediate Pump Station, and the Garrison Pump Station.

The Sorosis Pump Station is located next to the Sorosis Reservoir. This pump station lifts water from the Sorosis Reservoir to the Vista Reservoir. The pump station is equipped with three constant-speed pumps and is designed to operate up to two pumps at a time yielding a firm capacity of about 1,500 gpm.

The Intermediate Pump Station is located next to the Intermediate Reservoir. This pump station lifts water from the 352 zone, which is fed by Lone Pine Well, to the 660E zone. It fills the Columbia View Reservoir. The Intermediate Pump Station has an approximate capacity of 3,000 gpm if both pumps are operating.

The Garrison Pump Station transfers water from the Garrison Reservoir (at an overflow elevation of 460 feet) into the Sorosis Reservoir (at an overflow elevation of 660 feet). The Garrison Pump Station is used only infrequently, during times when the Sorosis Reservoir is draining more quickly than it can be filled through the High Line.

A Riverside BPS is currently under construction in the 310 Pressure Zone. This BPS will pull water from the Riverside Reservoirs and supply it to the 310 Pressure Zone when completed. The BPS will have an initial capacity of 4,500 gpm with the ability to be expanded to 9,000 gpm.

 Table 1-6 summarizes the existing pump stations and general operational information.

Pump Station	Base Elevation (ft)	Firm Capacity (gpm)	Pumps From	Pumps To	Controls
Garrison	406	500	Garrison Reservoir	Sorosis Reservoir	Controls are based on Sorosis water level. ON: 22 feet OFF: 26 feet
Intermediate	325	1,500	Intermediate Reservoir	Columbia View Reservoir	Controls are based on Columbia View water level. ON: 23.5 feet OFF: 28.5 feet
Sorosis	635	1,500	Sorosis Reservoir	Vista Reservoir	Controls are based on Vista water level. ON: 32 feet OFF: 34.5 feet

Table 1-6 | Existing Pump Stations

1.5.5 Distribution Pipe

The City's distribution system is composed of approximately 91 miles of various pipe types ranging in size up to 36 inches in diameter. Existing pipe diameter is shown in **Figure 1-4**. The majority of the pipe is 6 to 8 inches in diameter, which is the typical size used to convey domestic demands plus fire flow in local distribution. Over 90% of the pipes (by length) are cast iron or ductile iron – a significant portion is cast iron.

The oldest piping in the system likely dates back to 1875-1900. The approximate pipe ages range up to 125-150 years old with the majority being installed 50-75 years ago. Based on data from the City's geographic information system (GIS) pipeline database, approximately 60% of the pipe was installed 50-75 years or more ago. **Table 1-7** presents a summary of length of pipe (in miles) by diameter and approximate age within the distribution system.

	Approximate Age (years)							Length Install	% of
Diameter (in)	0-25	25-50	50-75	75-100	100-125	125-150	Unknown	per Diameter (mi)	Total
4 and smaller	1.1	0.7	1.1	0.3	0.6	0.3	0.7	4.9	5%
6	6.5	4.6	23.4	4.1	0.4	1.3	0.8	40.9	45%
8	3.2	2.1	5.4	1.8	0.6	0.2	<0.1	13.4	15%
10	0.4	2.9	2.3	0.9	0.1			6.4	7%
12	2.5	6.2	5.6	0.6	0.5			15.3	17%
14	<0.1	0.5	1.0	0.4				1.9	2%
16	2.1	1.0	0.7				<0.1	3.8	4%
18	4.0							4.0	4%
24		<0.1						<0.1	0%
30	0.1							0.1	0%
36	<0.1							<0.1	0%
Length Install per Age (mi)	19.8	18.0	39.5	8.1	2.2	1.8	1.5	90.8	100%
% of Total	22%	20%	43%	9%	2%	2%	2%	100%	

Table 1-7 | Pipe Inventory by Diameter and Approximate Age

CHAPTER 2

Water Requirements

This chapter presents existing and projected future water demands for the City's water service area. Water demand forecasts presented in this section are used with performance criteria presented in **Chapter 3** to evaluate the existing water system's capacity to serve current customers and future growth. Demand forecasts are developed from historical water consumption and production records, regional planning data, current land use designations, and previous City water planning efforts.

2.1 Water Service Area

2.1.1 Existing Service Area

The City's existing water service area encompasses most areas within the existing city limits and UGB and historical customers located outside the UGB as shown in **Figure 1-1**. The Chenowith Water Public Utility District (Chenowith PUD) provides water service to an area in the northwest of the City. The Chenowith PUD service area encompasses some area within the city limits and the UGB as shown in **Figure 1-1**.

2.1.2 Future Service Area

The future service area and the study area for this WSMP includes all areas within the city limits and the UGB. It is assumed that the Chenowith PUD service area will remain the same through the planning period.

2.2 Planning Period

The planning period for this WSMP is 20 years, through the year 2044, consistent with Oregon Administrative Rule (OAR) requirements for Water System Master Plans (OAR 333-061). Water demand projections presented in this section also include a 50-year projected water demand for long-range water supply planning.

2.3 Water Demand Description

Water demand refers to all finished water required by the system including residential, commercial, industrial, and institutional uses. Water demands are described using three water use metrics: average daily demand (ADD), max day demand (MDD), and peak hour demand (PHD). Each of these metrics is stated in gallons per unit time such as million gallons per day (MGD) and in gallons per capita per day (gpcd). Peaking factors can be used to convert between ADD, MDD, and PHD.

- ADD is the total annual water volume used system-wide divided by 365 days per year.
- MDD is the largest daily water volume for a given year. In The Dalles, MDD typically occurs each year in July or August.
- > PHD is estimated as the largest hour of demand on the peak water use day.

2.3.1 Water Consumption vs. Production

Water demand can be calculated using either water consumption or water production data. Water consumption data is taken from the City's customer billing records and includes all revenue metered uses. This data can be analyzed by geographical location and customer type which is useful for quantifying typical water use for different land uses. However, consumption data does not capture any water loss or unmetered usage and is typically only recorded in monthly totals, making it less useful in determining system-wide peak daily demands.

Water production is measured as the water supplied to the distribution system. The City's total daily water production is the sum of the recorded finished water flow measured at the Mill Creek and High Line pipelines and three wells located within the City (Lone Pine, Jordan, and Marks Wells). Total water production is used for analyzing seasonal water demand trends, supply, and storage capacity. Water production includes billed consumption (customer billing records), unmetered usage such as hydrant flushing, and water loss through minor leaks and unregulated use.

2.3.2 Non-Revenue Water (Water Loss)

The difference between water production and water consumption is known as water loss and typically consists of two components:

- Unbilled authorized consumption that can be tracked, such as operational, flushing, and construction use, and unbilled consumption that cannot be tracked such as firefighting.
- Real and Apparent Water Loss, such as leaks, main breaks, metering inaccuracies, illegal connections, and other types of unauthorized, unmetered water use.

2.4 Historical Water Demand

System-wide historical water demand is presented in **Table 2-1**. Six years of historical production data and four years of consumption data were used to evaluate system demands.

Water consumption was calculated from the City's monthly billing data. Unmetered water usage in the City is minimal and is not recorded. Water production is calculated daily from recorded finished water flow measured in the Mill Creek and High Line pipelines at the Wicks Water Treatment Plant and three wells located within the City (Lone Pine, Jordan, and Marks Wells). There are a few periods where production data was unavailable including July-August 2019, March-April 2020, and August-September 2021. To estimate ADD on an annual basis, the average production from the available data for the specific month was used to estimate monthly usage where missing data.

The City's average water loss for 2019-2022 was approximately 10%. This represents a reduction in average water loss compared to the previous WSMP completed in 2006. The City continues to work on management and conservation as outlined in the City Water Management and Conservation Plan (WMCP). The WMCP is currently in the process of being updated.

Year	Production Total (MG)	Consumption Total (MG)	Water Loss (MG)	Water Loss (%)
2017	1,150	-	-	-
2018	1,260	-	-	-
2019	1,210	1,070	140	11.6
2020	1,300	1,150	150	11.5
2021	1,460	1,320	140	9.6
2022	1,300	1,190	110	8.5
Avg	1,280	1,190	135	10.3

Table 2-1 | Historical Water Demand

2.4.1 Historical Demand and Peaking Factors

Average day and maximum day (ADD and MDD) were calculated based on historical production data (2017-2022 data was evaluated). Peak hour demands (PHD) were evaluated using available supervisory control and data acquisition (SCADA) data from part of 2023 (see System Analysis chapter for additional discussion). Peaking factors to convert from ADD to MDD and MDD to PHD were calculated. Historical ADD, MDD, and MDD:ADD peaking factors are summarized in **Table 2-2**. MDD and peaking factor for 2019 were not evaluated because the peak months, July and August, data was unavailable that year. SCADA data was limited to partial 2023 data, so PHD:MDD and corresponding PHD was not evaluated for each annual year. A PHD:MDD peaking factor of 1.3 was evaluated for the system.

Year	ADD (MGD)	MDD (MGD)	ADD:MDD Peaking Factor
2017	3.14	6.96	2.22
2018	3.42	7.42	2.17
2019 ¹	3.29	-	-
2020	3.52	8.43	2.39
2021	3.98	9.02	2.27
2022	3.54	8.38	2.37
Max	3.98	9.02	2.39

Table 2-2 | Historical ADD and MDD

Note:

1. July and August 2019 data was unavailable so MDD analysis was not included.

2.4.2 Historical Water Demand by Pressure Zone

Consumption records provided by the City were used to document average daily water consumption by pressure zone. **Table 2-3** presents ADD, MDD, and PHD by zone, based on the geolocated billing records. The pressure zone with the highest water use (MDD basis) in the system is the 310 Zone, which accounts for approximately half of system demand. As described in the previous section, PHD was estimated using a PHD:MDD peaking factor derived from operator-provided SCADA data in 2023.

Zone	ADD (MGD)	MDD (MGD)	PHD (MGD)
310	2.19	4.83	6.30
352	0.12	0.27	0.35
395	0.45	0.99	1.29
395W	0.02	0.05	0.06
460	0.09	0.19	0.25
475	0.18	0.40	0.52
507	0.23	0.50	0.66
513	0.06	0.13	0.16
560	0.03	0.06	0.08
632	0.05	0.11	0.15
660E	0.18	0.40	0.52
660W	0.16	0.35	0.46
786	0.18	0.39	0.52
880 High Line	0.03	0.06	0.07
880 Mill Creek	0.08	0.18	0.24
Brenner	0.06	0.14	0.18
Sunridge	0.01	0.02	0.03

 Table 2-3 | Historical Water Demand by Pressure Zone

2.4.3 Historical Per Capita Residential Water Demand

Per capita usage is calculated by dividing the demand metric by the corresponding population. Historical consumption data for residential customers and service area population estimates were used to estimate residential ADD per capita. Additional information on population data and service area is discussed in the following section. MDD per capita was calculated using a ADD:MDD peaking factor of 2.39 (see **Table 2-2**). **Table 2-4** summarizes the historical service area population and residential ADD and MDD per capita usage. For the purposes of water demand projections, 107 gpcd residential ADD and 257 gpcd residential MDD will be used.

Year	Population	ADD (gpcd)	MDD (gpcd)
2019	11,820	106	254
2020	13,010	101	240
2021	13,047	107	257
2022	2022 13,344		220
Max Value:	-	107	257

Table 2-4 | Historical Residential Water Demand per Capita

2.5 Future Water Demand Forecast

Future water demand is estimated using a combination of residential per capita water demand, population forecasts, and non-residential demands as presented in this section. System usage was evaluated by residential and non-residential demands. Residential demands are expected to grow proportionally to population with the estimated residential per capita use of 107 gpcd ADD and 257 gpcd MDD. Non-residential demands include government, commercial, and industrial users within the service area. Non-residential demand projections are estimated using a combination of population data, historical

consumption data, undeveloped land use estimates, input from industrial water users, and input from City staff. Future water demands were forecast at 5, 10, 15, 20, and 50 years.

2.5.1 Population Projections

Population projections within the existing city limits are developed by the Portland State University (PSU) Population Research Center (PRC). The City water system service area population is estimated by the City population minus the Chenowith PUD service population (within city limits). The Chenowith PUD is estimated to serve 3,000 people within city limits. The Chenowith PUD service population has remained constant in historical years and is expected to continue to remain constant throughout the planning period. The population forecast for the City shows an average annual growth rate (AAGR) of 0.6% through 2074 (Wasco County Forecast, 2020). This AAGR reflects steady growth pattern for the UGB that includes the City. The PSU PRC provides annual population estimates for all Oregon cities. US Census data and PSU PRC population estimates were used to estimate historical populations for 2010, 2020, 2022, and 2023. The assumed Chenowith PUD service population of 3,000 has been subtracted from the City estimates to estimate the service area population. The historical population is the basis for projections using the AAGR from PSU PRC. Historical and projected population estimates are summarized in **Table 2-5** and **Figure 2-1**.

Year	Service Area Population ¹	AAGR ²	Population Basis ³
2010	10,620	-	PSU PRC
2020	13,010	-	2020 Census Data
2022	13,344	-	PSU PRC (Revised Estimate, 2023)
2023	13,417	-	PSU PRC (Preliminary Estimate)
2024	13,516	0.60%	
2029	14,017	0.60%	
2034	14,534	0.60%	Projected using The Dalles AAGR developed by PSU PRC
2039	15,066	0.60%	(Wasco County Forecast 2020)
2044	15,615	0.60%	
2074	19,247	0.60%	

Table 2-5 | Historical and Projected Population Estimates

Notes:

1. Service Area Population estimated from PSU PRC population data minus approximate service population of Chenowith PUD (3,000 people). Chenowith PUD service population is assumed to remain constant throughout.

2. Average annual growth rate (AAGR)

3. Portland State University (PSU) Population Research Center (PRC)

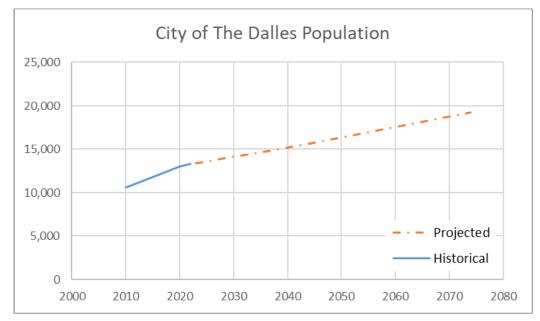


Figure 2-1 | Historical and Projected Population Estimates

2.5.2 System Wide Demand Forecast

Future system demands are the sum of projected residential and non-residential demands. Non-revenue water use in the system is low and was assumed to remain proportional with population growth. In the City system, existing non-revenue water was estimated around 10% and maintained at the same percentage through the 20-year and 50-year planning period. Projected ADD was calculated using the maximum historical residential per capita ADD, population projections, and non-residential demand forecasts. Projected MDD was calculated using peaking factors for residential and non-residential demands. A separate peaking factor was used for industrial customers. Projected PHD was calculated using a system PHD:MDD peaking factor. **Table 2-6** summarizes projected system-wide ADD, MDD, and PHD for the 50-year planning period. The 50-year demand projections account for the addition of a large industrial user with approximately 1 MGD average use.

Veer	Population -		ADD (MGD)	System MDD	System PHD	
Year		Residential	Non-Residential	System Total	(MGD)	(MGD)
2024	13,516	1.6	2.6	4.2	9.3	12.1
2029	14,017	1.7	4.2	5.9	12.1	15.8
2034	14,534	1.7	5.7	7.4	14.9	19.4
2039	15,066	1.8	5.8	7.6	15.3	19.9
2044	15,615	1.8	5.9	7.7	15.6	20.4
2074	19,247	2.3	7.3	9.6	19.4	25.3

Table 2-6 | Projected Water Demand Summary

2.6 Projected Water Demand by Pressure Zone

Projected water demand for the 20-year planning period (2044) by pressure zone is summarized in **Table 2-7** and used with performance criteria presented in **Chapter 3** to analyze the capacity of water facilities

supplying each zone. The projected demand by pressure zone is based on the system-wide projections summarized above and geolocated billing data as evaluated with the historical consumption data.

Zone	ADD (MGD)	MDD (MGD)	PHD (MGD)
310	5.21	10.54	13.76
352	0.16	0.32	0.42
395	0.58	1.17	1.53
395W	0.03	0.05	0.07
460	0.11	0.23	0.30
475	0.23	0.47	0.62
507	0.30	0.60	0.78
513	0.07	0.15	0.20
560	0.03	0.07	0.09
632	0.07	0.14	0.18
660E	0.23	0.47	0.62
660W	0.21	0.42	0.55
786	0.23	0.47	0.61
880 High Line	0.03	0.07	0.09
880 Mill Creek	0.11	0.22	0.28
Brenner	0.08	0.16	0.21
Sunridge	0.01	0.02	0.03

Table 2-7 | Projected 2044 Water Demand by Pressure Zone

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 3

Performance Criteria

3.1 Introduction

This chapter documents the performance criteria used for analyses of the City's water supply and distribution system. Criteria are established for evaluating water supply, distribution system piping, service pressures, and storage and pumping facilities. Recommended water needs for emergency fire suppression are also presented. These criteria are used in conjunction with the water demand forecasts developed in **Chapter 2** to complete the analyses of the City's supply and distribution systems presented in **Chapter 4** and **Chapter 5** of this WSMP.

3.2 Performance Criteria

The water distribution system should be capable of operating within certain performance limits under varying customer demand and operational conditions. The recommendations of this plan result from evaluations based on the performance criteria listed in this chapter and summarized in **Table 3-3**. The performance guidelines have been developed through review of City design standards, State requirements, American Water Works Association (AWWA) acceptable practice guidelines, the *Ten States Standards*, the *Washington State Water System Design Manual*, and practices of other water providers in the region.

3.3 Water Supply Criteria

The water supply should be capable of providing adequate peak season (summer) supply and firm capacity to meet the future maximum daily demand (MDD) projections. Water supply adequacy is typically measured based on firm capacity of facilities. For a treatment plant, this is the total plant capacity with the largest single treatment train out of service. For a well, this is the capacity with the largest pump out of service. If the City develops additional supply sources/systems, consideration should be given to the firm capacity of the source/s. Specific application of this criteria relative to the City source and treatment facilities in **Chapter 4**.

3.4 Transmission Mains

The finished water transmission mains should be capable of passing projected MDD for customers served by the transmission main. Where possible, transmission mains should not have customer services directly connected. Typical recommended maximum velocity for a transmission main is five (5) feet per second (fps).

3.5 Service Pressures and Distribution Piping

Water distribution systems are separated by ground elevation into pressure zones to provide service pressures within an acceptable range to all customers. Typically, water from a reservoir will serve customers by gravity within a specified range of ground elevations to maintain minimum and maximum water pressures at each individual service connection. When it is not feasible or practical to have a separate reservoir for each pressure zone, pump stations or PRVs are used to serve customers in different pressure zones from a single reservoir.

3.5.1 Normal Service Pressure

Consistent with the criteria used in the City's 2006 WSMP, the acceptable service pressure range under ADD and normal operating conditions is 40 to 100 psi, measured at the customer's water service meter. Where mainline pressures exceed 80 psi, services must be equipped with individual PRVs to maintain their static pressures at no more than 80 psi in compliance with the Oregon Plumbing Specialty Code (OPSC 608.2).

The distribution system should be capable of supplying the peak hour demand (PHD) while maintaining service pressures of not less than 75 percent of normal system pressures, and not less than 30 psi.

3.5.2 Service Pressure in an Emergency

During a fire flow event or emergency, the minimum service pressure is 20 psi, as required by Oregon Health Authority (OHA) Drinking Water Services (DWS) and OAR 333-061-0025(7). The system should be capable of providing fire flow capacity while simultaneously delivering MDD and maintaining 20 psi throughout the distribution system. The system should meet this criterion with operational, equalizing and fire storage in the City's reservoirs depleted. **Table 3-1** summarizes the service pressure criteria during various system operation scenarios.

Table 3-1 | Recommended Service Pressure Criteria

Service Pressure Criterion	Pressure (psi)
Normal range, during ADD	40-100
Maximum, without PRV	80
Minimum, during emergency or fire flow	20
Minimum, during PHD	75% of normal, not less than 30

3.5.3 Distribution Main Criteria

The distribution system will be evaluated under two demand scenarios: 1) MDD + fire flow and 2) PHD. These two scenarios typically account for the largest instantaneous demands on the system. Evaluating the system under these conditions helps identify deficiencies in the distribution network and suggest improvements to be included in the Capital Improvements Projects list.

Typically, new water distribution mains should be at least 8 inches in diameter and looped to supply minimum fire flows. A minimum 6-inch diameter main may be acceptable in special cases with approval of the City Engineer if no fire hydrant connection is required, there are limited services on the main, the main is dead-ended and looping or future extension of the main is not anticipated. Potential water quality issues will be considered on a case-by-case basis when sizing pipes for proposed water main improvements identified during distribution system analysis. Typical recommended maximum velocity in new distribution mains is eight (8) fps.

3.6 Fire Flow Recommendations

While the water distribution system provides water for domestic uses, it is also expected to provide water for fire suppression. The amount of water required for fire suppression purposes is associated with the building size and type or land use of a specific location within the distribution system. Fire flow requirements are typically much greater in magnitude than the MDD in any local area. Adequate hydraulic capacity must be provided for these potentially large fire flow demands. Recommended fire flow requirements by land use type are based on the 2022 Oregon Fire Code (OFC) and the Insurance Services Office (ISO) Supply Gradings for Public Protection Classification (PPC).

The ISO PPC ratings are used to inform property insurance rates throughout the United States. Public water system performance accounts for approximately 30 percent of a City's PPC rating. Overall, City ratings are not impacted by individual properties with fire flow demands over 3,500 gpm.

Additionally, the 2022 OFC (B106) limits required fire flow to a maximum of 3,000 gpm for buildings in protected areas with adequate and reliable water systems, such as the City's system. Therefore, the maximum fire flow considered within the City's service area is 3,000 gpm.

Fire flow requirements by land use type are summarized below and in Table 3-2.

3.6.1 Low Density Residential

The OFC guidelines specify a minimum fire flow of 1,000 gpm for single-family and two-family dwellings with square footage less than 3,600 square feet. For the purposes of this WSMP, distribution piping within low density residential zoning will be tested in the water system hydraulic model with a minimum fire flow requirement of 1,000 gpm.

3.6.2 Medium and High Density Residential

A required fire flow of 2,000 gpm is recommended for medium and high density residential properties. Properties zoned for neighborhood services and community services commercial are anticipated to require similar flows for fire suppression. While onsite fire sprinkler use can reduce the fire flow requirement for specific structures, it is recommended that the City plan for system storage, pumping, and distribution capacity to meet a 2,000 gpm fire flow in all pressure zones with potential multi-family development.

3.6.3 Commercial, Industrial, and Institutional

A 3,000 gpm fire flow is recommended for commercial, industrial, and institutional development consistent with OFC maximum fire flow guidelines. This maximum fire flow requirement is also appropriate for institutional facilities, although 2,500 gpm fire flow may be allowed for some public facilities and should be evaluated on a case-by-case basis if a 3,000 gpm fire flow rate cannot be achieved.

Land Use Designation	Recommended Available Fire Flow (gpm)	Fire Flow Duration (hours)
Low Density Residential	1,000	2
Medium and High Density Residential	2,000	2
Commercial, Industrial, and Institutional	3,000	3

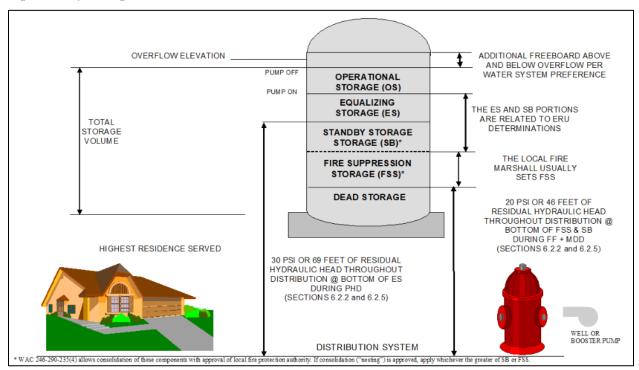
Table 3-2 | Recommended Fire Flow Summary

3.7 Storage Capacity

The City's water storage reservoirs should provide capacity for four purposes: operational storage, equalization storage, standby (emergency) storage, and fire suppression storage. Additionally, dead storage and headroom for seismic sloshing should also be included in storage volume calculations, where tanks have not been constructed to include seismic slosh height. While storage is typically discussed as a volume, limiting factors may actually be based on vertical space in a tank, flow rates, or actual volume of water. Adequate storage capacity for each purpose must be provided for each pressure zone, although the volume

DRAFT

may be divided among multiple tanks. **Figure 3-1** provides a visual of five storage volume components and is followed by a brief discussion of each storage element below, from the *Washington State Water System Design Manual* guidelines. The *Washington State Water System Design Manual* guidelines are often used for planning in Oregon because the Oregon Health Authority does not have specific guidance on storage requirements.





3.7.1 Operational Storage

Operational storage is the volume of water stored between the nominal on/off reservoir level set points for the supplying pump stations or supply valves. Operational storage supplies the water system while the pumps that supply the reservoir are "off". This volume is dedicated to minimizing pump cycling and align with the pump manufacturer's recommendations for cycling (typically no more than six starts per hour). Operational storage can be varied throughout the year to provide reservoir turnover. For example, winter tank levels are normally set lower than summer levels to allow for continued turnover with lower winter demands. Operational storage volume, however, does not apply to systems operating under a continuous supply mode.

3.7.2 Equalization Storage

Equalization storage is required to meet water system demands when zone demands exceed supply delivery capacity due to diurnal fluctuations in water usage. Equalization storage is calculated as,

(Peak Hour Demand - Q_s) x 150 minutes

Where Q_s is the total supply available to the zone excluding emergency supply.

Per the *Washington State Water System Design Manual* guidelines, equalization storage may be eliminated if the supply sources meet or exceed the PHD for the water system.

3.7.3 Standby Storage

Standby storage is provided to supply water from storage during emergencies such as supply pipeline failures, equipment failures, power outages, or natural disasters. The amount of standby storage provided can be highly variable depending upon an assessment of risk and the desired degree of system reliability. The *Washington State Water System Design Manual* recommends the standby volume be based on locally adopted standards for water supply under emergency or abnormal operating conditions. The manual provides an equation based on an equivalent residential unit (ERU) basis,

$$SB = N * SB_i * T_d$$

Where,

SB = standby volume N = number of ERUs based on the ERU_{MDD} value $SB_i =$ locally adopted unit SB volume per day per ERU (number of ERUs based on the ERU_{MDD} value).

Overall, the basis of this equation equates to a standby volume of 1 X MDD for the zones served by a reservoir but the section and equation are written to allow for incorporation of local standards if they differ. For the WSMP and because system demands were not specifically evaluated on a ERU basis, it is recommended the City use 1 x MDD as the required standby storage component.

3.7.4 Fire Suppression Storage

Water stored for fire suppression is typically provided to meet the single most severe fire flow demand within each pressure zone. Fire services in the City's water service area are provided by Mid-Columbia Fire & Rescue (MCFR). Although the final fire flow requirement for any one property is determined by the Fire Marshal, MCFR follows the Oregon Fire Code (OFC).

The maximum required fire flow for any future development in the service area is 3,000 gpm for a recommended duration of three hours (OFC). The recommended fire storage volume is determined by multiplying the fire flow rate by the duration of that flow. Fire flow requirements by land use type and zoning are discussed later in this section and summarized in **Table 3-2**.

3.7.5 Dead Storage and Seismic Volume

Some reservoirs may include two additional, non-usable volumes of air or water. Dead storage is the volume of water at the base of the reservoir that does not provide a minimum 20 psi or exists below the outlet pipe inlet level. Seismic volume is only required in older reservoirs that do not meet current seismic standards. It includes the volume of space between the maximum water surface allowed and the base of the tank roof. This space is maintained as a buffer in the event of a seismic event to minimize forces on the tank caused by uplift and the resultant sloshing. For older reservoirs with inadequate freeboard, this volume of space may require the reservoir to be operated such that the maximum operational level is below the set overflow elevation of the tank.

3.8 Pump Station Capacity

Pumping capacity requirements vary depending on how much storage is available, the number of pumping facilities serving a pressure zone, and the zone's maximum fire flow requirement. Pumping recommendations are based on firm capacity which is defined as a pump station's capacity with the largest pump out of service.

3.8.1 Pump Station Supplying Pressure Zone with Gravity Storage

For pump stations supplying pressure zones with gravity storage available, the station must have adequate firm capacity to supply MDD for the zone.

3.8.2 Standby Power

Standby power facilities are needed for at least one pump station serving each pressure zone, assuming the pump station is the primary source for the zone and has adequate total capacity to meet the pressure zone's MDD. Standby power is typically provided in the form of an on-site backup generator sized to operate the pump station at firm capacity with automatic transfer switches and on-site fuel storage.

3.9 Performance Criteria Summary

 Table 3-3 summarizes the planning criteria described in the sections above.

Water System Component	Evaluation Criteria ¹	Value ¹	Design Standards/Guideline
Water Supply	Transmission Capacity	MDD	Ten State Standards, Washington
	Supply Capacity	MDD and peak season (summer)	Water System Design Manual
Service	Normal Range (ADD	40-100 psi	Ten State Standards, City Public
Pressure	Conditions)		Works Standards
	Maximum	110 psi system pressure, with individual	Oregon Plumbing Specialty Code,
		PRVs at services over 80 psi	Section 608.2
	Minimum, during MDD	20 psi	OHA Drinking Water Services
	with Fire Flow		(DWS) and OAR 333-061-0025(7)
Distribution	Velocity during PHD	Not to exceed 8 fps	AWWA M32, Washington Water
Mains			System Design Manual
	Minimum Pipe	8-inch diameter, 6-inch acceptable for	City Public Works Standards
	Diameter	short mains without fire service	
Storage	Total Available Storage	Sum of operational, equalization, fire	Washington Water System
	Capacity	suppression, and emergency storage	Design Manual
		volumes (does not include seismic or	
		dead volumes)	_
	Operational	Tank level set points	_
	Equalization	$(PHD - Q_s) * (150 minutes)$	_
	Standby (Emergency)	1 x MDD	
	Fire Suppression	Highest required fire flow x flow duration	
Pump Stations	Firm Capacity	MDD	Washington Water System
			Design Manual
	Backup Power	At least one pump station serving each	Industry Standard
		pressure zone (if PS is primary source and	Recommendation
		meets MDD of zone/s)	

Table 3-3 | Performance Criteria Summary



Water System Component	Evaluation Criteria ¹	Value ¹	Design Standards/Guideline
Required Fire	Low Density Residential	1,000 gpm for 2 hours	2022 Oregon Fire Code
Flow and Duration	Medium and High Density Residential	2,000 gpm for 2 hours	
	Commercial, Industrial, and Institutional	3,000 gpm for 3 hours	

Note:

1. ADD: Average daily demand, defined as the average volume of water delivered to the system during a 24-hour period = total annual demand/365 days per year. MDD: Maximum day demand, defined as the maximum volume of water delivered to the system during any single day. PHD: Peak hour demand, generally the peak hour of MDD. Estimated as 1.3xMDD.

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 4

Water Supply Analysis

4.1 Introduction

To adequately plan for future water supply needs, multiple factors must be considered including demand for water; the physical availability of water; infrastructure to produce, store, treat, and transmit water; and the legal right to divert water under the City's State of Oregon water rights. The purpose of this section is to present an analysis of sources of supply and their availability and adequacy to meet current and future demands. Supply planning requires preparation for emergencies, consideration of water rights, and evaluation of long-term supply options to meet demand on a system-wide basis.

This chapter describes current supplies and presents recommendations for development and expansion of the City's supply sources. The 2006 WSMP identified the need for future supply expansion. Given the understanding that the City's existing supply sources and/or infrastructure will not be adequate to meet all future water demands, the City is exploring long-term supply options while continuing to maintain and develop their existing sources. Topics included in this chapter are water rights, capacities, and expansion potential.

While the WSMP is based on a 20-year planning period, the long-term supply analyses included evaluation of 50-year demand projections as described in **Chapter 2**. Evaluating alternative water supply options now and on a longer planning horizon allows the City to plan for improvements which will offer maximum flexibility in providing reliable potable water to existing and future customers. Alternative and expanded water supply source options for the City are considered including analysis of potential fatal flaws to long-term supply options. The conceptual alternatives considered include aquifer storage and recovery (ASR) using the City's existing aquifer source, expanded raw water storage, development of the deeper Grande Ronde Basalt groundwater aquifer, and Columbia River water.

4.2 Supply Overview

As described in **Chapter 1**, the City supplies both surface water and groundwater to its customers. An overview of the City's water supply system is illustrated in **Figure 4-1**. The Crow Creek Reservoir behind the Crow Creek Dam is on South Fork Mill Creek (SFMC) and provides raw water storage for the City. The City treats surface water at the Wicks WTP from SFMC which includes flows supplemented by water released from Crow Creek Dam (including water diverted from the Dog River watershed through the Dog River Diversion Pipeline). Historically, surface water has been the primary source water for the City. In recent years, the City has obtained approximately 78 percent of its water from surface water supplies located south of the City. The remaining 22 percent is provided by groundwater wells which are utilized in late spring through early fall to supplement supply during peak demand season. This split between surface water and groundwater supplies represents an increase in groundwater usage in comparison to the 2006 WSMP data.

DRAFT

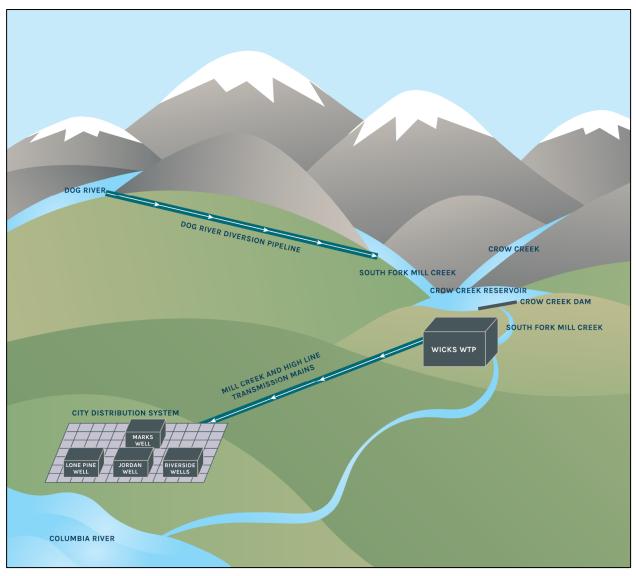


Figure 4-1 | Water Supply System Overview

4.3 Performance Criteria

Performance criteria for supply are presented in **Chapter 3** and summarized here. The water supply should have firm capacity to meet the future maximum daily demand (MDD) projections and be capable of providing adequate peak season (summer) supply. Water supply adequacy is measured based on firm capacity of facilities. Additional discussion on assumed firm capacity of different supply facilities is included in analysis discussions throughout the chapter. In order to be considered a feasible option for the City, a long-term water supply source must meet several criteria which are aligned with those used by other communities in the region. The criteria that will be used to evaluate the supply source options are:

- > Ability to consistently meet all, or a substantial portion, of the City's long-term water supply needs.
- Ability to cost-effectively integrate source options into current treatment, supply, and distribution system.

4.4 Max Day Demand Evaluation

The City's supply sources and infrastructure should be capable of meeting MDD. Supply capacities are typically evaluated based on firm capacity for reliability and redundancy of the system. After discussion with City staff, this evaluation assumes firm capacity for MDD is defined as the supply capacity with the largest well offline. Currently, the City's largest well is the Lone Pine Well with a capacity of approx. 3.0 MGD. **Table 4-1** summarizes existing and projected system MDD, supply firm capacity, and estimated supply surplus or deficit to meet system MDD. The existing wells include Marks and Jordan Wells and the proposed wells include Riverside Wells 1&2 (which were constructed but not yet operational at the time of the study).

	Demands		MDD				
Year	System MDD (MGD)	Existing Wells Proposed (MGD) ¹ Wells (MGD) ²		Wicks WTP Est. Capacity (MGD) ³	Total (MGD)	Surplus/Deficit (MGD)	
2024	9.28	4.68	3.88	5.31	13.87	4.59	
2029	12.08	4.68	3.88	5.31	13.87	1.79	
2034	14.90	4.68	3.88	5.31	13.87	-1.02	
2039	15.26	4.68	3.88	5.31	13.87	-1.38	
2044	15.63	4.68	3.88	5.31	13.87	-1.75	
2074	19.40	4.68	3.88	5.31	13.87	-5.53	

Table 4-1 | MDD Supply Evaluation

Notes:

1. Assumes Lone Pine Well offline (firm capacity of wells) and 24 hr/day operation of wells

2. Proposed Riverside Wells capacities are water rights limited when pulling native groundwater

3. Assumes effective finished water capacity of existing Wicks WTP (see Chapter 6 for more discussion)

It should be noted that while the capacities of the Jordan, Marks, and Lone Pine Wells are limited by equipment (pumping capacities), the proposed combined capacity of Riverside Wells 1&2 are currently limited by the maximum authorized rate of the City's groundwater rights. The City's water rights, evidenced by inchoate transfer T-13904, authorize the use of a maximum instantaneous rate of 6.01 cfs (approx. 3.88 MGD) from the Riverside Wells. The combined design capacity of the two wells' equipment is 8.0 cfs (approx. 5.18 MGD). The maximum authorized rate of the City's current groundwater rights for the Riverside Wells was considered to be a limiting factor for the purpose of this analysis.

The Wicks WTP existing peak capacity is assumed to be 5.31 MGD (see **Chapter 6** for additional evaluation and discussion on Wicks WTP). The availability of surface water to supply Wicks WTP is not assessed in this MDD evaluation. Discussion of the availability of surface water is included in the peak season supply considerations in the following sections.

As shown in **Table 4-1**, there is a projected MDD deficit within the 10-year planning period. To meet projected MDD demands, it is recommended the City submit a water right transfer application to add the Riverside Wells as an authorized point of appropriation under its existing groundwater rights. This would allow the City to maximize the use of the Riverside Wells' design capacity. It is recommended the City complete testing of the wells and confirm the effective capacity/design rate before submitting the final application for the water right transfer. If approved and the wells can produce the design rate, this would increase instantaneous capacity by approximately 1.3 MGD to meet future MDD. Part of the strategy to meet long-term projected supply requirements requires capacity expansion of Wicks WTP. Additional discussion and recommendations for overall supply system requirements are included at the end of the chapter.

4.5 Peak Season and Annual Supply Considerations

There are a number of factors that impact the City's supply availability and capacity on a peak season and annual basis. For the WSMP, supply was evaluated on an average monthly flows basis and annual volumes for a water year (October to September). The WSMP evaluation considered the following in developing an understanding of the City's existing supply system and peak season and annual capacity.

- Surface water
 - Streamflow (surface water availability)
 - Surface water rights
 - Raw water storage
 - Wicks WTP capacity
- ➢ Groundwater
 - Critical groundwater area
 - Groundwater water rights

The following sections describe the factors above and data limitations and summarize relevant assumptions made for the supply analysis.

4.5.1 Surface Water Availability (Streamflow)

The City's surface water is sourced from the Dog River, Crow Creek Reservoir, and SFMC watersheds. Based on discussions with City staff, this analysis uses the 10th percentile streamflow to evaluate surface water availability. The 10th percentile streamflow represents the flow that is exceeded in 9 out of 10 years.

A high-level climate change impact evaluation on surface water availability was included as part of the WSMP. This evaluation characterized the historical and projected future climate and flows from the Dog River, Crow Creek Reservoir, and SFMC watersheds by analyzing potential changes in streamflow, ambient (air) temperature, precipitation, and snowmelt in the watershed areas. The complete evaluation is documented in the Climate Change Impacts technical memorandum found in **Appendix A**. The evaluation assessed changes in future conditions by developing three representative periods: historical (data from water year 1980-2010), mid-century (data from water year 2030 to 2060), and late-century (data from water year 2065-2095). A general summary of the findings for the parameters evaluated is as follows.

- There is a clear shift in seasonal hydrograph of the mid- and late-century projections compared to historical. The historical hydrograph illustrates a system predominantly based on snowmelt with peak runoff in May. Mid-century projections show this shifting to a rain/snow mixed system with two similar magnitude peaks, one in winter (February) and one in spring (May). Late-century projections show a system dominated by rain with a single peak in winter (February).
- Peak summer temperatures are projected to increase from historical average by up to 2.5 degrees Celsius (°C) in mid-century and up to 5.5°C by late-century.
- Projected mid and late-century precipitation is higher in the winter months and slightly lower in the summer months compared to historical averages.
- Snowmelt is projected to increase in winter months and decrease in spring months compared to historical averages. More winter precipitation falling as rain instead of snow and winter

temperatures being high enough to melt some existing snowpack leads to significantly less snowpack available for melt in the spring and summer months.

Low (10th percentile) and median (50th percentile) of range of projections show an approximate 5-6% decrease in overall watershed runoff at mid-century and approximately 10-11% watershed runoff decrease at late-century compared to historical watershed runoff. While there is a projected increase in annual precipitation, the projected decrease in watershed runoff is primarily due to increases in evapotranspiration and higher atmospheric temperatures.

As noted previously, the climate change impact evaluation included assessing the monthly historical average streamflow of the watersheds contributing to the City's surface water supply. This information and analysis were used to form the basis of existing surface water availability for the supply analysis. A summary of the relevant streamflow assumptions is included in the following paragraphs. Additional information can be found in the technical memorandum in **Appendix A**.

Historical streamflow data for the Dog River are sparse, but there is a period from 2012–2021 with consistent flow data provided from the City. These data are a combination of flow measurements at the diversion point, as well as streamflow measurements at an old USGS v-notch weir gage just upstream of the diversion (USGS gage ID 14113400, located at Latitude 45°24'30", Longitude 121°31'10"). The combined data is evaluated as the greater recorded value of the diversion flow or v-notch weir streamflow each day. The combined streamflow data are used as the basis for the historical streamflow for the Dog River at the location of the diversion facilities. Observed historical low (10th percentile), median (50th percentile, and high (90th percentile) average monthly flows on Dog River at the point of diversion were developed from this data and are summarized in **Figure 4-2**. Additional information of the data and process can be found in **Appendix A**.

Streamflow data for Crow Creek and SFMC discharging into the Crow Creek Reservoir are not readily available. The Climate Change Impacts technical memorandum compared watershed datasets and concluded that the simulated data could be reasonably applied over all three watersheds – Dog River, Crow Creek, and SFMC for this level of evaluation. A runoff value in units of depth per time was applied across all watersheds. Based on acreage of the watersheds, the Crow Creek Reservoir watershed is approximately twice as large as the Dog River watershed at the Dog River pipeline point of diversion. Estimated average monthly streamflow at Crow Creek Reservoir and SFMC at the Wicks WTP intake facility are included in the technical memorandum. The monthly streamflow in SFMC at the Wicks WTP intake indicates that the current water right (2 cfs) is limiting, not streamflow. City staff agrees and has qualitatively observed the water right limit rather than streamflow even during low flows in the year.

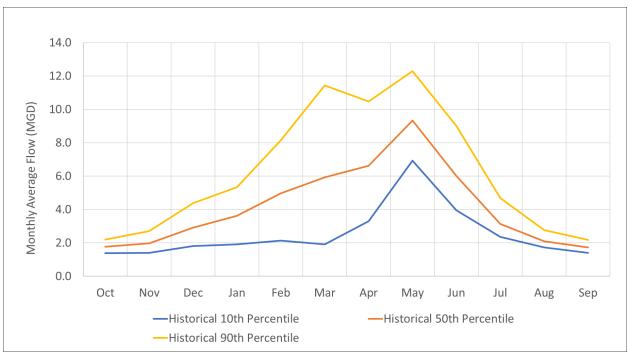


Figure 4-2 | Historical Dog River Average Monthly Streamflow

4.5.2 Natural Flow Surface Water Rights

The City has natural flow water rights on the Dog River, SFMC, and the Columbia River. Natural flow water rights do not include the City's right to store water in or use water released from Crow Creek Reservoir. Currently, the City diverts water from the Dog River and SFMC and has not developed the water right on the Columbia River. The Dog River water right allows the City to divert "all the water in stream at point of diversion". Through Special Use Agreement with the USDA Forest Service, the City has agreed to bypass to Dog River a minimum of 0.5 cfs at the Dog River Diversion during August, September, and October annually. The SFMC water right has an authorized rate of 2.0 cfs (1.29 MGD). As noted in the previous section, estimated monthly streamflow and City staff observations indicate that the maximum rate of the water right limits SFMC intake at the Wicks WTP, rather than streamflow. The Columbia River water right has a maximum authorized rate of 40 cfs (approx. 25.8 MGD). It should be noted that the City does not currently have any live water rights on Crow Creek.

4.5.3 Raw Water Storage

The existing Crow Creek Reservoir can physically impound approximately 800 ac-ft (260 MG). Current City operations do not lower the reservoir water elevation more than 10 feet above the outlet pipe, which results in approx. 210 MG of useable raw water storage for the City. The City holds two storage water rights. Certificate 44917 authorizes storage of 955 ac-ft (310 MG), which exceeds the physical capacity of the existing reservoir. Extended permit R-13105 authorizes storage of 2,100 ac-ft (685 MG).

Crow Creek Reservoir receives diverted flow from Dog River through the Dog River Diversion Pipeline, as well as runoff from the Crow Creek and portions of the SFMC watersheds. The reservoir is located at the confluence of SFMC and Crow Creek.

4.5.4 Wicks WTP Capacity

Discussion and evaluation of the Wicks WTP is included in **Chapter 6**. For the supply evaluation, **Table 4-2** summarizes the assumed Wicks WTP average monthly treatment capacities.

Month	Capacity (mgd)
10	4.25
11	3.98
12	3.98
1	3.98
2	3.98
3	3.98
4	4.25
5	4.78
6	5.31
7	5.31
8	5.31
9	4.78

	Table 4-2	Wicks	WTP	Average	Monthly	Capacity
--	-----------	-------	-----	---------	---------	----------

4.5.5 Surface Water Supply

Based on the data and assumptions described in the sections above, the average monthly surface water supply available to the City is limited by a combination of streamflow, water rights, raw water storage, and the WTP capacity throughout the year. The base assumptions for each component that form the basis of the estimated existing surface water supply available to the City are summarized below.

- > Dog River water availability assumes 10th percentile flows
 - 85% streamflow capture rate for diversion to City supplies
- > SFMC water right limits SFMC flows diverted and treated at Wicks WTP to 2.0 cfs
- Crow Creek Reservoir has an annual storage capacity of 210 MG
 - Filled by Crow Creek and SFMC watershed run off (not diverted Dog River flows)
- > Wicks WTP monthly average capacities as stated in Table 4-2

Figure 4-3 illustrates the average monthly volume of surface water supply for the City. All the months except for May are constrained by available streamflow and water rights as opposed to Wicks WTP capacity. Raw water storage contributions are limited by existing physical raw water storage capacity (Crow Creek Reservoir volume). The estimated annual volume of existing surface water accessible for City supply is 1,260 MG.

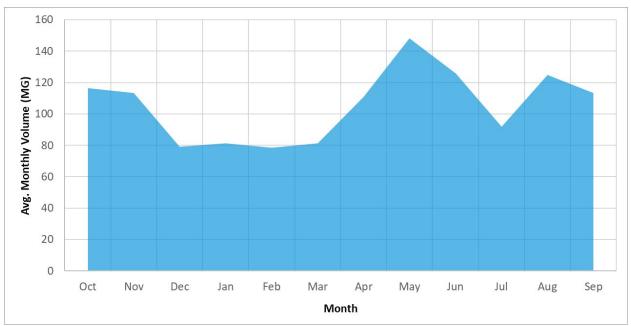


Figure 4-3 | Estimated Average Monthly Existing Surface Water Supply

4.5.6 Critical Groundwater Area

The area in which the City's wells are located has been designated The Dalles Critical Groundwater Area (CGWA) by the Oregon Water Resources Department (OWRD) because of historically declining water levels in the aquifer. Wells within The Dalles CGWA require monitoring of groundwater use by existing users and prohibition of new groundwater rights for applications filed after 1959. Although the levels have stabilized in recent years, OWRD may restrict annual withdrawals by the City and other groundwater users if water levels begin again to decline.

Data and observations collected from the Dalles Groundwater Reservoir (DGWR) in support of the CGWA designation in 1959 and in the years since its establishment show that groundwater levels in the DGWR continued to decline following the CGWA designation in 1959 through the mid-1990s, when groundwater levels stabilized with annual pumping of between 5,000 and 5,500 acre-feet (1,629 to 1,792 MG) (Golder, 1999). In the past decade and a half (since 2010 and the closure of Northwest Aluminum operations), the annual volume of groundwater pumped from the DGWR has decreased significantly to approximately 1,800 ac-ft (586 MG) (Water Supply Analysis for Buildable Lands Assessment in the 310 Zone, GSI, 2021).

Assuming that the natural recharge conditions and annual volume of groundwater used by others in the DGWR remains consistent with the past decade of use, being approximately 1,300 ac-ft, it is assumed the City can use approximately 4,200 ac-ft (1,370 MG) annually without exceeding the level of pumping at which groundwater levels stabilized in the 1990s (GSI, 2021).

4.5.7 Groundwater Rights

The Dalles CGWA limitations as described above limit the annual groundwater supply more than the City's existing groundwater rights (which are limited to a maximum instantaneous rate, as summarized in **Table 1-3**). The City's groundwater rights are incorporated in the MDD analysis presented earlier in the chapter.

4.5.8 Annual Water Balance Analysis

Annual water balances were evaluated for surface water and groundwater supply as described in the preceding sections and existing and projected demands presented in **Chapter 2**. Annual balances were evaluated on an average monthly basis for a water year (from October to September). **Table 4-3** and **Figure 4-4** summarizes the annual water balances and estimated supply surplus or deficits compared to demands (all volumes presented in MG). As shown in the summary table, there is a projected supply deficit within the 10-year planning projections. The magnitude of supply deficit increases by the 50-year, long-term projections.

The climate change impact evaluation on surface water availability (**Appendix A**) estimated annual reductions in watershed runoff of approximately 6% by mid-century and 11% by late-century for 10th percentile streamflow. These reductions would be primarily due to increases in evapotranspiration and higher atmospheric temperatures. The last column in **Table 4-3** shows the estimated annual deficit with a 6% reduction in Dog River streamflow available for the 10- and 20-year horizons and an 11% reduction in Dog River streamflow available for the 50-year horizon.

Projection Year	Demands	Groundwater Available	Surface Supply Available	Annual Surplus/Deficit	Climate Impact Deficit
Historical Use (2017-2022) ¹	1,260	220	1,040	-	-
Existing (2024)	1,510	1,370	1,260	1,120	-
2029	2,130	1,370	1,260	500	-
2034	2,720	1,370	1,260	-90	-140
2044	2,830	1,370	1,260	-200	-250
2074	3,530	1,370	1,260	-900	-990

Table 4-3 | Annual Water Balance Summary (MG)

Note:

1. Based on historical 2017-2022 water production data

DRAFT

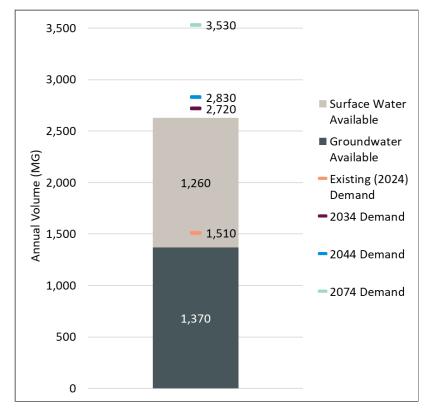


Figure 4-4 | Annual Water Balance Summaries

4.6 Supply Expansion Options

As shown in the annual water balance summary, there is a projected supply deficit within the 10-year planning horizon that increases significantly by the 50-year, long-term planning horizon. As described in previous sections, some of the primary limitations on current City supply resources are,

- Dog River streamflow
- ➢ Water right on SFMC
- Raw water storage capacity
- Wicks WTP capacity
- Sustainability of critical groundwater area pumping

A number of options to address these limitations and/or expand the City's supply are discussed and evaluated at a high level in the following sections. Based on the estimated long-term deficit in annual supply and the variety of unknown and unpredictable variables of supply sources, it is likely that the City will need to pursue a combination of options moving forward to secure and maintain a resilient supply to meet growing demands. The options discussed include,

- Aquifer storage and recovery (ASR)
- Artificial groundwater recharge (AR)
- Expanded raw water storage
- > Deep groundwater
- Columbia River source

4.6.1 ASR

4.6.1.1 Overview of Concept and Water Availability

The City holds a limited license for ASR testing to store treated surface water from Wicks WTP in the DGWR (LL#25). The use of surface water for ASR is authorized by the City's existing certificated surface water rights for the Dog River, SFMC, and Crow Creek Reservoir. ASR generally allows for storage of water during winter and early spring when there is a surplus of flow available and recovery when surface water sources are diminished (during the summer). The limited license allows for up to four proposed ASR wells to store a volume of up to 1,200 MG of treated surface water for subsequent recovery and use. The water stored by ASR is a separate volume of water (source) available that is not restricted by water rights or CGWA constraints.

The ultimate storage volume that can be achieved by an ASR project depends on the hydraulic response of the aquifer and well to injection and recovery, the potential for loss of stored water, and water quality impacts, among other factors. In early 2025, the City plans to begin implementation of ASR pilot testing at either Riverside Well 1 to help understand these factors. The LL#25 (GSI, 2018) allows for instantaneous recovery rates up to 2,500 gpm. The final recovery and subsequent recharge rates are dependent on many site/aquifer specific variables. The pilot testing approach presented in the City's ASR Limited License (GSI, 2018) and GSI's Riverside Well 1 Aquifer Storage and Recovery Testing Plan (GSI, 2024) will be used as a starting point to evaluate various factors and assess the ultimate storage volume (and rates of recovery and recharge) of the City's ASR system.

Potential limitations to the use of ASR include (1) existing treatment capacity at Wicks WTP and (2) water availability under the City's existing water rights.

- (1) **Existing Treatment Capacity.** Wicks WTP is located along SFMC and is the source of treated water to be used in the ASR pilot testing program at the Riverside Wells. During the winter, existing treatment capacity is assumed to be limited to approximately 4 mgd (2,750 gpm). This is sufficient for the planned injection rate of 75% of recovery rate (assumed to be 1,875 gpm: 75% of design recovery rate of 2,500 gpm) for Riverside Well 1. However, it may not be possible for the City to meet other water demands without pumping from its other groundwater wells, reducing the benefit of the ASR project as a means of reducing pumping impacts on water levels. Additionally, current winter WTP capacity is not sufficient for continuous injection at both Riverside Well 1 and Riverside Well 2. Expanded treatment capacity during the winter months would alleviate this limitation when sufficient water is available under the City's water rights. See **Appendix D** for the complete evaluation of Wicks WTP.
- (2) Water Availability. The City diverts a mixture of natural flow from SFMC, natural flow from Dog River (conveyed via the Dog River Diversion Pipeline), and Crow Creek Reservoir storage releases at the Wicks WTP intake. During winter, the City is generally working to fill Crow Creek Reservoir, including using water from Dog River to be released during peak season and summer when streamflow decreases. During low runoff winters, the City may not have enough water available under its natural flow surface water rights to meet its winter water demands, fill Crow Creek Reservoir, and provide a surplus of water for ASR recharge. With the expansion of Wicks WTP winter treatment capacity and increases in winter water demand, the City's surface water rights may become the primary limitation on the amount of water available for injection. It may be possible to obtain a limited license of permit to increase water availability for aquifer storage (see Section 4.6.2).

4.6.1.2 Aquifer Conditioning

ASR recharge will occur during the winter when the surface source water is colder than native groundwater in the receiving aquifer. The temperature of groundwater in the receiving aquifer and, therefore recovered groundwater, will become colder because the temperature of the source water is retained during storage, provided that the injected water is not fully recovered. The process of improving water quality through ASR is called "aquifer conditioning." The benefit of aquifer conditioning in this application is that cooler groundwater temperatures in the DGWR could result in a lower industrial cooling water demand because industrial groundwater uses (when water is used primarily for cooling purposes) could be more efficient.

4.6.1.3 ASR Implementation

The ultimate storage volume that can be achieved by an ASR project depends on the hydraulic response of the aquifer and well to injection and recovery, the potential for loss of stored water, and water quality impacts, among other factors. The pilot testing approach presented in the City's ASR Limited License (GSI, 2018) and the City's Riverside Well 1 ASR Testing Plan (GSI, 2024) will be used as a starting point to evaluate these factors and assess the ultimate storage volume of the City's ASR system.

The City plans to conduct recharge at Riverside Well 1 generally during the non-peak season (winter), and generally recover the water during the peak season (summer). Based on a 30-hour constant rate aquifer test at Riverside Well 1 in March 2024, GSI anticipates that recovery at Riverside Well 1 can occur at about 1,800 gpm, and recharge at Riverside Well 1 can occur at about 1,350 gpm. The first step in ASR cycle testing will be a shakedown test to assess the performance of the piping, pumps, valves, and controls, and will last about one day. Following the shakedown test, a full recharge-storage-recovery cycle will occur.

The recharge and recovery rates and durations, and the storage account volume for the pilot testing cycles will be determined on the basis of previous years' operations and the water needs to the City. The ultimate objective of pilot testing is to develop a larger storage volume using the wells developed under the limited license to store up to 1,200 MG (inclusive of ASR account carryover) during the first five years of pilot testing.

4.6.2 Artificial Groundwater Recharge (AR)

4.6.2.1 Overview of Concept and Water Availability

The City may be able to obtain a water right for the use of SFMC for artificial groundwater recharge (AR). AR would be conceptually similar to ASR, involving the City storing treated surface water from Wicks WTP in the DGWR during winter/spring months when surplus surface water is available. However, unlike ASR, the water added to the aquifer by AR does not create a separate volume of water (source); rather, the water recharged to the aquifer by AR would be used to offset native groundwater withdrawals by the City that would otherwise be unsustainable volumes of pumping for the aquifer. The same wells used for ASR could be used for AR.

Obtaining a limited license or permit for AR would increase the maximum rate the City is authorized to divert winter flows on SFMC beyond the City's existing 2.0 cfs water right for that source. In contrast to ASR, for which water stored in the aquifer is diverted under the City's existing water rights, a limited license or permit for AR would be additive to the City's existing water rights. This is especially beneficial during times when Dog River flows are low or diversion of water from Dog River is prioritized for filling Crow Creek Reservoir.

When evaluating an application for a limited license or permit for AR, OWRD evaluates water available for diversion at the 50 percent exceedance flow for a source. OWRD's Water Availability Reporting System (WARS) shows that a minimum of 4.12 cfs (2.66 mgd) is available at the 50 percent exceedance flow for SFMC from January through April. OWRD evaluates water available at the 80 percent exceedance flow when evaluating an application for a new water right for direct diversion. OWRD's WARS shows that there is not water available from SFMC at the 80 percent exceedance flow, which is why the City could pursue an AR permit but not a new direct diversion water right on SFMC.

AR could be operated in conjunction with an ASR Program. Similar to ASR, Wicks WTP existing winter capacity could limit the ability to maximize use of an AR limited license or permit when water is available in SFMC. Expanded treatment capacity during the winter months would help to alleviate this limitation.

4.6.2.2 Application Process

AR can be authorized through either a limited license or a new water use permit. Like ASR, OWRD generally expects that applicants will first pursue a limited license for AR testing. The rules for obtaining an AR permit require a detailed understanding of aspects of the project that may not be available before artificial recharge begins, including, for example, determinations about the amount of water that is recoverable.

The City plans to initiate testing of ASR in early 2025. Depending on when the City would submit an application for an AR permit, limited license, or both, the City may have more information about the aquifer response to artificial recharge than is typical for submittal of a limited license application for AR. As a result, it may be possible for the City to pursue a permit for AR without first obtaining a limited license for AR. Additional communication with OWRD regarding the appropriate application pathway for the City's project will be needed.

Similar to ASR, an application for a permit for AR requires submittal of supplemental information, including a hydrogeologic feasibility report, information about potential impacts of artificial recharge, and a water availability statement. One important requirement is that, if a stream is the proposed recharge source, it must have a minimum perennial streamflow or instream water right. There is an instream water right for SFMC.

An AR permit would include conditions requiring a monitoring program, designation of monitoring wells and target water levels in those wells, and submittal of annual reports. Because the City's AR project would utilize the same system and wells for recharge as the City's already authorized ASR project, the City will likely be able to re-use much of the information already developed in support of the ASR feasibility study for the AR permit application or limited license application, including water quality information. Likewise, the monitoring and reporting requirements for the ASR project would likely overlap with those included in an AR permit or limited license.

Notable relevant differences in the AR permit application process from the ASR limited license application process include (1) water quality standards, (2) required monitoring, and (3) demonstration of financial ability. A summary of these differences is included below and discussion of these differences as they apply to the City's potential application is included after.

Water Quality Standards. Source water to be injected as part of ASR projects is generally required to be treated to human health standards. However, for AR, OWRD uses Department of Environmental Quality's (DEQ) anti-degradation standards to evaluate the suitability of source water. This simply requires that source water be of equal or better water quality as in the target aquifer any worse than pre-injection conditions.

- Monitoring Requirements. AR permits require more effort in developing and implementing a monitoring plan in that a monitoring well network needs to be identified (similar to ASR) and that water level targets need to be identified for key monitoring wells (not required for ASR). These targets are used to determine the availability of water for recovery.
- Financial Capability. AR projects that aim to inject 5 cfs or more of source water must include proof of financial capability to construct and operate the project in the form of written statements from a lending institution.

Practically, many of these components of the application process are already covered by the ASR limited license application materials. Given that the source water is the same, and is treated water, water quality concerns should not be an issue. Despite the AR rules not requiring a mixing analysis, one would still be advisable given that the AR source water will be injected into a confined aquifer; this already exists as part of the ASR limited license and is applicable to AR as well. The establishment of target water levels in key monitoring wells and demonstration of financial capability would likely be the only "new" work required beyond what was already submitted for the ASR limited license. Should OWRD approve the proposed path, injection under AR rules would serve to provide an additional source of injection water to the City's Riverside Wells.

4.6.3 Expanded Raw Water Storage - Crow Creek Dam Expansion

Crow Creek Dam is an earth and rockfill dam that was constructed in 1967 and 1968. The dam has a maximum height of 100 feet above the streambed and a crest length of approximately 780 feet. The spillway is an unlined, open cut spillway channel located on the left abutment.

A 1996 study prepared for the City assessed the feasibility of expanding Crow Creek Dam and the spillway capacity (Woodward Clyde, 1996). The study found that it was feasible to raise the dam height by 35 feet to increase the storage capacity from approximately 800 ac-ft (260 MG) to 1,970 ac-ft (640 MG). The study also identified the spillway capacity as insufficient to handle the probable maximum flood (PMF) which is a typical requirement of dam safety rules.

Further evaluation of a dam raise and spillway improvement options or concept design updates were not included in the scope of this WSMP. It is assumed the general findings of feasibility are still applicable, though it is acknowledged that project details and requirements have likely changed. In particular, it should be noted that at a high level the 1996 study does not reference or capture regulatory settings that reflect the current regulatory setting for a project to increase a dam's height in Oregon. The Oregon Dam Safety Rules provide a stringent list of requirements that need to be followed for approval for construction by the Oregon State Engineer. The 1996 concept design may need significant reformulation to conform with all current Dam Safety Rules in Oregon.

General items to consider and include in project understanding and cost estimating.

- Project documentation is expected to be significant and extends beyond just final design and asbuilt documents. It will be important to identify early a clear list of required documentation for the project such as, Emergency Action Plan (EAP), Operations & Maintenance Manual update, Record of Construction (per OAR requirements), etc.
- Additional geotechnical investigation and lab testing will need to be performed to support the geotechnical analyses and design.

- Dam breach inundation analyses, site specific probable maximum precipitation (PMP)/PMF study, and other hydraulic analyses would be major design tasks to be included.
- The cost estimate is subject to change pending coordination with Oregon Dam Safety on specific project requirements.

It should be noted that the 1996 study identified spillway improvements as necessary regardless of a dam raise to provide adequate capacity for the PMF. This should be further evaluated as part of an updated concept design.

4.6.3.1 Water Right Considerations

The City's raw water storage in Crow Creek Reservoir is authorized by Certificate 44917, which allows the City to store up to 955 acre-feet of water. The City also holds a secondary water right, certificate 60410, for the use of the 955 acre-feet of stored water.

The City holds a separate permit, R-13105, for storage of an additional 2,100 acre-feet in an expanded Crow Creek Reservoir, and a secondary water use permit, S-53930, for the use water from the expanded reservoir. OWRD approved an Application for Extension of Time extending the deadline for making full beneficial use of water under the permit to October 1, 2041. This order also imposed additional conditions on the use of water under the permit, including that the use of water under Permit S-53930 shall only be authorized upon issuance of a final order approving a WMCP. The City is currently developing a second 10-year WMCP and plans to request access to water under Permit S-53930 ("greenlight water") to retain the option to develop this water right over the next ten years. If the City's WMCP and request for access to the permit are approved, the City would have access to use the volume of water requested in the WMCP (2,100 ac-ft) from an expanded Crow Creek Reservoir. The City will need to continue to request access to greenlight water in future WMCPs (updates are due every 10 years). There are no fish persistence conditions affecting the use of Permit S-53930 and the City is not required to request access to water under Permit R-13105 to begin storing water in an expanded Crow Creek Reservoir.

The specific rate and volume of water to which the City will be able to request access is based on the City's projected 20-year demands, as documented in the WMCP, and the availability of water from the City's other sources. The current draft of the City's WMCP includes a request for access to the full volume of 2,100 ac-ft.

4.6.3.2 Surface Water Availability

Streamflow data on tributaries to the Crow Creek Reservoir (Crow Creek, Alder Creek, and SFMC) as well as SFMC streamflow upstream of the Wicks WTP intake screen facilities is not available for any consistent period of time. There is some streamflow data for SFMC at the confluence with Mill Creek that has been used by OWRD for the online water availability analysis. The limited data on streamflow contributing to Crow Creek Reservoir (not including contributions from the Dog River Diversion Pipeline) and SFMC upstream of the WTP intake presents a challenge and inability to understand or quantify potential surface water available for storage in an expanded Crow Creek Reservoir. Operators and limited historical data from the Crow Creek Dam outlet pipe and spillway suggest there is typically a good amount of flow that passes through the dam during late winter and spring months after Crow Creek Reservoir has been close to or filled. Statistical evaluation of percentile volumes available for raw water storage (such as raw water available in a 10th percentile streamflow year, etc.) is not possible without consistent data on streamflow contributions to the reservoir over multiple years.

4.6.4 Deep Groundwater (Grande Ronde Basalt)

4.6.4.1 Overview of Concept

One alternative for expanding groundwater supply may be to apply for a new groundwater right in a different, deeper aquifer. Currently, the City's wells pump groundwater from the DGWR, which is comprised of basalt flows of the French Springs Member of Wanapum Basalt Formation¹. The Wanapum Basalt Formation is underlain by the Grande Ronde Basalt Formation, and OWRD considers the units to be hydraulically separate, distinct aquifers. Therefore, a Grande Ronde Basalt groundwater source would not be subject to the limitations of the existing CGWA designation for a Wanapum Basalt source. The Grande Ronde Basalt Formation which underlies the Wanapum Basalt (where the Dalles Pool Aquifer resides) would be the target aquifer for a new well.

This section provides an overview of the process for developing a Grande Ronde Basalt supply source, well capacity and source sustainability, and uncertainties associated with a Grande Ronde Basalt supply source. The information in this section reflects GSI current understanding of upcoming changes to how OWRD is evaluating and processing new groundwater right applications; new groundwater allocation rules were adopted by the Water Resources Commission in September 2024.

4.6.4.2 Process for Development

The general process for developing a Grande Ronde Basalt supply would involve the following steps:

- Desktop Study. Perform a desktop due diligence review for applying for a new groundwater right and developing a Grande Ronde Basalt groundwater supply. The desktop study would involve:
 - Reviewing information regarding existing water demands.
 - Assessing criteria currently used by OWRD to evaluate permit applications for appropriation of groundwater for municipal use, which will include basin program rules, water availability, and interagency additional public interest review.
 - Estimate water supply that could potentially be obtained from groundwater, including evaluating any available information about the status of groundwater in the Grande Ronde aquifer (including the stability of groundwater levels and well yields in the area).
 - Refine cost estimates for constructing a new well in the Grande Ronde Basalt.
- Permit Application. Assuming the desktop study is favorable to development of a Grande Ronde Supply source, the next step could be for the City to move forward with submitting an application to use groundwater. It is likely that a pilot well will be needed for final approval of an application. Moving forward with the application first could allow for OWRD to bring up any other concerns or provide conditional approval if the pilot well data shows favorable results for development before the City invests additional funds to drill a pilot well.
- Pilot Well. If there are no other concerns or considerations from the OWRD application process, drill a pilot well completed in the Grande Ronde Basalt to evaluate whether groundwater levels are stable. The pilot well is necessary because there are few wells completed in the Grande Ronde aquifer near the City, and therefore it would be difficult to establish whether groundwater levels

¹ Specifically, the DGWR consists of the Sentinel Gap, Sand Hollow, and Ginkgo flows of the Frenchman Springs member.

are stable using existing data. Depending on the approach selected by the City, the purpose of the pilot hole may be: (1) to evaluate the presence of apparently productive water-bearing units (i.e., a geology borehole) or to evaluate productivity of the aquifer (i.e., a test well borehole), and (2) to measure water levels for five years to evaluate stability.

4.6.4.3 Well Capacity and Source Sustainability

The Grande Ronde Basalt appears to be a productive aquifer based on data from vicinity wells. A geologic log for water well WASC 50312, located about 5 miles southeast of the City, indicates that pillow lavas occur in the Grande Ronde Formation (pillow lavas are typically highly productive). The driller log for water well WASC 50922, which is completed only in the Grande Ronde Basalt, was tested at a rate of 1,500 gallons per minute (gpm), and the geologic log for the well notes flow top breccias, which are typically highly permeable.

However, groundwater levels in the Grande Ronde Basalt south and west of the City do not appear to be stable, indicating that a Grande Ronde groundwater source may not be sustainable. **Figure 4-5** shows groundwater elevations and pumping volumes from a well located about 12 miles south of the City completed in the Grande Ronde Basalt. Note that the annual pumping volume ranges from about 100 MG to 150 MG, and water level declines of about 70 feet have occurred since 2021. Based on the data from this well, the Grande Ronde Basalt does not appear to be able to sustainably produce 100 MG annually.

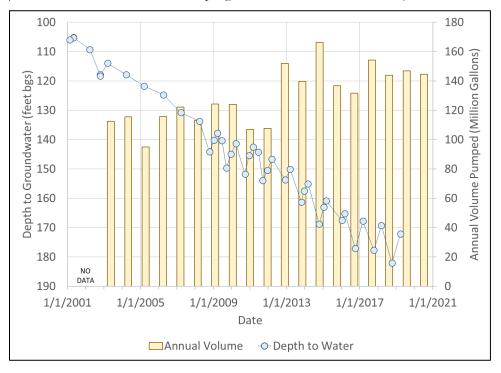


Figure 4-5 | Groundwater Levels and Pumping Volumes in WASC 50922 (Permit G-15094)

4.6.4.4 Uncertainties

There are several uncertainties associated with development of a Grande Ronde Basalt supply source. The stability of groundwater levels in the Grande Ronde Basalt in the vicinity of the City is not known and water levels in the Grande Ronde Basalt south and west of the City exhibit significant declines (see **Figure 4-5**);

and productivity of the Grande Ronde Basalt in the City is not known (which could be mitigated to some extent following the desktop due diligence review).

4.6.5 Columbia River

The City holds water use Permit S-49653 which authorizes up to 40 cfs from the Columbia River for municipal use. The City has not yet developed any infrastructure to divert water from the Columbia River. There are multiple potential restrictions on the use of water from the Columbia River should the City pursue development of this source, including restrictions imposed by the City's water rights, as well as potential restrictions that could be imposed through federal permitting processes depending on how the City develops its diversion structure. The infrastructure required to divert, treat, and transmit Columbia River water to the distribution system is significant and would also change how water moved throughout the distribution system.

4.6.5.1 Water Right Limitations

On October 16, 2012, OWRD approved an Application for Extension of Time extending the deadline for making full beneficial use of water under the permit to October 1, 2073. This order also imposed additional conditions on the use of water under the permit, including:

- A development limitation stating that the use of water under Permit S-49653 shall only be authorized upon issuance of a final order approving a WMCP. The City is currently developing a WMCP and plans to request access to water under Permit S-49653 to retain the option to develop this water right over the next ten years. If the City's WMCP and request for access to the permit are approved, the City would have access to the rate of water requested in the WMCP. The City will need to continue to request access to "greenlighted water" not yet used and additional amounts of water in future WMCPs (updates are due every 10 years). The current draft WMCP requests access to up to 24.1 cfs of water under Permit S-53930. The request is based on the City's projected need for water under the permit over the next twenty years.
- A "fish persistence" condition limiting the use of water under the permit when flows drop below specified thresholds at McNary Dam during certain times of year, as shown in Table 4-4. The table also shows the frequency that the flow targets were met from 1950 through 1981 when USGS operated a gage above McNary dam. There is no longer a gage in place, but the U.S. Army Corps of Engineers (USACE) uses models of dam operations to estimate inflows. These estimates indicate that flow targets have been met more frequently since the year 2000 than from 1950 through 1981.

The fish persistence conditions contemplate a proportional reduction in access to the permit based on the percent shortfall of the flow target. However, the fish persistence conditions under the City's permit are capped at no more than a reduction of 20 percent of the maximum authorized rate of 40 cfs. For planning purposes, it is assumed the City's maximum rate of diversion could be limited to a maximum rate of diversion of between 32 cfs (20.7 mgd) and 40 cfs (25.8 mgd) from April 10 through August 31, with the maximum rate of 40 cfs available during the remainder of the year.

Time Period	Flow Target (cfs)	Frequency Flow Target Met at USGS Gage 14019200, 1950 - 1981
April 10 – June 30	260,000	45.2%
July 1 – August 31	200,000	59.6%

Table 4-4 | Permit S-49653 Fish Flow Targets

4.6.5.2 Other Potential Limitations

The City currently has no infrastructure on the Columbia River and would likely need to obtain permits to construct a new intake, water treatment plant, and transmission line through multiple agencies including a removal-fill permit from the USACE and the Oregon Department of State Lands. The permit request for a new surface water diversion typically triggers consultation with the National Marine Fisheries Service (NMFS). NMFS will complete a biological opinion containing recommended conditions to protect listed fish.

Based on biological opinions issued over the last 25 years, it is expected that the biological opinion would require water withdrawals to result in no net reduction in streamflow. This generally means permanently transferring water rights to instream use as mitigation for out-of-stream uses, such as irrigation, on the Columbia River or its tributaries. There are discussions about the possibility of providing mitigation in other ways, such as through completion of restoration projects on tributary streams, but there is limited precedent for approval using these alternatives. Additional investigation would be required to better understand these options.

If electing to go through this process, the City should assume that it will take at least five years to obtain the necessary permits.

Depending on local conditions, it may be possible for the City to obtain water from the Columbia River through a collector well or other water supply intake that would not trigger the need for USACE to consult with NMFS. Additional hydrogeologic investigation would be needed to determine if local conditions are suitable for a large collector well with a strong hydraulic connection to surface water. The specific design of the well and its relationship to the need for a biological opinion would also require additional investigation as would the need and feasibility of implementing a water use permit amendment to change from a surface water diversion to a groundwater diversion.

Historically, there has been clear aversion to the Columbia River as a water source by the public as well as City Council. The primary concern with using Columbia River water was because it has an uncontrolled watershed and the City's withdrawal point is downstream of the Hanford Nuclear Site. A water supply study completed in 1991 recommended planning for the abandonment of Wicks WTP and constructing a new WTP near Sorosis Reservoir that would treat Columbia River water. Following the report, the city rejected this plan and City Council at the time made the decision to develop the existing Wicks water supply to maximum extent possible and postpone development of the Columbia River until needed due to growth, catastrophic loss of the Mill Creek supply, or future groundwater restrictions. The 2006 WMP did not reevaluate the decision as part of the plan update. The City does not have new or recent information on public perception of using the Columbia River as a water source. The primary concern of a City intake being downstream of the Hanford Nuclear Site has not changed and there is no specific known reason to believe public opinion would have changed significantly.

4.6.5.3 Infrastructure and System Operation Considerations

As noted in previous sections, the City currently has no infrastructure to access or utilize Columbia River water to supply the system. New intake facilities including a pump station, treatment plant, transmission mains, and distribution pump stations would all be required to use the Columbia River for source water. Additionally, it is unlikely that it would be operationally or financially viable to utilize both the Wicks WTP and a Columbia River WTP at the same time because the operation and maintenance needs to manage both sets of infrastructure would be more than either individually. Therefore, developing the Columbia River source water system. The City has just recently completed major investments in replacing and expanding the Dog River Diversion Pipeline which adds supply to the SFMC and Crow Creek Reservoir, a project that the City has been developing and working on for over 10 years.

Operationally, the Wicks WTP and clearwell are at a much higher elevation than the distribution system and can supply nearly all of the City's system by gravity. In contrast, the Columbia River is at the lowest elevation of the City and pumping would be required to serve the entire distribution system. This would be a fundamental change in how the system is supplied and operated. An intake pump station and distribution pump stations would need to be evaluated, designed, and constructed to provide Columbia River water to the existing distribution system.

4.7 Summary and Supply Program Recommendations

There are many variables that impact the City's overall capacity and resiliency to provide supply to meet projected demands. These systems are complex, with many components of the supply systems are highly variable and challenging to quantify. Generally, consistent empirical data over long time periods is critical to understanding and predicting supply sources. The City is in a water scarce environment and ongoing data collection, planning, and iterative analysis of the supply program will be needed for the City to continue to provide resilient water supplies to the growing community. The recommendations outline the initial steps and provide guidance for future steps based on results and findings.

ASR operations are anticipated to play a key role in addressing short to medium-term supply deficits. ASR alone will not address long-term supply deficits because it is limited by surface water availability and water rights. There is also uncertainty in how well the ASR system will perform, which can only be answered through pilot testing for this specific application. As described in previous sections, the recommended options for the City to explore to increase recharge water availability are AR and raw water storage expansion. The AR limited license and/or permit could be completed on a relatively short timeline. A raw water storage expansion project, Crow Creek Dam raise, is a significant undertaking that will require decades of planning, permitting, and implementation. There are continuing interim steps that will be critical for a successful dam raise project to be completed. The path forward to continue providing resilient water to the City will require adaptability and diligence.

The key supply analysis findings and recommendations within the 10-year planning horizon are summarized below,

- > There is a MDD capacity deficit by the end of the 10-year planning horizon.
 - It is recommended to address the 10-year planning horizon MDD deficit through,
 - Transfer of unused water rights for use at the Riverside Wells

- For the 20- and 50-year planning horizons, it is recommended MDD capacity be increased through the replacement and expansion of the Wicks WTP and associated finished water transmission main. Potential ASR contributions to MDD capacity should be considered and evaluated as part of ASR Program Planning once pilot and testing plans have been completed at Riverside Well 1.
- > There is an annual/peak season supply deficit by the end of the 10-year planning horizon.
 - To address short-term annual supply deficits, a combination of the following is recommended,
 - Begin ASR operations, monitoring, and pilot testing at the Riverside Wells in early 2025.
 - Apply for an AR limited license or permit using SFMC as the source of supply. This would be used and operated in conjunction with the ASR program.
 - Replace and expand the Wicks WTP capacity and associated finished water transmission main (see **Appendix D** for additional details on recommended WTP improvements).
 - Complete ASR Program planning.
 - An initial step of the program will be to track ongoing progress of ASR pilot testing at the Riverside Wells in order to evaluate the ability to obtain a permit for ASR in the future. While it is possible to continue to renew an ASR limited license for testing for many years, the reliability of the City's ASR program would be enhanced by obtaining a permit for ASR.
 - There are a variety of unknowns at this time about ASR operations. The City will need to follow the pilot and testing plans they have developed to be used as a starting point to evaluate various factors and assess the ultimate storage volume, rates of recovery and recharge, and future operations of the City's ASR Program. Expansion of ASR facilities will need to be evaluated within the context of the City's overall supply system.

Figure 4-6 below provides a conceptual illustration of monthly water supply source management to meet the projected 20-year demands. This supply source management strategy is based on the following assumptions,

- ➢ 10th percentile streamflow.
- Crow Creek Reservoir releases are estimated from June through September, with higher release rates during July and August to meet peak season demands.
- > Approved AR permit using SFMC as the source of supply. This allows recharge with surface water that would otherwise not be accessible to the City (primarily based on water right limitations).
- Expanded Wicks WTP capacity with peak finished water capacity of 9.0-9.5 MGD. Wicks WTP expanded capacity is important to maximize AR/ASR recharge volumes.
- Expansion of ASR facilities to include recharge and recovery at Riverside Well 2 at a minimum.
- Native groundwater withdrawals are within the assumed annual sustainable pumping volumes for the CGWA.

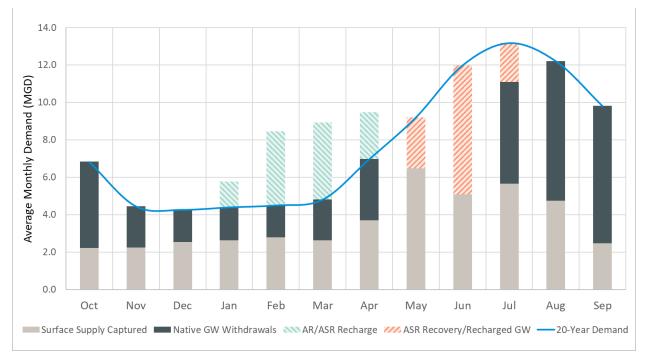


Figure 4-6 | Conceptual Monthly Supply Source Management for 20-Year Horizon

It is important for the City to start planning and completing initial evaluations and steps to address longterm supply deficits early because of the complexity and interconnected components of the City's overall supply system. The unknowns and uncertainty as discussed in the previous sections, mean the timing for needing a Crow Creek Dam raise is variable. It is recommended the City begin the following to prepare for addressing long-term supply needs,

- Complete a seismic evaluation and Emergency Action Plan (EAP) for the Crow Creek Dam.
- Maintain and collect consistent Dog River Diversion flow and Crow Creek Dam outlet and spillway flow data.
- Complete a concept design update for expansion of the Crow Creek Dam and spillway improvements.
- > Develop additional ASR wells (depending on recommendations of the ASR Program planning).
- Update the WSMP to continue to track existing demands and demand projections and refine longterm supply planning as more information, details, and timing are available.
- > Update financial planning/rate study as long-term supply planning is refined.
- Assuming the ASR Program is at least moderately productive, an AR limited license or permit is approved, and Wicks WTP and finished water transmission main are replaced and expanded, it is anticipated that a Crow Creek Dam raise could be needed sometime in the 20- to 50-year planning horizon.

These recommended steps and projects to improve and expand the City's reliable water supply system are reflected in the CIP in **Chapter 7**.

CHAPTER 5

Distribution System Evaluation

5.1 Water Distribution System Model Update

The existing water distribution system model was created in 2006 with Innovyze's H20Map, which was used for the 2006 Water Master Plan. The 2006 water model has been updated using AutoDesk's (formerly Innovyze) InfoWater Pro. The system facilities were updated using the latest Geographic information System (GIS), as-built drawings, and system information like facility records in spreadsheets provided by the City. Updates to the model include the following data:

- > Pipe diameters, lengths, and roughness factors based on age and pipe material
- Installation years for all facilities (wells, water treatment plant, pumps, valves, storage tanks, and pipes)
- Elevations assigned to nodes with lidar from the Oregon Department of Geology and Mineral Industries
- > Pump curves except for Garrison Booster Pump Station
- ➢ PRV settings
- Pressure zone boundaries

5.2 Model Demands

Water distribution system evaluations require water demands to be accurately allocated in the model. The process for allocating water demands is discussed in the following subsections.

5.2.1 Existing System Demand Allocation

Assigning the existing system demands in the model requires an estimation of the total system demand followed by allocation of the total system demand to the appropriate model node locations.

5.2.1.1 Existing System Demand

Existing system demand estimates were developed using recent historical records provided by the City. The historical records include the following:

- Monthly water system billing records (January 2019 December 2022)
- SCADA records in 5-minute and 1-hour time intervals (February 2023 October 2023)

The two primary conditions that were considered for use in the hydraulic model are,

Minimum Day Demand (MinDD), the water demand on the day of lowest use

Maximum Day Demand (MDD), the water demand on the day of highest use

MinDD and MDD were calculated using available consumption (billing records) and production (SCADA records) information. Monthly customer consumption records were scaled to the daily MinDD and MDD records from SCADA. Calculated values for MinDD and MDD by pressure zone are presented in **Table 5-1**.

Pressure Zone	Minimum Day Demand ¹ (gpm)	Maximum Day Demand ² (gpm)
310	1,078	2,518
352	29	207
395	148	753
395W	8	35
460	22	147
475	43	304
507	60	384
513	13	96
560	7	44
632	15	87
660E	41	303
660W	34	270
786	26	301
880	23	183
Brenner	15	103
Sunridge	3	15
TOTAL	1,565	5,750

Table 5-1 | 2023 Minimum and Maximum Demands

Note:

1. The available SCADA shows the Minimum Day Demand occurred on February 26, 2023.

2. The available SCADA shows the Maximum Day Demand occurred on August 15, 2023.

5.2.1.2 Existing System Demand Allocation

The total system demand was allocated to the model junctions by utilizing The Dalles' GIS customer meter data. The customer meter data has spatial coordinates that map the location of each customer to the connection location. Assigning customer demands to the closest demand node or junction location in the water system model can be achieved by linking the customer billing data to the customer meter locations.

The steps used to allocate customer demands to the hydraulic models are listed below. These steps were applied for both the minimum and maximum month customer water use.

- 1. Calculate the usage for each customer (minimum and maximum month).
- 2. Link customer consumption to customer meters with unique identifier, customer account numbers. This approach was effective because most of the data cleanly matched between the

billing data set and the GIS meter data. Customer water use that could not be matched based on the meter number were allocated by:

- a. Spreading the remaining unmatched consumption across the remaining customer meters that had not yet been matched up with a customer. This approach ensured that all water system demands were allocated to an existing water meter location.
- 3. Flag each junction in the model as a demand node or non-demand node. Non-demand nodes include junctions on a transmission pipeline, at a pump station, at a storage tank, fire hydrants, or near PRV stations.
- 4. Assign each customer demand to the closest model demand node. Customer consumption assigned to a demand node may be a summation of several customers near the node or one customer near the node. See **Figure 5-1**.

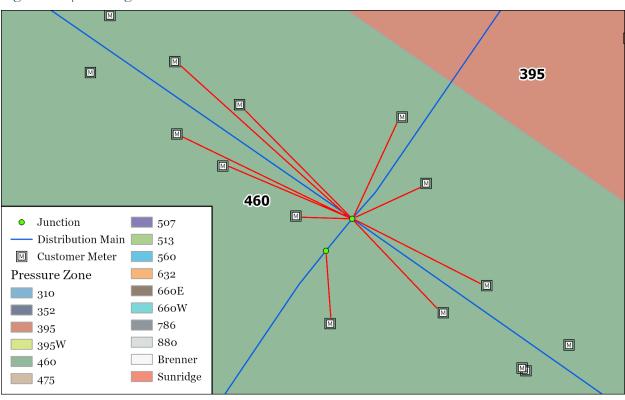


Figure 5-1 | Existing Demand Allocation

5.2.2 Future System Demand Allocation

Future demands for 2044 were allocated to the nodes by scaling up existing system demands per zone basis. A scaling factor of 1.88 was multiplied to the existing demands to establish a 2044 demand set. The scaling factor is a ratio of the 2044 demand and existing demand.

5.2.3 Diurnal Patterns

Diurnal patterns for MinDD and MDD were developed with flow from supply and tank level time-series data from SCADA records. The diurnal patterns are useful for evaluating extended period simulations where

demands will fluctuate over a 24-hour period. Figure 5-2 illustrates the diurnal patterns developed for the minimum and maximum day demands.

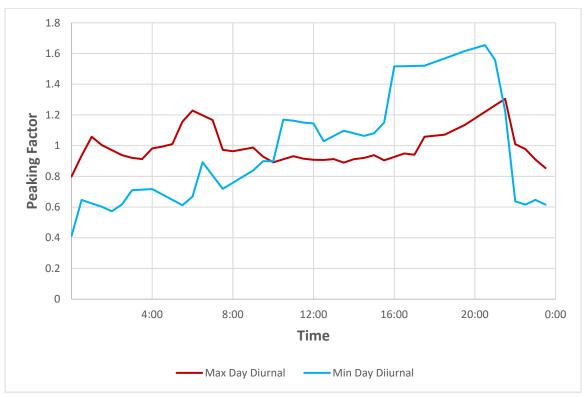


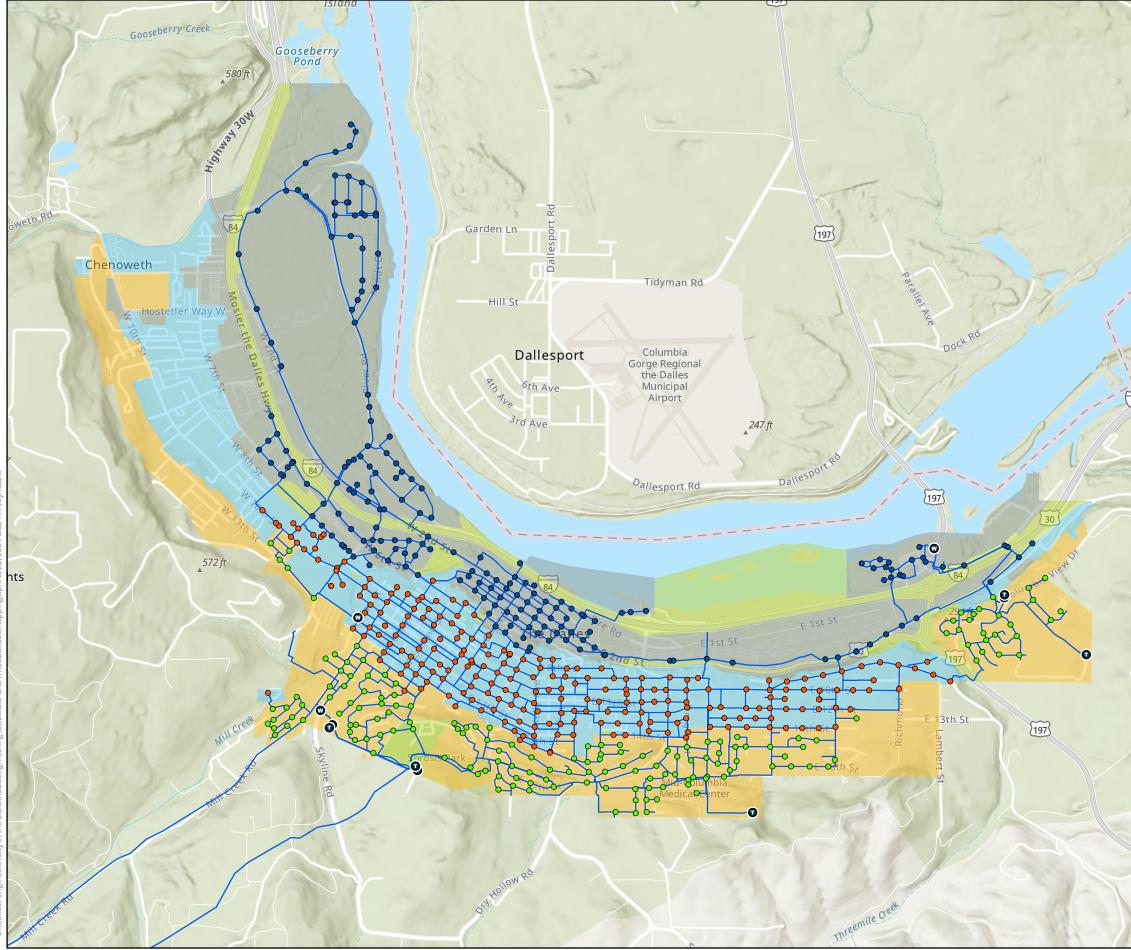
Figure 5-2 | Diurnal Patterns

5.2.4 Fire Flow Demand Allocation

Fire flow demand was assigned to model nodes near or at locations of existing fire hydrants according to GIS data. For future modeling, future development areas based on land use, fire demands were assigned to nodes on water mains. The fire flow demand was assigned based on the land use being served. **Table 5-2** lists fire demands per zoning type assigned to nodes in the model. **Figure 5-3** illustrates fire demands assigned to nodes in the model per zoning type.

Table 5-2 | Fire Demand per Zone Type

Zoning	Fire Demand (gpm)	Duration (hour)
Low Density Residential	1,000	2
Medium and High Residential	2,000	2
Commercial, Industrial, and Institutional	3,000	3



Data Sources: City of The Dalles, 2023;Community: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS World Imagery: Maxar <u>Coordinate System</u>: <u>Disclaimer</u>: Consor and CLIENT make no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, or surveying purposes. Notification of any errors is appreciated.

2	Le	gend
	0	Well
	0	Tank
	0	Pump
	Fire	Flow Demand (gpm)
	•	1000
	•	2000
1	•	3000
/		Distribution Main
1	Zoni	ing
-		Low Density Residential
		Medium and High
		Density Residential
		Commercial/Industrial/ Institutional
		Parks, Open Spaces and
		Other
2		
-		
_		Ň
		WE
		r V S
		City of The Dalles
	AL CONTRACT	Water System Master Plan
	5.0	in the second se
3	2	are of

Figure 5-3. Assigned Fire Flow Demands Per Zoning

W1961170R

consor

197

November 2024

Page 302 of 664

5.3 Model Calibration

The model was calibrated to verify model results are representative of actual system operations. The calibration process included hydraulic calibration and operational calibration. The hydraulic calibration includes assigning fire flows recorded from fire flow tests into the model, demands for each test were scaled to match system demands at the time of each fire hydrant flow test, and tank levels and pumping rates from supplies were matched for each test. Simulating each fire flow test and comparing hydrant flow rates and residual pressures from model results to field results were performed. Appropriate adjustments and corrections to the computer model were made until the results closely match the data gathered during field testing. Adjustments and corrections include adjusting pipe roughness factors, adjusting the pumping water levels for wells to achieve a pumping head that matches the expected flow rates, and matching PRV settings to records provided by The Dalles.

Operational calibration includes setting up the model to simulate a 24-hour extended period simulation (EPS) for the minimum and maximum day demand conditions. A minimum and maximum day demand conditions and diurnal patterns were developed for the two conditions from 2023 SCADA records. In addition, appropriate tank levels and pumping rates were assigned in the model. The EPS model was then simulated, and results were compared against SCADA.

The model calibrated well during the hydraulic calibration process. Results for most of hydrant flow tests were matched to an acceptable degree of accuracy. Hydraulic calibration results are presented in **Appendix B**. The hydraulic calibration presents the comparison of the model results to field measurements for the fire hydrant flow tests. Additional assumptions on findings of the hydraulic calibration and general comments are also included in **Appendix B**.

Plots from the operational calibration efforts are included in **Appendix B** and show two days of operational calibrations performed. These two days represent the minimum and maximum day demand conditions. The minimum and maximum day demand conditions occurred on February 26, 2023, and August 15, 2023.

5.4 Existing System Evaluation

This section describes the evaluation of existing distribution system model. It summarizes the evaluation criteria, the evaluation of the existing water system performance, and evaluation of proposed system improvements to address current issues and support projected future demands.

The distribution system evaluation includes an evaluation of the following performance criteria.

- Pressures and velocities
- ➢ Fire flow availability

The hydraulic model was used to evaluate the water distribution system. The following model scenarios were analyzed:

- ≻ PHD
- MDD and fire flow

5.4.1 System Pressures

Each pressure zone was evaluated for low pressure under the peak hour demand (PHD). The evaluation criteria require pressures at all points under PHD conditions to be at least 30 pounds per square inch (psi).

Pressures below 30 psi may indicate insufficient hydraulic capacity and can also increase risk of system backflow/cross connection contamination. **Figure 5-4** shows minimum pressures in the water distribution system under PHD conditions.

5.4.2 System Piping Velocity

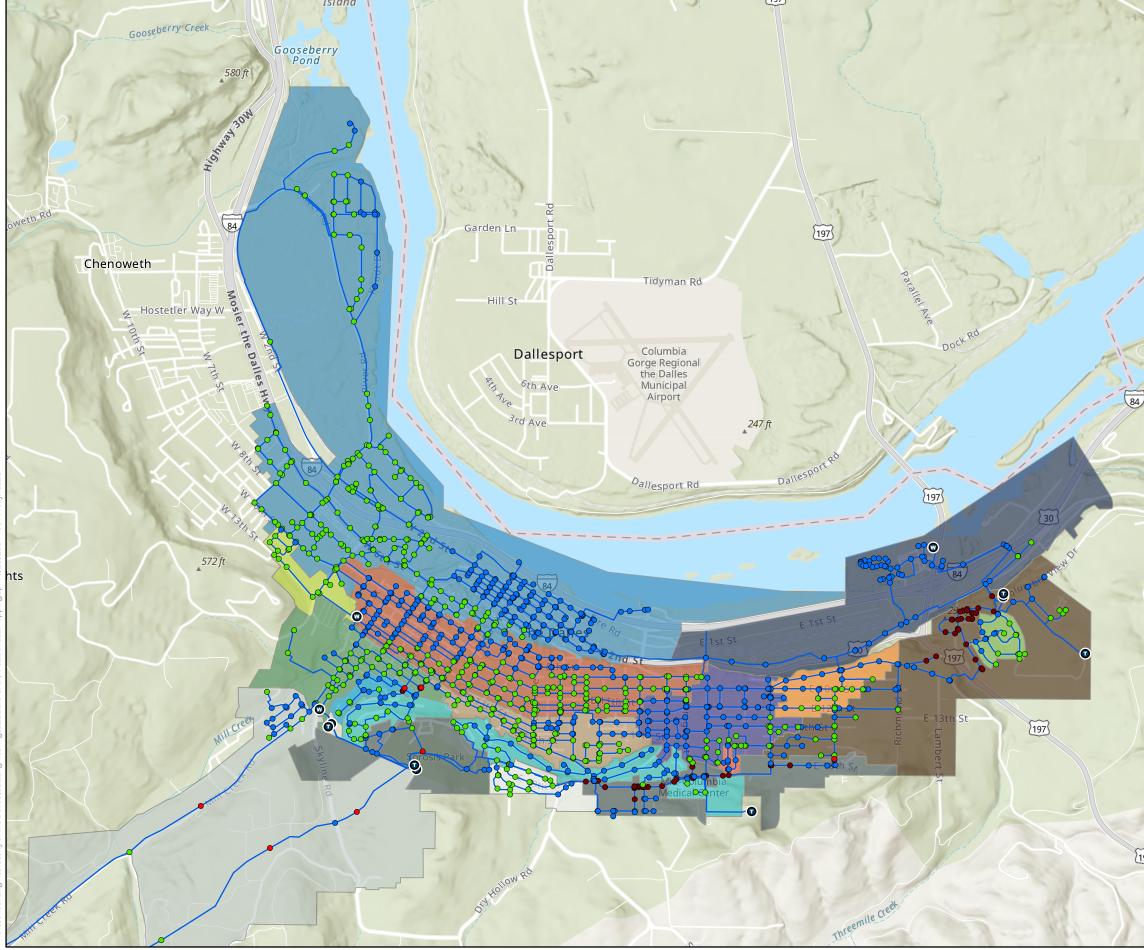
High flow velocities in pipes cause high friction and head loss along pipe walls which decreases pressures at the service connections and can increase pump energy costs. In addition to high head loss, high velocities can cause cavitation that could lead to pipe failures over time. Proposed pipe improvements will be sized to maintain velocities below 8 fps under PHD conditions. **Figure 5-5** shows maximum velocities in the water distribution system during PHD conditions. There are no areas of velocities over 8 fps during PHD conditions in the current system.

5.4.3 System Fire Flow Capacity

The fire flow capacity of the existing system was evaluated at locations where fire hydrants are present and where fire flow is intended to be provided in the future. Existing hydrant locations were determined from the City's GIS database. For future system evaluations, hydrant demands were added in the model to future development areas. The criteria specify that a hydrant must be able to deliver the required fire flow while maintaining a minimum pressure of 20 psi at all points in the distribution system. Fire flow requirements are based on adjacent or proposed land presented in **Section 5.2.4**. The MDD plus fire flow evaluation results are presented in **Table 5-3** and **Figure 5-6**. **Table 5-3** lists the total number of deficient hydrants based on the percentage of needed flows (e.g., 50 percent of needed flow of 2,000 gpm at a minimum pressure of 20 psi). **Figure 5-6** shows the percentage of required fire flow for fire hydrants in the water distribution system.

Condition		Number of Hydrants Deficient				
Condition	\leq 50% of Needed Fire Flow	50-75% of Needed Fire Flow	>75% of Needed Fire Flow			
MDD + Fire Flow	32	56	104			

Table 5-3 | MDD Plus Fire Flow Results



Data Sources: City of The Dalles, 2023;Community: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS World Imagery: Maxar Coordinate System:

Legend





OF THE DR

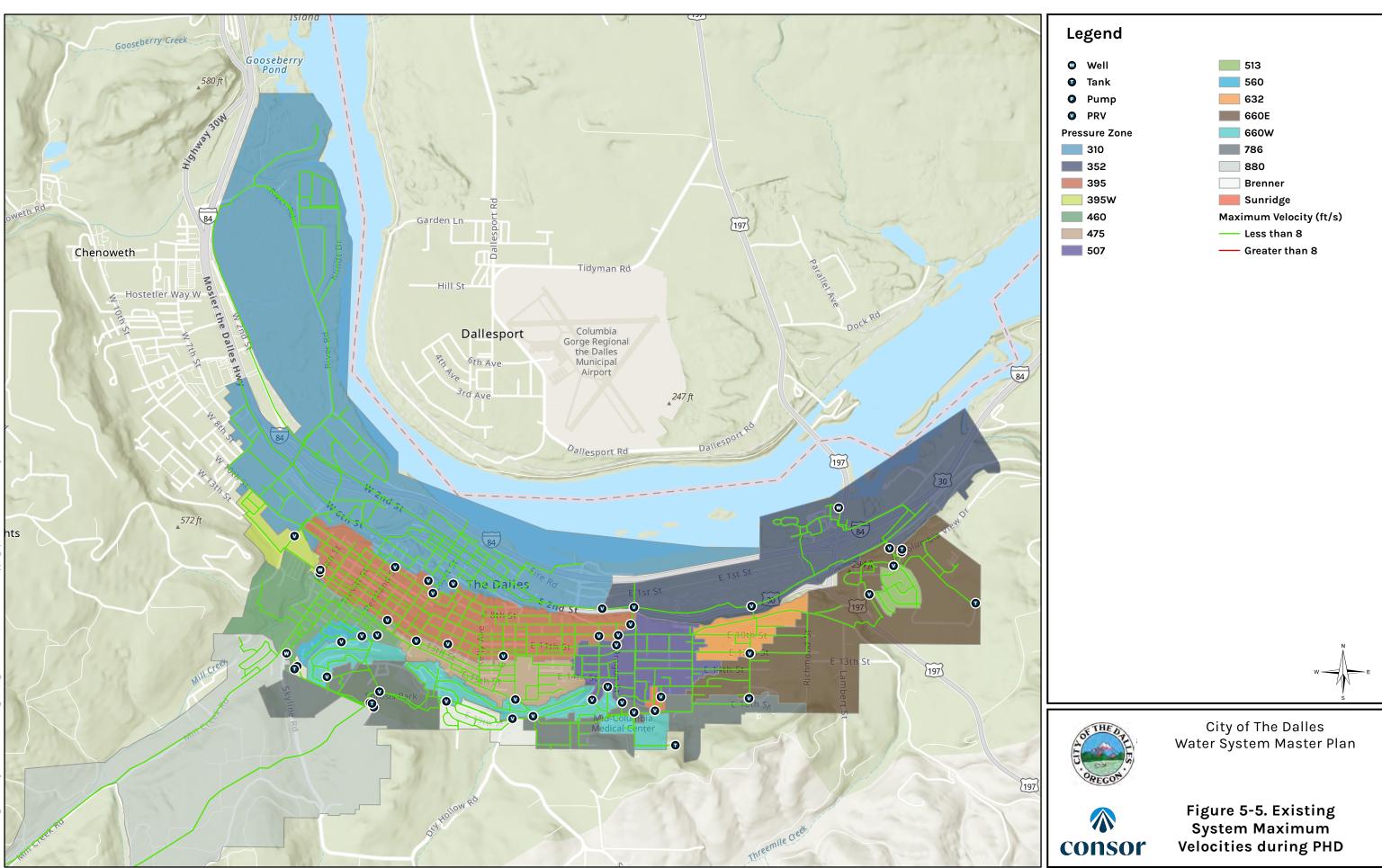


Figure 5-4. Existing Minimum Pressures during PHD

City of The Dalles Water System Master Plan

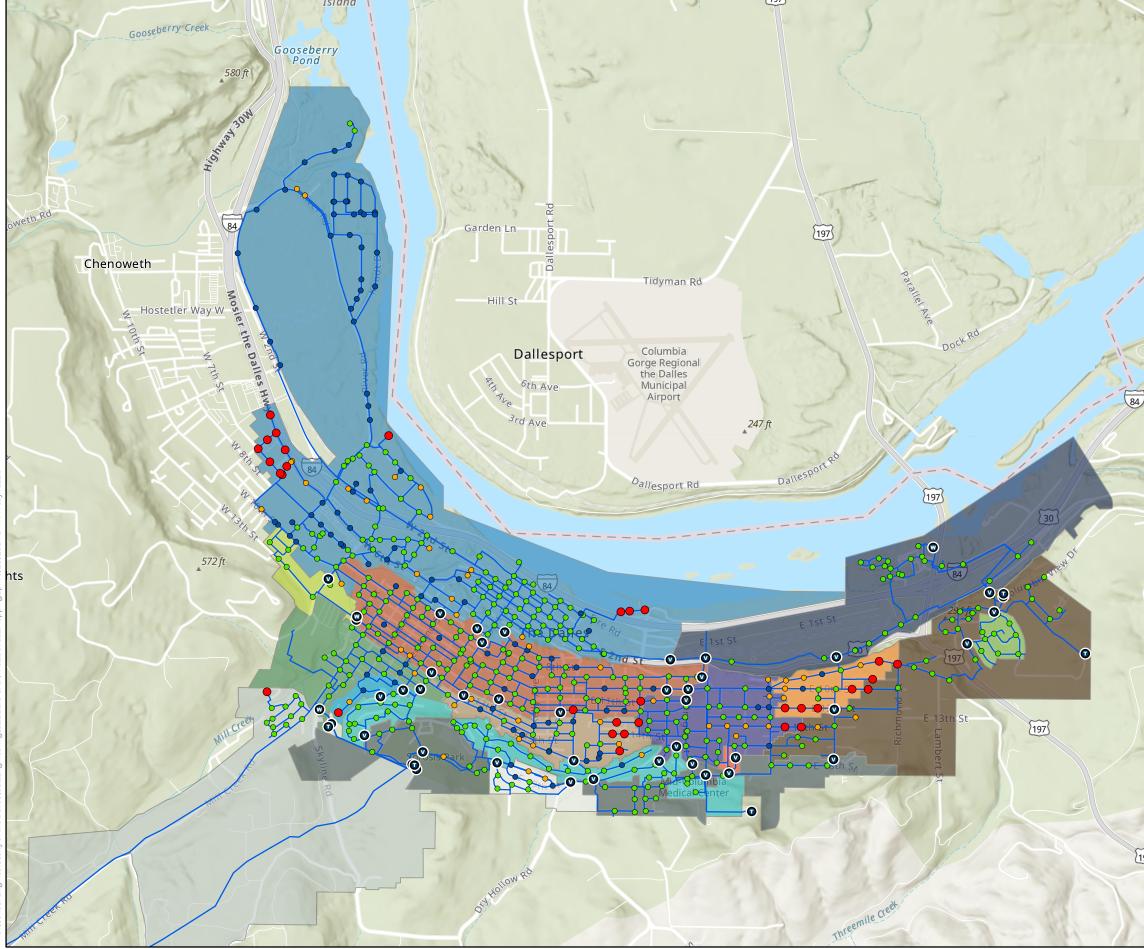
W1961170R

197



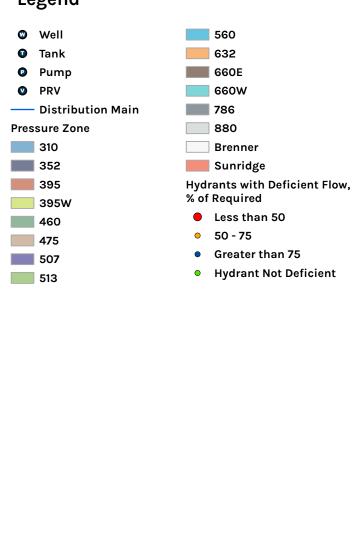
Data Sources: City of The Dalles, 2023;Community: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS World Imagery: Maxar Coordinate System:

W1961170R



Data Sources: City of The Dalles, 2023;Community: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS World Imagery: Maxar Coordinate System:







City of The Dalles Water System Master Plan





Figure 5-6. Existing MDD Plus Fire Flow

W1961170R

197



5.5 Future System Evaluation

This section describes the evaluation of future demand projections on water distribution system. The hydraulic model evaluation includes an evaluation of the following performance criteria.

- Pressures and velocities
- ➢ Fire flow availability

The following model scenarios were analyzed:

- ➢ 2044 PHD
- > 2044 MDD and fire flow

A model scenario for the 2034 projections was developed and reviewed to help prioritize and understand timing of needed future improvements. The evaluation results presented here show the 2044 scenario, which include any findings of the 2034 scenario evaluation.

5.5.1 System Pressures

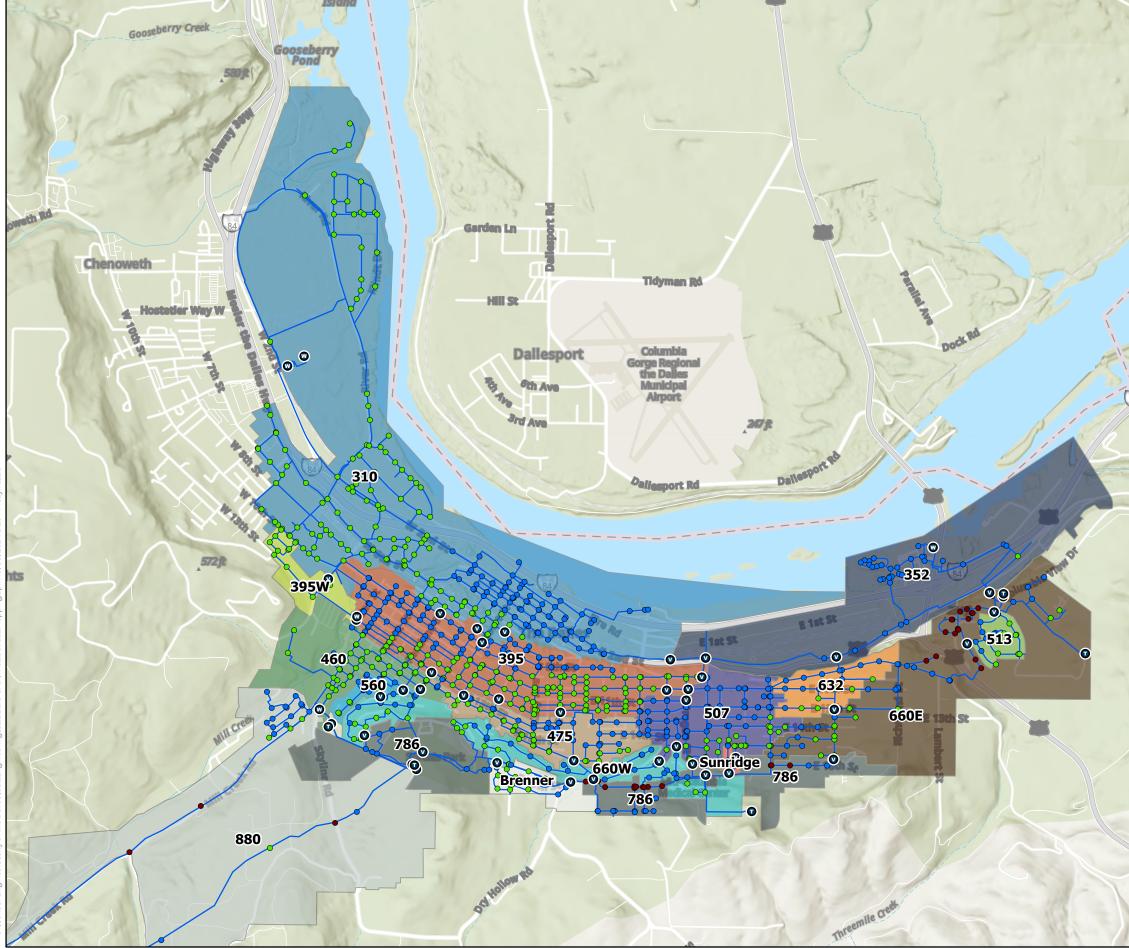
System pressures for 2044 demand scenario and under PHD were evaluated. **Figure 5-7** shows the minimum pressures in the water distribution system under these conditions.

5.5.2 System Piping Velocity

Figure 5-8 shows maximum velocities in the water distribution system for the 2044 planning horizon under PHD conditions.

5.5.3 System Fire Flow Capacity

Fire flow capacities for 2034 and 2044 planning horizons were addressed with the existing fire flow system evaluation. The future system meets the required fire flow while maintaining a minimum pressure of 20 psi at all points in the distribution system. Fire flow deficiencies in the system are mostly due to small diameter piping, i.e., 6-inch diameter piping. Other factors adding to fire flow capacity deficiencies are pipe material and age. Eighty (80) percent of the piping that are deficient for fire flow capacity are cast iron pipe and were installed 49-99 years ago. Recommended piping improvements were prioritized into short-, mid- and long-term projects. Short-term projects are shown in **Figure 5-9**. All recommended piping improvements are included in the CIP in **Chapter 7**. Mid- and long-term improvement maps are included in **Appendix B**.



Data Sources: City of The Dalles, 2023;Community: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS World Imagery: Maxar Coordinate System:

Legend





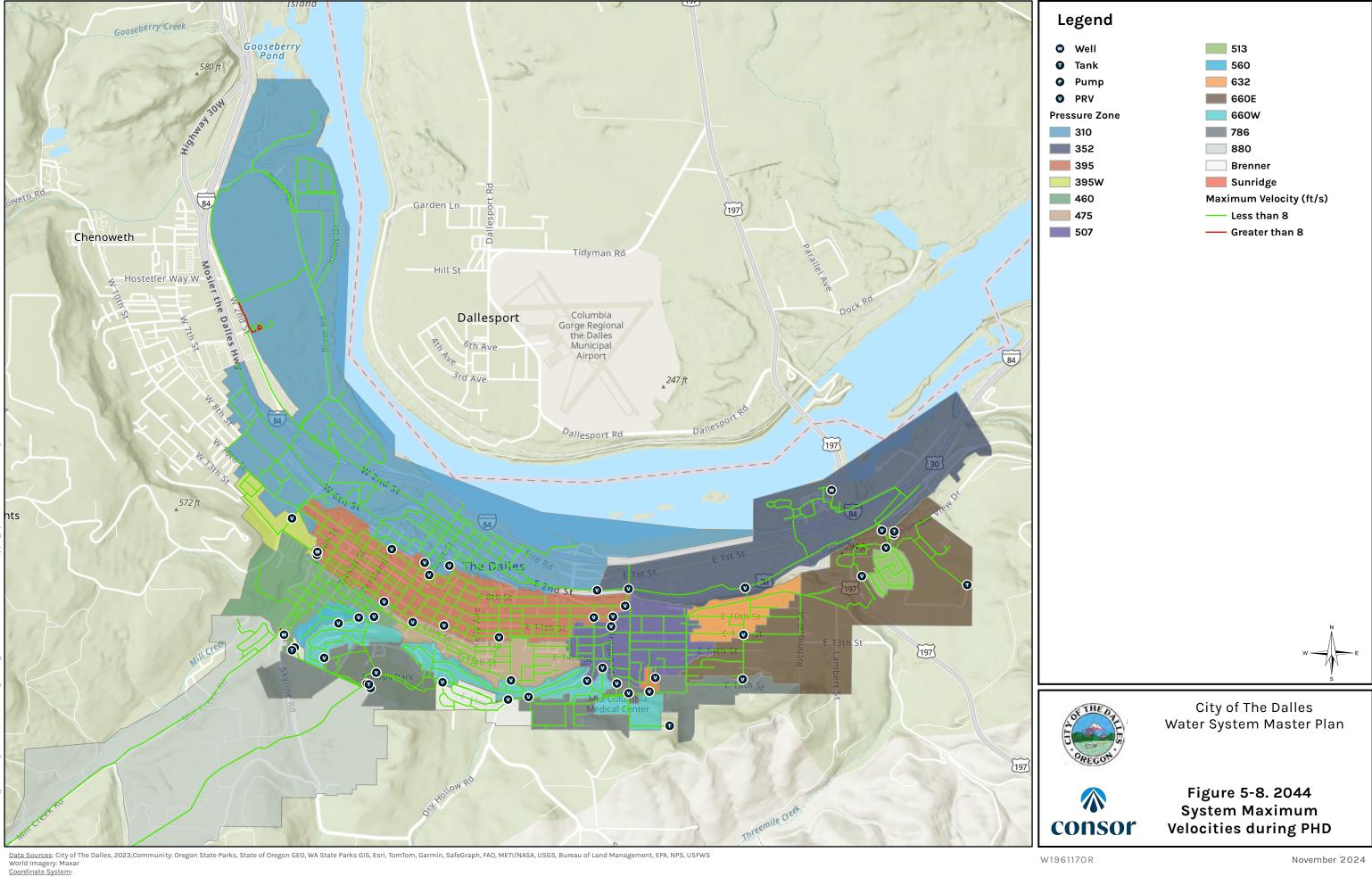




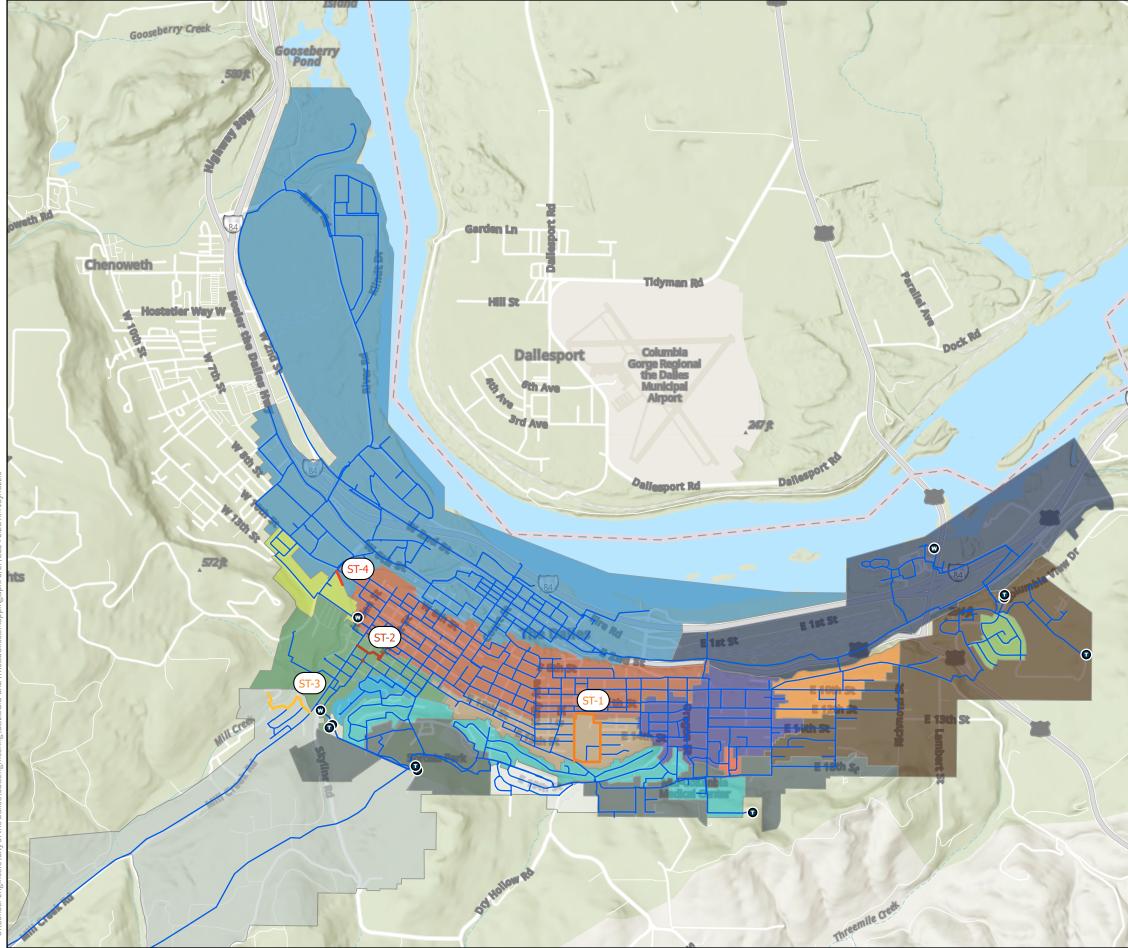
Figure 5-7. 2044 System Minimum Pressures during PHD

City of The Dalles Water System Master Plan

W1961170R



Page 310 of 664



Data Sources: City of The Dalles, 2023;Community: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS World Imagery: Maxar <u>Coordinate System</u>: <u>Disclaimer</u>: Consor and CLIENT make no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, or surveying purposes. Notification of any errors is appreciated.

Legend

•	Well		560
0	Tank		632
0	Pump		660E
	Distribution Main		660W
Pres	sure Zone		786
	310		880
	352		Brenner
	395		Sunridge
	395W	Sho	rt-term CIP
	460		ST-1
	475	_	ST-2
	507		ST-3
	513	_	ST-4







Figure 5-**9**. Short-term Capital Improvement Projects

City of The Dalles Water System Master Plan

W1961170R

November 2024

Page 311 of 664

5.6 Distribution Pipeline Seismic Hazard Evaluation

This section addresses the seismic risk assessment and mitigation planning required by the OHA for WSMPs. Water utilities located fully or partially within areas identified as VII to X, for moderate to very heavy damage potential, are required to include a seismic risk assessment and mitigation plan in their WSMP. According to the State of Oregon Department of Geology's Map of Earthquake and Tsunami Damage Potential for a Simulated Magnitude 9.0 (M9) Cascadia Earthquake, the City is mostly located within areas categorized as VI – Light, with a few portions potentially as VII - Moderate for damage potential. The requirements of the plan include the following:

- Identification of critical facilities associated with the supply of fire suppression, health and emergency response and community drinking water supply points
- Identification and evaluation of the likelihood and consequence of seismic failures at the critical facilities
- The mitigation plan shall encompass a 50-year planning horizon and include recommendations to minimize water loss from each critical facility, capital improvements, or recommendations for further study or analysis.

The objective of the mitigation plan is to provide the City with the knowledge and resources to maintain service, or return to service, within a prescribed timeframe following a M9 Cascadia Subduction Zone (CSZ) event.

Chapter 8 of *The Oregon Resilience Plan for Reducing Risk and Improving Recover for the Next Cascadia Earthquake and Tsunami* includes a table that describes target states of recovery for different regions within the State. Building codes change over time, sometimes due to seismic deficiencies discovered in older codes. No requirement currently exists that requires a city to upgrade facilities to keep up with the changes; however, revisions should be noted when assessing seismic vulnerabilities. There are no existing federal or state regulatory requirements associated with seismic retrofitting for potable water facilities. General guidelines for a seismic evaluation of existing buildings and reservoirs are to use the American Society of Civil Engineers (ASCE) 41-17, *Seismic Evaluation and Retrofit of Existing Buildings*. Figure 5-10 describes the target state of recovery for water systems in the area including the City.

Figure 5-10 | Target State of Recovery for Water Systems (Central/Eastern Oregon)

KEY TO	O THE TA	BLE									
TARGET	TIMEFRAN	IE FOR REC	OVERY:								
L	Desired tir	ne to res	tore con	nponent	to 80–909	6 operation	nal			G	10
L	Desired tii	ne to res	tore con	nponent	to 50–609	6 operation	nal			Y	
						6 operation				R	
	Current st			A		-62			-	×	
		10070	operation	ondiy					85		
TARGET	T STATES	OF RECO	VERY: V	VATER &	WASTEW	ATER SEC	TOR (CEN	TRAL/EAST	TERN OREG	ON)	
	Event	0–24 hours	1–3 days	3–7 days	1–2 weeks	2 weeks- 1 month	1-3 month	3–6 months	6 months –1 year	1–3 years	3 + years
Domestic Water Supply											
Potable water available at supply source (WTP, wells, impoundment)		x									
Main transmission facilities, pipes, pump stations, and reservoirs (backbone) operational		x							2		
Water supply to critical facilities available		x							C.		
Water for fire suppression—at key supply points		x									
Water for fire suppression—at fire hydrants		x									
Water available at community distribution centers/points		×							39 42		
Distribution system operational		×	1						6	0 8	

5.6.1 Critical Facilities and Water System Backbone

A water system backbone of key supply, storage, pumping, transmission, and distribution facilities was identified based on typical system operations. Supply and storage facilities are critical to producing and storing water for customers during an emergency. Pumping facilities, transmission mains, and distribution mains that connect these are key for minimal operations. Additionally, distribution mains connecting supply or storage to critical customers were included as part of the backbone system. Key City water facilities and their critical supply and distribution functions are summarized in **Table 5-4** and illustrated on **Figure 5-11** Water System Backbone Map.

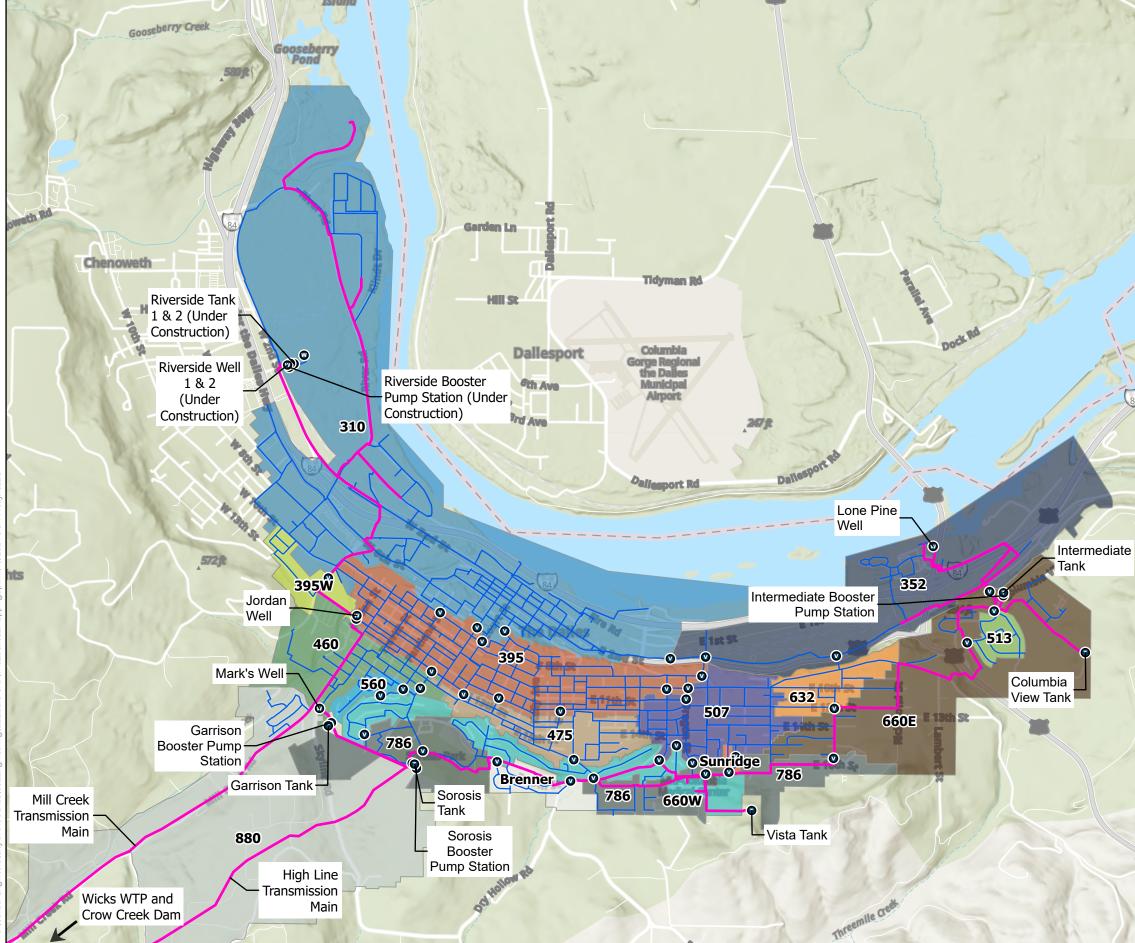
Key water facilities were prioritized based on the criticality and serving customers with emergency water immediately following a seismic event. The priority list is summarized in **Table 5-4**.

Priority	Facility Name	Critical Functions (Metered Connections Served)	
1	Wicks WTP	Treats and supplies surface water to system	
2	Sorosis Reservoir	Highest elevation reservoir to store Wicks WTP supply	
3	Garrison Reservoir	Reservoir to store Wicks WTP supply and Jordan and Marks Wells	
4	Marks and Jordan Wells	Supply to system	
5	Lone Pine Well	Supply to system (on east side of City)	
6	Riverside Wells 1 & 2	Supply to system (310 Zone)	
7	Crow Creek Dam	Raw water supply	
8	Sorosis BPS	Provides supply to Vista Reservoir (Highest elevation tank)	
9	Vista Reservoir	Highest elevation reservoir – could provide supply to all zones ¹	
10	Intermediate Reservoir	Stores Lone Pine Well supply (east side of City)	
11	Intermediate BPS	Supplies Columbia View Reservoir	
12	Riverside Reservoirs	Stores Riverside Wells supply	
13	Riverside BPS	Allows Riverside Reservoirs to supply 310 Zone	
14	Columbia View Reservoir	Reservoir for storage (east side of City)	
15	Garrison BPS	Provides supply to Sorosis Reservoir in case of loss of High Line transmission main	

Table 5-4	Key Water Sy	stem Facilities and	Mitigation Prioritization
-----------	--------------	---------------------	---------------------------

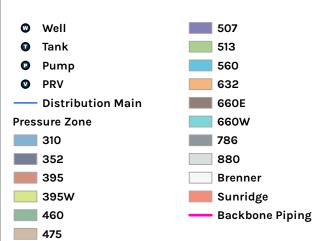
Note:

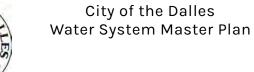
1. PRV facilities are not included in this table but provide sole supply to some pressure zones.

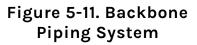


Data Sources: City of The Dalles, 2023;Community: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS World Imagery: Maxar Coordinate System:

Legend







W1961170R

consor

November 2024

Page 315 of 664

5.6.2 Geotechnical and Seismic Hazard Evaluation

The seismic hazards evaluation was conducted through a review of the Oregon Department of Geology and Mineral Industries (DOGAMI) seismic hazard maps. Seismic hazards were evaluated based on existing M9 CSZ earthquake hazard maps published for the region by DOGAMI. For this assessment, the evaluation focused on the City's water service area. The finished water transmission mains extend outside of City limits and the full extents were not included in this seismic hazard evaluation because the mains are already recommended to be replaced due to existing conditions. It will be important to consider and evaluate seismic hazards and standards during the design of the transmission main replacement.

5.6.2.1 Seismicity and Seismic Hazards

The likelihood and relative magnitude of three seismic hazards were analyzed, as these hazards all have the potential to damage buried water mains and other water facilities. Seismic hazards observed within the City's limits are discussed below.

Three primary sources of seismicity that could impact the City area are:

- > Shallow crustal faults within the North American plate;
- CSZ intraplate faults within the subducting Juan de Fuca plate;
- CSZ megathrust events generated along the boundary between the subducting Juan de Fuca plate and the overriding North American plate.

Of those three sources, CSZ megathrust events are considered to have the most potential for damage due to the anticipated magnitude and duration of ground shaking. Recent studies indicate that the CSZ can potentially generate earthquakes with magnitudes ranging between 8.0 and 9.2. The magnitude of a CSZ earthquake depends on the rupture length along the subduction zone. A full rupture will likely generate mega-magnitude 9.0 and above earthquake events, and a partial rupture will likely cause large-magnitude 8.0 to 8.5 earthquakes.

These earthquake events are estimated to recur approximately every 500 years for the mega-magnitude full rupture events (9.0-9.2) and every 200 to 300 years for the large-magnitude partial rupture events (8.0-8.5). Based on documentation of historic earthquakes, the probability of a future occurrence is high because the area is "past due." The CSZ earthquake with a magnitude greater than 8.5 (similar to recent events in Japan, Chile, and Indonesia) has an estimated 16 to 22 percent probability of occurring off the Oregon Coast in the next 50 years (Goldfinger and others, 2016).

While the City is mostly located within areas categorized as VI – Light, with a few portions as VII – Moderate, for damage potential, for the purposes of this evaluation, seismic hazards to the water system were assessed under a CSZ M9 earthquake as this is regarded as the greatest threat to the region. CSZ events may result in severe ground shaking, liquefaction settlement, lateral spreading, and/or seismic-induced landslides with the potential to damage pipelines, reservoirs, pump stations, etc.

The likelihood and magnitude of three seismic hazard sources were analyzed:

- strong ground shaking
- liquefaction settlement
- > landslides

5.6.2.2 Peak Ground Velocity

The intensity or rate of ground shaking is known as peak ground velocity (PGV) and is expressed as inches per second (in/sec). The PGV is dependent on the magnitude of the event, the distance from the seismic source, and the ground material through which the seismic waves pass. This extreme shaking can damage pipelines if the pipe material and joints are not strong enough to withstand transient ground deformations. Damage from ground shaking can occur even when there is no permanent ground deformation (PGD).

The Peak Ground Velocity Hazard map (**Figure 5-12**) illustrates the estimated peak ground velocity levels relative to the location of the water system facilities. The City's water system is situated in areas where PGVs are predominantly very low or low, with the highest estimated PGVs within the City ranging from 8-16 in/sec (low range). Some of the City's water facilities, including Vista Tank, Columbia View Tank, as well as critical water transmission piping from the Wicks Water Treatment Plant (WTP) are located within areas where PGVs are in the low (8-16 in/sec) range.

5.6.2.3 Liquefaction Susceptibility

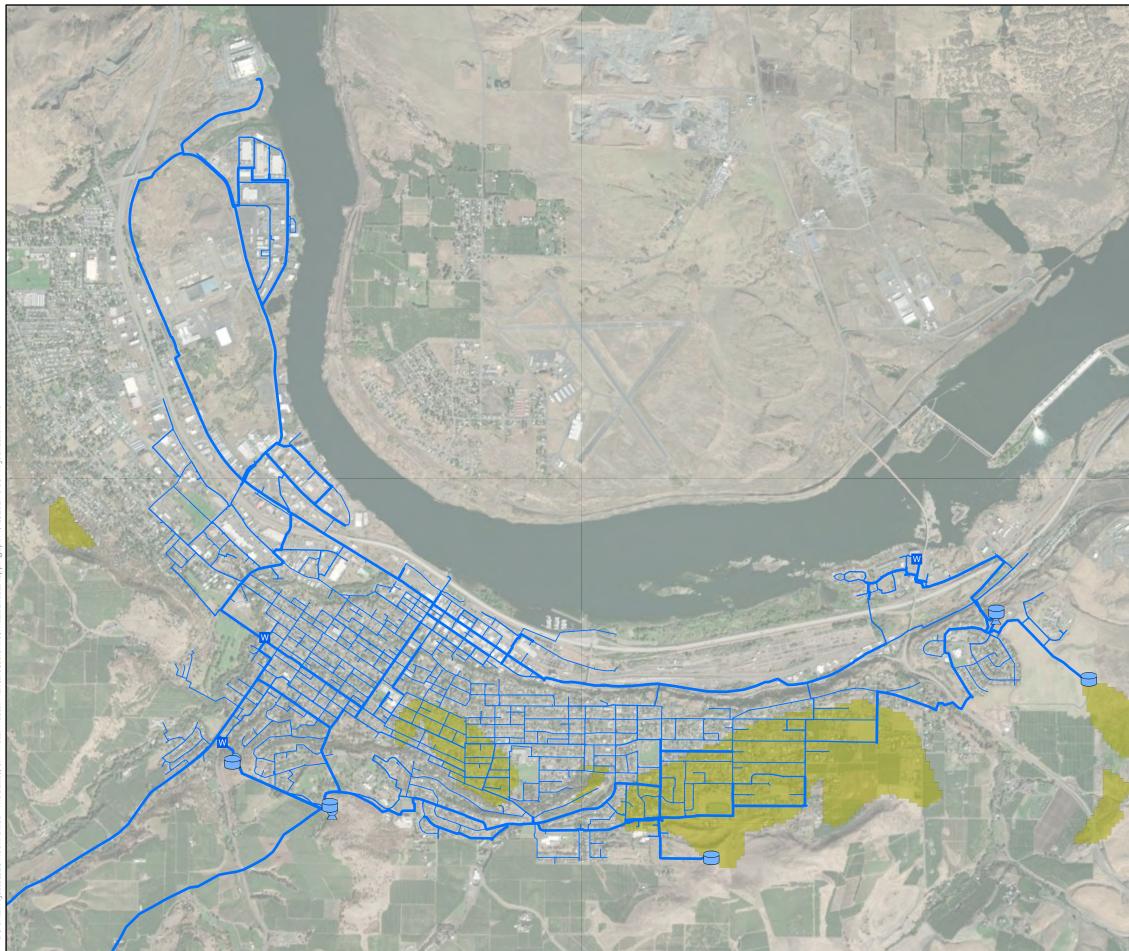
Liquefaction-induced ground deformation generally consists of post-liquefaction settlement (vertical movement) and lateral spreading (horizontal movement). Lateral spreading typically occurs along river/creek banks and other sloped areas. During seismic shaking, deposits of loose, saturated non-cohesive soil can contract, resulting in an increase in pore water pressure. The high pore water pressure can cause the deposit to become "liquefied" losing its strength and the ability to support loads (Kramer, 1996). The loss of strength and stability reduces the soil's ability to support the buried pipelines, and the soil movement can damage the pipeline joints. **Figure 5-13** illustrates the liquefaction susceptibility categorized into levels ranging from very low, to very high.

A significant portion of the City water system is situated in areas with moderate levels of liquefaction susceptibility, especially in areas near and along the Columbia River and Mill Creek. The loose, sandy soils, which are common along riverbanks are more prone to liquefaction. Sandy deposits along the Columbia River can liquefy more easily due to their granular nature.

5.6.2.4 Landslide Susceptibility

Landslides can occur due to the added load created by an earthquake induced inertial force on a slope. Slopes that are marginally stable prior to an earthquake can become unstable and fail. Landslide ground movement can be extremely damaging to pipelines.

There are varying levels of landslide susceptibility within the City limits. The City is predominantly situated within low levels of landslide susceptibility, with areas of moderate, high, and very high susceptibility interspersed. **Figure 5-14** illustrates the landslide susceptibility within the City area. The main areas of very high susceptibility are near E Scenic Drive, NE of the Community College; roughly NE of the Vista Reservoir and west of Highway 197; and SE of Columbia View Reservoir. These areas generally line up with areas of moderate liquefaction susceptibility.



Data Sources: City of The Dalles, 2023;Community: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS Oregon Geologic Hazard Data: https://www.oregon.gov/dogami/gis/Pages/index.aspx World Imagery: Maxar Coardinate Surtery:

Legend

W Well 🔵 Tank Pump Diameter - 6" - 10" ____ 12"-18" ____ 20"-36" Peak Ground Velocity (PGV) 0 - 8 in/sec 8 - 16 in/sec 16 - 24 in/sec (24 - 30 in/sec 0 2,000 4,000 Feet

City of The Dalles Water System Master Plan

Figure 5-12.

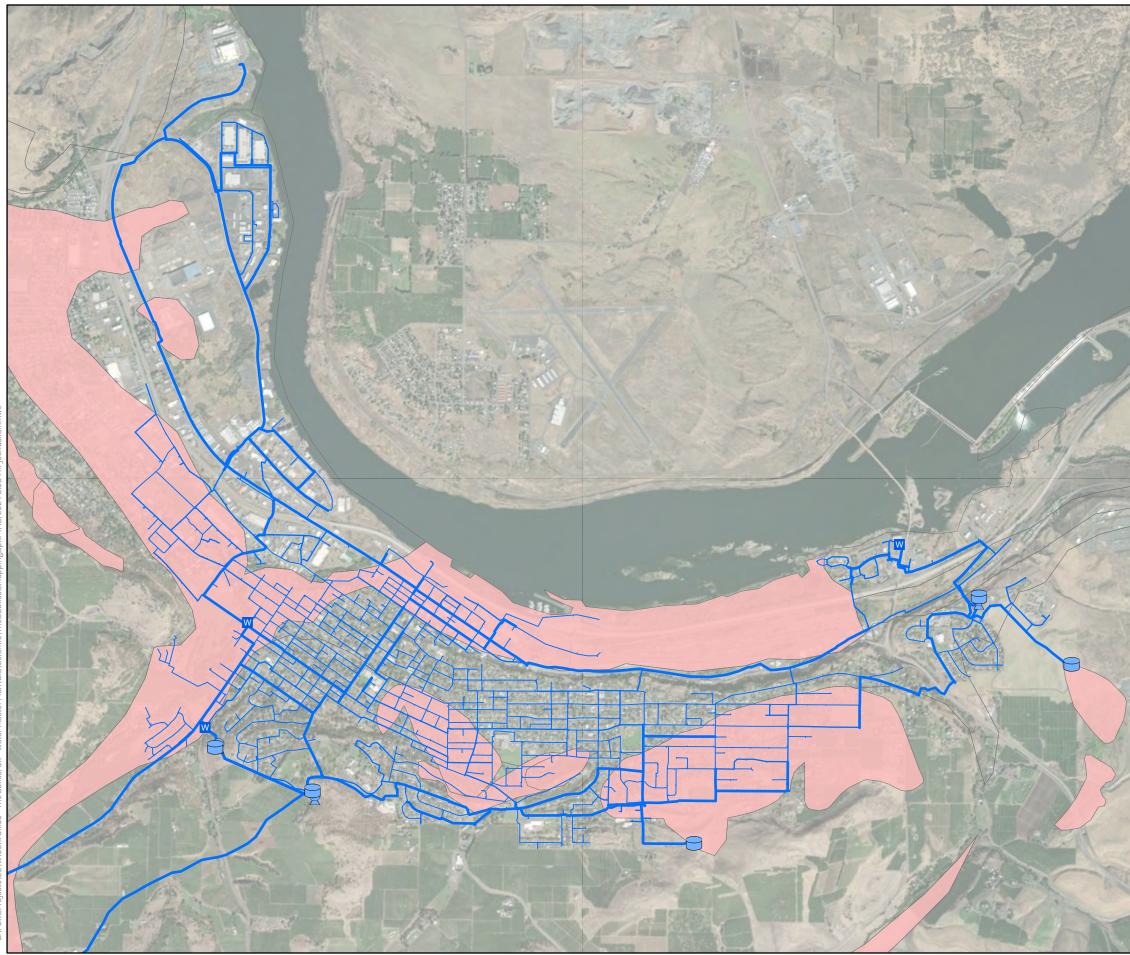
Figure 5-12. Peak Ground Velocity (PGV) Hazard

W1961170R

consor

November 2024

Page 318 of 664



Data Sources: City of The Dalles, 2023;Community: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS Oregon Geologic Hazard Data: https://www.oregon.gov/dogami/gis/Pages/index.aspx World Imagery: Maxar

Legend

W Well 🔵 Tank Pump <u>Diameter</u> - 6" ____ - 10" **----** 12"-18" ____ 20"-36" Liquefaction Susceptibility None Very Low Low Moderate High 📕

Very High

0 2,000 4,000 Feet





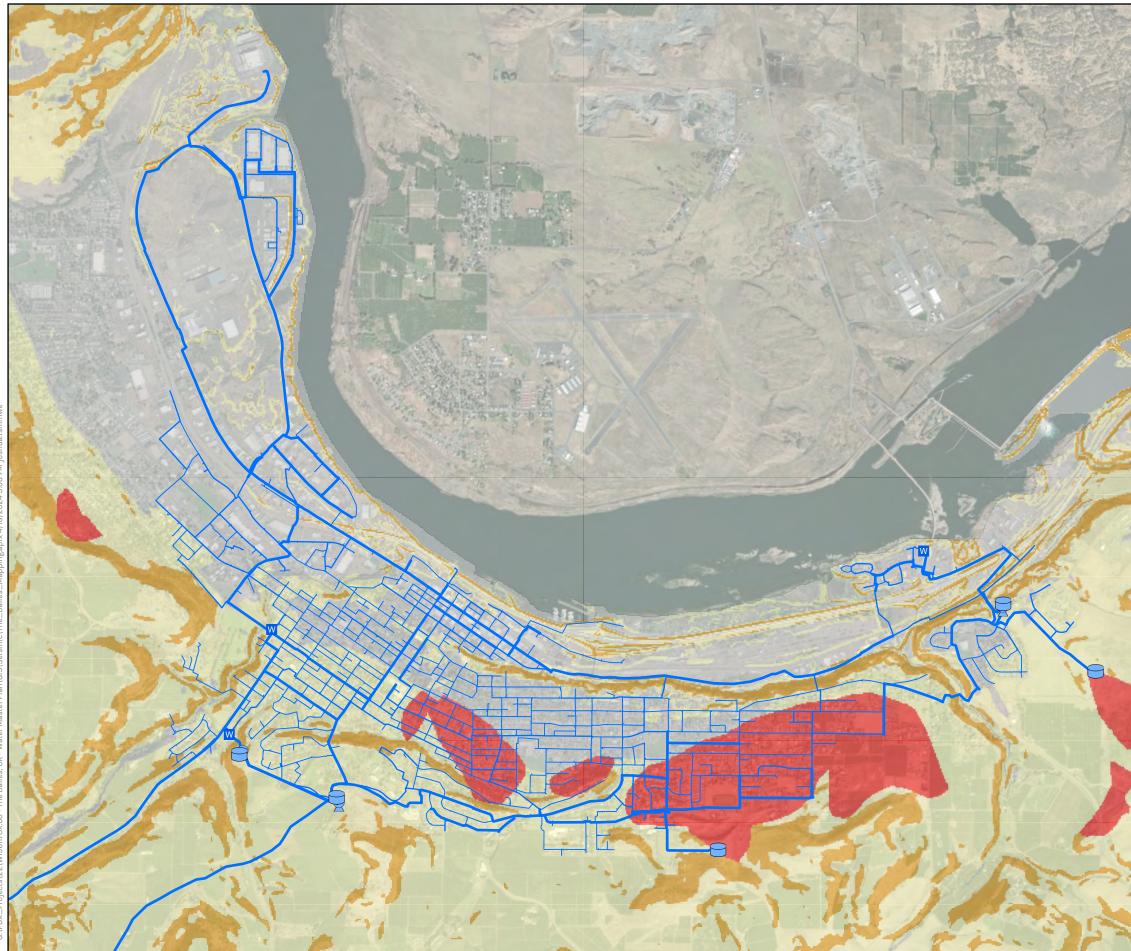
Figure 5-13. Liquefaction Susceptibility

City of The Dalles Water System Master Plan

W1961170R

November 2024

Page 319 of 664



Data Sources: City of The Dalles, 2023; Community: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS Oregon Geologic Hazard Data: https://www.oregon.gov/dogami/gis/Pages/index.aspx World Imagery: Maxar Contract Evidence

Legend

Well

😑 Tank

<u>P</u> Pump

Diameter

- 10"

---- 12"-18"

---- 20"-36"

Landslide Susceptibility

Low

Moderate

- High
- Very High

0 2,000 4,000 Feet





Figure 5-14. Landslide Susceptibility

City of The Dalles Water System Master Plan

W1961170R

November 2024

Page 320 of 664

5.6.2.5 Seismic Hazard Findings Summary

In general, the City is primarily in areas of low hazard from the seismic hazards considered. There are a few areas of moderate or high hazard that overlap with distribution piping as seen in **Figure 5-13** and **Figure 5-14**. Seismic hazards in these areas were included in the high-level pipe condition assessment that is detailed in **Section 5.7**.

High-level seismic evaluation of the pump stations, wells, and reservoirs identified minor seismic improvements which are included in the CIP. See **Sections 5.8.3**, **5.9**, and **5.10.8** for further discussion.

5.7 Pipe Condition Assessment

A high-level condition assessment of the City's water pipelines was completed based on material, age, potential seismic hazards, and critical backbone infrastructure. This assessment aims to categorize the City's water pipelines into prioritization tiers to that can be used to guide the City's Distribution Pipe Renewal and Replacement program in the CIP.

5.7.1 Assessment Criteria

The pipelines were evaluated based on the criteria discussed below.

Age: How old a pipeline has been in service for is critical in pipeline condition assessment. Like any other product, pipelines are composed of materials that have finite shelf life. Over time, pipelines deteriorate as corrosion weakens materials, pressure wear erodes interiors, and sedimentation increases head losses. All these factors can increase the potential for the pipeline to be damaged. Furthermore, as industry standards and environmental regulations evolve, older pipelines often become unsafe or unable to meet or exceed the minimum regulatory requirements established by the governing bodies. The information regarding the installation date of the pipelines was based on available data from the City's GIS database.

Material: Pipeline material is directly connected to the durability and integrity of the pipeline. Different materials have varying resistance to corrosion, chemical interactions, and mechanical stresses. The material of a pipeline also determines the degree of difficulty that is required to maintain and repair said pipeline. Similar to the pipelines' installation date, the information pertaining to the pipeline material was based on the City's GIS database as well as direct correspondence with City staff where material data was unclear or unknown in the database.

Seismic Hazard: Pipes in areas identified as highly susceptible to seismic hazards are at an increased risk of damage. As discussed in the previous section, the different seismic hazards can exert strong forces on the pipeline, potentially causing the pipes to shift, crack or rupture. Ground movement can exceed the maximum allowable deflections of the pipelines, leading to catastrophic failures.

Backbone / Critical Pipelines: backbone piping is defined as the critical piping that serves as the primary mode of transmitting water from the supply sources to the storage facilities and critical customers. This typically includes large-diameter transmission pipes and main distribution piping that connects to smaller lateral/branch distribution piping. Backbone piping would be the City's first priority within the distribution system piping to provide limited operations after an extreme disaster such as an earthquake.

5.7.2 Analysis

The pipes, excluding newer ductile iron pipe, were categorized into five prioritization categories, with Category 1 designated as the top priority. The categories are summarized below.

Category 1: This includes all steel, galvanized iron pipes, and asbestos cement (AC) pipes. Most of the steel and galvanized iron pipes in the City's water system are old and with thin walls these pipes are highly susceptible to damage and should be replaced as soon as possible. In addition to the challenges associated with steel and galvanized iron pipes, the City's system also includes a small amount of AC pipes, which were prevalent in the mid-20th century. These pipes were favored for their durability, resistance to corrosion, and ability to withstand high-pressure applications. However, the material is now recognized as hazardous material that can cause serious health problems if its fibers are released into the water supply or the surrounding environment. AC pipes are also brittle by nature and are typically joined by rigid bell and spigot joints. The lack of flexibility and joint restraint increases the vulnerability of AC pipes in seismic prone areas.

Category 2: This comprises of all cast iron piping installed prior to 1959 (65+ years old). Most of the City's water pipelines are cast iron. Cast iron piping older than 65 years is considered to have experienced significant deterioration and corrosion over time. Older cast iron piping was typically installed without modern protective lining or coatings that could prolong the pipeline's lifespan. Similarly, cast iron pipes are vulnerable to damage during ground movements because of their brittle, rigid joints. Furthermore, feedback from the City's operations and maintenance staff seems to indicate a high incidence of breaks associated with cast iron pipe installed in the 1950s.

Category 3: The fourth category consists of all cast iron pipes installed after 1959 that are part of the critical backbone piping and are in areas that have high risk of seismic hazards. The areas of high seismic hazards were identified as areas that have moderate to very high levels of liquefaction susceptibility as well as areas with high to very high levels of landslide susceptibility. In the event of a seismic hazard, backbone piping that is made of cast iron would be at a high risk of failure, compromising operations of the distribution system.

Category 4: This encompasses all the other backbone cast iron piping installed after 1959 that is not situated within designated high seismic hazard areas.

Category 5: Lastly, this category includes all remaining cast-iron piping that is not part of the critical backbone infrastructure and is less than 65 years old.

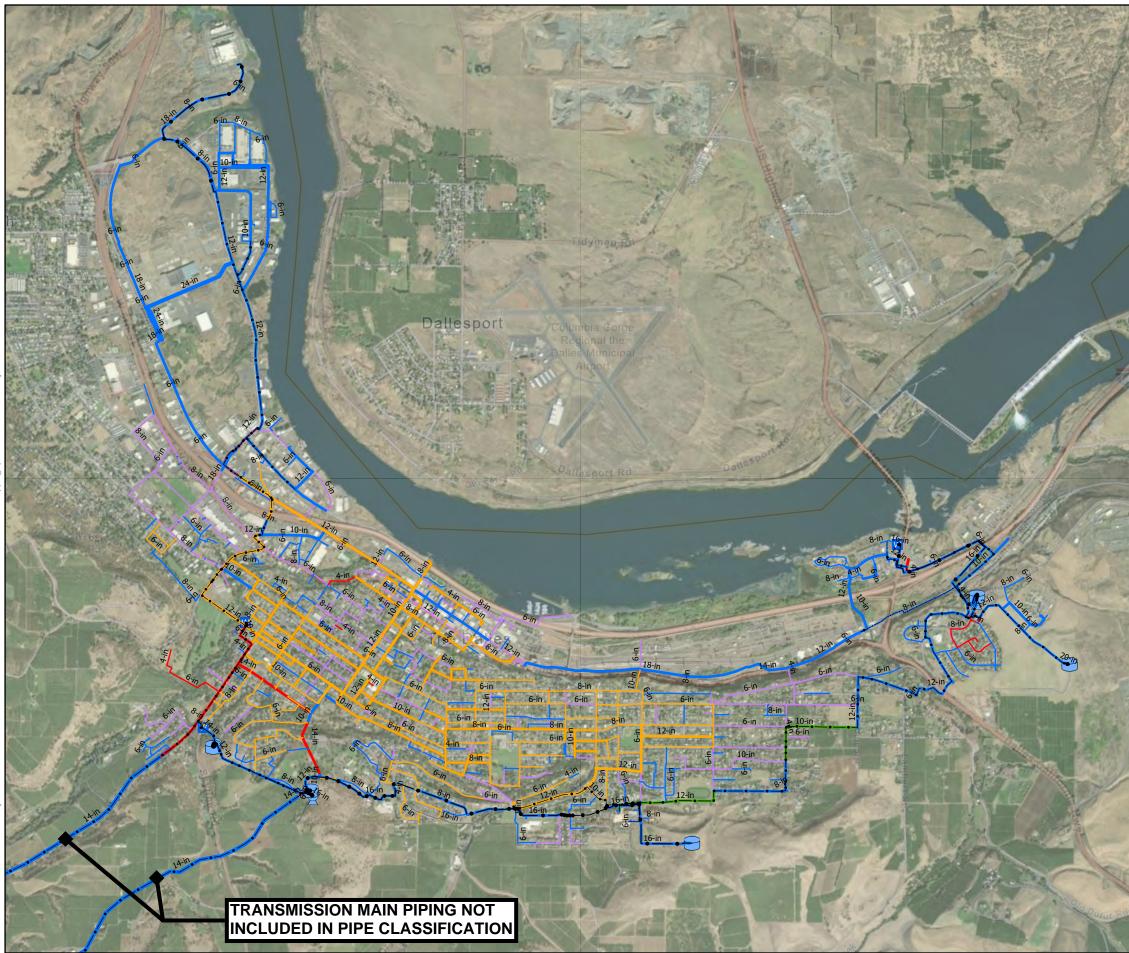
Table 5-5 summarizes the diameter and total linear length of pipes for each of the categories. **Figure 5-15** illustrates the five pipe categories. Pipes in Categories 2 and 5 make up the vast majority of the approximately 55 miles of pipes identified across all five categories. The finished water transmission mains were not included in this assessment because the mains are already recommended to be replaced due to existing conditions. An annual Distribution Pipe Renewal and Replacement program is included in the CIP with a goal of replacing Category 1 and 2 pipes within 50 years. These categories and prioritization should be updated as the City gathers more and new information on the existing pipelines.

Category	Diameter (in)	Total Length (LF)
1	4	1,600
L	6	3,900

Table 5-5 | Pipe Classification Summary

DRAFT

Category	Diameter (in)	Total Length (LF)					
	8	800					
	10	2,400					
	12	1,400					
	14	7,600					
	16	50					
	20	20					
	4	1,100					
	6	90,000					
2	8	24,300					
2	10	8,300					
	12	24,500					
	16	2,400					
	8	200					
2	10	2,600					
3	12	4,300					
	16	600					
4	12	4,300					
4	16	100					
	4	700					
	6	64,000					
r.	8	24,200					
5	10	5,700					
	12	12,500					
	18	200					



Data Sources: City of The Dalles, 2023;Community: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS World Imagery: Maxar <u>Coordinate System</u>: <u>Disclaimer</u>: Consor and CLIENT make no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, or surveying purposes. Notification of any errors is appreciated.

Legend

W Well
🔁 Tank
<u> P</u> ump
Pipe Classification
Category 1
— Category 2
Category 3
Category 4
—— Category 5
—●— Backbone Piping



0 2,000 4,000 Feet





Figure 5-15. Replacement Prioritization Categories

City of The Dalles Water System Master Plan

W1961170R

November 2024

Page 324 of 664

5.8 Pumping Analysis

This section summarizes the analysis of the City's booster pump stations (BPS) capacity against the existing system described in **Chapter 1**, the demand projections described in **Chapter 2**, and the performance criteria described in **Chapter 3**. The results of the analyses serve as the basis for capital improvements and capital maintenance of the pumping systems as described in the CIP in **Chapter 7**. Adequate pumping capacity in drinking water systems is necessary to ensure the following.

- System demand and fire suppression demand within individual pressure zones are reliably met.
- System demand and fire suppression demand within the total system are reliably met.

BPS operation is typically controlled by elevation levels in the reservoir. Lead and lag pump starts and stops are controlled by specific elevation setpoints when a BPS is equipped with two or more pumps. The City currently takes Columbia View Reservoir offline in the winter due to water stagnation concerns with lower wintertime demands. With this seasonal adjustment, the Intermediate BPS which typically supplies the Columbia View Reservoir is also taken offline.

The BPS performance criteria described in **Chapter 3** is summarized in **Table 5-6**. The following sections analyze the firm pumping capacity and backup power performance criteria for existing conditions and conditions over the planning period.

Table 5-6 | Pumping Performance Criteria Summary

Water System Component	Evaluation Criteria Component	Value	Design Standards/Guideline
Booster Pump	Firm Capacity	MDD	Washington Water
Stations			System Design Manual
	Backup Power	At least one pump station	Industry Standard
		serving each pressure zone	Recommendation

5.8.1 Firm Pumping Capacity Analysis

The firm capacity of the BPS were compared to the current and projected MDD of the discharge pressure zones served by each BPS. The BPS and pressure zones served are illustrated in **Figure 1-2**. The Riverside BPS is currently under construction and is included in the evaluation with proposed design criteria for the BPS. The BPS will be located in and serve the 310 Zone. The Lone Pine Well operates as a typical BPS on the east side of the City and is included in this pumping capacity evaluation. Supply analysis for the system is included in **Chapter 4**. For the evaluation, it is assumed that the Garrison BPS should be able to meet MDD for the Sorosis and Vista Reservoirs zones in a situation where the Wicks WTP or the High Line transmission main is inoperable. **Table 5-7** summarizes the firm and total capacity of each BPS and compares firm capacity against the current and projected MDD allocated to the discharge pressure zones.

Pump Station	Sorosis ¹	Garrison ²	Intermediate	Lone Pine Well	Riverside ⁴		
Pumps from	Sorosis Reservoir	Garrison Reservoir	Intermediate Reservoir	Lone Pine Well	Riverside Reservoirs 1&2		
Pumps to	Vista Reservoir	Sorosis Reservoir			310 Zone		
Required Supply	, MDD (gpm)						
Existing, 2023	740	1,300	450	640	3,360		
10-year, 2033	800	1,410	490	690	7,110		
20-year, 2043	870	1,540	530	750	7,330		
Available Supply	(gpm)						
Firm Capacity	1,500	500	1,500	3	4,500		
Total Capacity	2,250	1,000	3,000	2,100	6,300		
Surplus/Deficit c	of Supply (gpm)		·				
Existing, 2023	760	-800	1,050	1,460	1,140		
10-year, 2033	700	-910	1,010	1,410	-2,610		
20-year, 2043	630	-1,040	970	1,350	-2,830		

Table 5-7 | BPS Firm Capacity Analysis

Notes:

1. Triplex BPS; only two pumps can run at once

2. Approx. Garrison pump capacity per operators

3. Lone Pine Well only has one pump; evaluated at total capacity

4. Riverside BPS evaluated at proposed initial firm capacity of 4,500 gpm; BPS to be built with buildout capacity of 9,000 gpm

As shown in **Table 5-7**, the firm capacities of the Sorosis and Intermediate BPS and the Lone Pine Well, meet the current and projected MDD for the discharge pressure zones. The firm capacity of the Garrison BPS is insufficient to meet the current and projected MDD for the discharge pressure zones. The initial phase firm capacity of the Riverside BPS meets existing MDD demands but is undersized for projected future MDD demands.

5.8.2 Back Up Power Supply

The WSMP recommended performance criteria is for each pressure zone to have at least one BPS that serves it equipped with backup power. The Sorosis BPS is equipped with an onsite standby generator. The Garrison and Intermediate BPS do not have onsite standby generators. The Riverside BPS is planned to be constructed with backup power facilities onsite.

The primary purpose of the Garrison BPS is to provide a pathway for well water to be moved up in the system and supply the higher elevation pressure zones in the case where the finished water transmission lines or Wicks WTP is unavailable. It is recommended that an onsite generator be included as part of any capacity increase project at the Garrison BPS. The Intermediate BPS does not have an onsite generator or any way to connect a portable one. This WSMP recommends, at a minimum, electrical improvements that would allow the connection of a portable generator.

5.8.3 BPS Resilience Considerations

The WSMP facility seismic risk assessment included completing an initial assessment of existing structures using record drawings, and identifying structural upgrades based on the age of the structures and building construction materials for seismic resiliency. Documentation of these assessments, potential changes in

regulatory requirements and other conditions, and recommended approach for future studies to refine the City's understanding of the structural conditions, seismic vulnerabilities, and potential expansions are detailed in **Appendix C**. Recommended BPS architectural improvements are mostly based on good practices for resilient facilities and specifically intended to reduce risk of damage due to wildfire. Electrical recommendations at BPS should be reviewed by the City's contract electrician for endorsement. These electrical improvements may also be considered for improved resilience if equipment is at the end of service life and should be included in any applications for grants based on utility resilience. The recommended improvements and cost estimates are included in the CIP in the Facilities Seismic and Wildfire Resilience Improvements.

5.8.4 BPS Security

The City completed a Risk and Resilience Assessment (RRA) in 2021 that identifies risks and provides recommendations for the system. As part of the WSMP, the RRA was reviewed, and any additional security comments or recommendations were provided. A technical memorandum summarizing the RRA review and additional recommendations will be included with the City's other confidential RRA documents. The primary recommendations for the BPS facilities included physical hardening (fences, locks, lighting) and adding intrusion detection contacts to all facilities that would be tied into the existing SCADA programmable logic controller (PLC).

5.8.5 Summary of BPS Recommended Improvements

Recommended capacity and other improvements associated with the BPS as outlined in the prior sections are summarized below and included in the CIP in **Chapter 7**.

- Garrison BPS Improvements
- Riverside BPS Phase 2
- > Facilities Seismic & Wildfire Resilience Improvements

5.9 Supply Pumping

In addition to BPS, the City also has three groundwater well facilities (Marks, Jordan, and Lone Pine) with two additional facilities under construction (Riverside Wells). Supply capacity evaluation is addressed in **Chapter 4**.

The existing Marks, Jordan, and Lone Pine Wells facilities do not have onsite generators or a way to connect a portable one. This WSMP recommends, at a minimum, electrical improvements that would allow the connection of a portable generator at these three well facilities. It is recommended this be completed in conjunction with other electrical recommendations from the resilience assessment as noted below.

Similar to the BPS, an initial assessment of existing structures using record drawings, and identifying structural upgrades based on the age of the structures and building construction materials for seismic resiliency was completed for the existing three well facilities. Documentation of the assessment and recommendation are detailed in **Appendix C**. Recommended well buildings architectural improvements are mostly based on good practices for resilient facilities and specifically intended to reduce risk of damage due to wildfire. Electrical recommendations at Well facilities should be reviewed by the City's contract electrician for endorsement. These electrical improvements may also be considered for improved resilience if equipment is at the end of service life and should be included in any applications for grants based on utility resilience. The recommended improvements and cost estimates are included in the CIP in the Facilities Seismic and Wildfire Resilience Improvements.

5.10 Storage Analysis

This section summarizes the analysis of the City's storage capacity against the existing system described in **Chapter 1**, the demand projections described in **Chapter 2**, and the performance criteria described in **Chapter 3**. The results of the analyses serve as the basis for capital improvements and capital maintenance of the storage system as described in the CIP in **Chapter 7**. In drinking water systems, adequate storage capacity is necessary to ensure the following.

- > Equalize demand on supply sources, booster pump stations, and transmission mains
- Stable system flow and service pressures
- > Availability of reserve capacity in the distribution system for emergencies
- Reliable "on demand" capacity to meet fire suppression needs

The storage performance criteria described in **Chapter 3** is summarized in **Table 5-8**. The following section analyzes the total required component storage capacity, pressure zone storage capacity, and system storage capacity for existing conditions and conditions over the planning period.

Water System Component	Storage Component	Value	Design Standards/Guideline
Storage	Total Available	Sum of operational, equalization, standby, and	Washington Water
	Storage Capacity	fire suppression storage volumes (does not	System Design
		include seismic or dead storage volumes)	Manual
	Operational	Tank level set points	
		Does not apply to continuous pumping systems	
	Equalization	(PHD - Q _s) * (150 minutes)	
	Standby (Emergency)	1 x MDD	-
	Fire Suppression	Highest required fire flow x flow duration	-
	Seismic Storage	Only required in reservoirs that do not meet	
		seismic code	
	Dead Storage	The volume of storage that is not available at	
		the minimum pressure	

Table 5-8 | Storage Performance Criteria Summary

5.10.1 Operational Storage

Operation of BPS are controlled by water depth in the reservoirs. The pumps start when depths reach a low setpoint and stop when depths reach a high setpoint. The volume between the two setpoints is the operational volume. The setpoints used by the City also include lead and lag pump configurations, but operational storage is based only on lead pump operation as it is assumed that reservoir levels are typically maintained by the lead pump. The setpoints are designed to minimize pump cycling for the typical demand, which may vary by season. Storage capacity should be based on high demand scenarios. The operational storage volume is not expected to increase over the planning period because the operational setpoints are not expected to change with higher demand.

The volume associated with the operation setpoints are summarized in Table 5-9.

Reservoir	Vista	Sorosis	Garrison	Riverside 1 & 2 ¹	Columbia View	Intermediate	
Operational Storage							
Pumps on (ft)	32	22	38	-	23.5	20	
Pumps off (ft)	34.5	26	48	-	28.5	27	
Operational Storage (MG)	0.20	0.43	1.15	0.5	0.50	0.26	

Table 5-9 | Operational Storage Requirements

Note:

1. Operational storage as proposed in draft predesign. Pump operations and setpoints have not been finalized yet.

5.10.2 Equalization Storage

The Washington State Water System Design Manual only requires equalization storage when source pumping does not meet the PHD. **Table 5-10** compares the total supply capacity for each reservoir with its allocated PHD. For Sorosis and Garrison Reservoirs, typical peak season Wicks WTP supply capacity was split between the two reservoirs – first meeting the PHD needs of Sorosis and then Garrison. The total supply assumed for the Riverside Reservoirs 1 & 2 includes the design criteria of the Riverside BPS and capacities of Marks and Jordan Wells. Marks and Jordan Wells discharge to the 460 Pressure Zone which has PRV connections to the 310 zone where the Riverside Reservoirs are to be located. Marks and Jordan Wells supply were attributed to the Riverside Reservoirs because the Wicks WTP supply is sufficient to provide PHD for the zones served by the Sorosis and Garrison Reservoirs.

Reservoir	Reservoir Vista S		Garrison Riverside 1 & 2		Columbia View	Intermediate
Equalization Storage						
PHD (gpm)						
Existing, 2024	955	734	1,111	4,377	579	246
10-year, 2034	10-year, 2034 1,038 79		1,208 9,273		629	268
20-year, 2044	1,132	870	1,317	9,553	686	292
Total Supply, Qs (gpm)	2,250	870	1,561	6,850	3,000	2,100
Equalization Storage (MG	i)					
Existing, 2024	0	0	0	0.00	0	0
10-year, 2034	0	0	0	0.36	0	0
20-year, 2044	0	0	0	0.41	0	0

Table 5-10 | Equalization Storage Requirements

The total supply for each reservoir is larger than the PHD for each reservoir, except the Riverside Reservoirs. The approximate required equalization storage capacity for the Riverside Reservoirs is as follows.

- > 2034: 0.36 MG
- ➢ 2044: 0.41 MG

5.10.3 Standby (Emergency) Storage

As stated in the performance criteria, it is recommended the City use 1 day x MDD as the required standby storage component. Overall, this aligns with the method of calculation described in the Washington State Water System Design Manual for standby storage but does not require the use of equivalent residential unit (ERU) to calculate because system demands were not specifically evaluated on a ERU basis for the

DRAFT

WSMP. The major industrial customer in the Riverside service area has private onsite storage that reduces the volume needed for standby storage. This private storage has been accounted for in the calculations below. **Table 5-11** summarizes the standby storage requirements for each reservoir based on the MDD of the zones served.

Reservoir	Vista	sta Sorosis Garrison Ri		Riverside 1 & 2	Columbia View	Intermediate		
Standby (Emergency) Storage								
MDD (gpm)								
Existing, 2024	732	562	852	3.354	443	189		
10-year, 2034	796	611	926	7,106	482	205		
20-year, 2044	867	667	1009	7,321	526	224		
Onsite Industrial Facility Storage (MG) ¹	-	-	-	2.5	-	-		
Duration, Td (days)	1	1	1	1	1	1		
Standby Storage (MG)								
Existing, 2024	1.05	0.81	1.23	2.33	0.64	0.27		
10-year, 2034	1.15	0.88	1.33	7.73	0.69	0.30		
20-year, 2044	1.25	0.96	1.45	8.04	0.76	0.32		

Table 5-11 | Standby Storage Requirements

Note:

1. Based on discussions with City staff, private onsite storage has been included in the calculation of standby storage requirements.

5.10.4 Fire Suppression Storage

Each pressure zone was analyzed for the land use with the highest fire flow requirement. Refer to **Figure 5-3** for land use designations and assigned fire flow. Vista, Sorosis, and Columbia View pressure zones do not include commercial or industrial land use areas. Land use designations and fire flow requirements are not expected to change over the planning period. **Table 5-12** summarizes the land use and maximum fire flow requirement for each pressure zone.

Reservoir Vist		Sorosis	Garrison	Riverside 1 & 2	Columbia View	Intermediate		
Fire Suppression Storage								
Highest fire flow zoning	MDR	MDR	Com/Ind	Com/Ind	MDR	Com/Ind		
Fire flow requirement (gpm)	2,000	2,000	3,000	3,000	2,000	3,000		
Duration (min)	120	120	180	180	120	180		
Fire Suppression Storage (MG)	0.24	0.24	0.54	0.54	0.24	0.54		

Table 5-12 | Fire Suppression Storage Requirements

5.10.5 Seismic Storage

A seismic analysis was completed in 2014 for the Sorosis, Garrison, Columbia View, and Intermediate Reservoirs (**Appendix C**). The report provides recommendations on overflow elevations for the reservoirs accounting for seismic risks. The overflow elevations for the Sorosis and Columbia View Reservoirs have been adjusted to these recommendations. The Garrison and Intermediate overflow elevations have not yet, but the City intends to in the future. For this evaluation, the recommended overflow elevations have

DRAFT

been assumed for these four reservoirs. The Vista Reservoir had been built recently when the seismic evaluation was completed and was designed to include seismic considerations, so additional storage is not required. The Riverside Reservoirs are assumed to be designed with seismic considerations and additional storage will not be needed.

5.10.6 Dead Storage Capacity

The outlet pipe elevation for all reservoirs is generally located at or near the reservoir floor. Required dead storage for the reservoirs is based this outlet elevation or maintaining a minimum pressure of 20 psi at the highest elevation in the pressure zone, whichever is greatest. **Table 5-13** summarizes the reservoir base elevations, dead depths, max service elevations, minimum tank elevation for 20 psi at highest service, and required dead storage for each reservoir.

Reservoir	Vista	Sorosis	Garrison	Riverside 1 & 2 ¹	Columbia View	Intermediate							
Dead Storage													
Base Elevation (ft)	750.5	630.5	408	-	602	325							
Dead depth (ft)	0	1	0.5	_	1	0							
Max service elevation (ft)	600	580	347	195	562	185							
Min tank elevation for 20 psi (ft)	646	626	393	n/a	608	231							
Dead Volume (MG)	0.00	0.11	0.06	0.00	0.61	0.00							

Table 5-13 | Dead Storage Capacity Summary

Note:

1. Riverside Reservoirs will be pumped storage so no dead volume is assumed be zero.

5.10.7 Summary of Total Storage Capacity Requirements

The individual component storage requirements were combined into the total required storage for each reservoir and the pressure zones they serve. These required storages were compared to the available storage and a storage surplus/deficit for each reservoir was calculated. **Table 5-14** summarizes the required storage capacity, available capacity, and associated surplus or deficit for each reservoir and associated pressure zones. For a system wide evaluation, backup PRV connections between pressure zones typically served by separate reservoirs should be considered. Each calculated deficit in a reservoir is offset or supplemented by other connected storage, as described below.

- Deficits in the Riverside 1 & 2 Reservoirs are offset by approximately 2.47 MG of storage surplus in the Garrison Reservoir as this is additional gravity storage available from a higher elevation through connecting PRVs.
- Deficit in the Intermediate Reservoir are offset by approximately 0.65 MG of surplus storage in the Columbia View Reservoir which is at a higher elevation and connected through PRVs.

The overall storage analysis shows a deficit of approximately 4.5 MG in the Riverside Reservoirs service area in the 2044 planning horizon. It is recommended that additional storage be built to serve the 310 Zone in the 20-year planning horizon.

Reservoir	Vista	Sorosis	Garrison	Riverside 1 & 2	Columbia View	Intermediate	
Storage Requirements (MG)							
Operational Storage	0.20	0.43	1.15	0.50	0.50	0.26	
Equalization Storage							
Existing, 2024	0	0	0	0	0	0	
10-year, 2034	0	0	0	0.36	0	0	
20-year, 2044	0	0	0	0.41	0	0	
Standby Storage ¹							
Existing, 2024	1.05	0.81	1.23	2.33	0.64	0.27	
10-year, 2034	1.15	0.88	1.33	7.73	0.69	0.30	
20-year, 2044	1.25	0.96	1.45	8.04	0.76	0.32	
Fire Suppression Storage	0.24	0.24	0.54	0.54	0.24	0.54	
Total Required Storage (MG)							
Existing, 2024	1.49	1.48	2.92	3.37	1.37	1.07	
10-year, 2034	1.58	1.55	3.02	9.14	1.43	1.10	
20-year, 2044	1.69	1.63	3.15	9.49	1.49	1.13	
Storage Available (MG)							
Available Storage	2.77	2.64	5.62	2.56	2.14	0.94	
Storage Surplus/Deficit (MG)						·	
Existing, 2024	1.28	1.17	2.70	1.66	0.77	0.52	
10-year, 2034	1.18	1.10	2.59	-6.58	0.71	0.49	
20-year, 2044	1.08	1.02	2.47	-6.93	0.65	-0.19	
Higher HGL Reservoir/s Surplus (MG)	-	-	-	2.47	-	0.65	
20-year, 2044 Adjusted (MG)	1.08	1.02	0	-4.46	0	0.46	

Table 5-14 | Storage Capacity Analysis

Note:

1. Based on discussions with City staff, private onsite storage has been included in the calculation of standby storage requirements.

5.10.8 Reservoir Seismic Considerations

No new analyses of reservoirs condition or seismic considerations were conducted during this WSMP update, but a summary of the 2014 seismic assessment completed previously was completed. As noted previously, the assessment reviewed four of the City's AWWA D100 carbon steel reservoirs: Sorosis, Garrison, Intermediate, and Columbia view Reservoirs. The complete study and additional summary information is included in the technical memorandum in **Appendix C**. Minor recommended seismic improvements for the four reservoirs are included in the CIP in the Facilities Seismic and Wildfire Resilience Improvements.

5.10.9 Reservoir Security

As noted in the BPS evaluation section, review of the existing RRA and additional recommendations were completed for the master plan (the technical memorandum completed will be added to the City's confidential RRA documents). The primary recommendations for the reservoir facilities included physical

hardening (fences, locks, lighting) and adding intrusion detection contacts to all hatches on reservoirs that would be tied into the existing SCADA programmable logic controller (PLC).

5.10.10 Reservoir General Conditions and Operations

A site visit was completed to the Sorosis, Garrison, and Intermediate Reservoirs during the WSMP. General conditions and operations of all five reservoirs were discussed with City staff. Deficiencies and operational challenges noted include the following,

- Garrison Reservoir is in need of recoating and relining but there is no operational method to take the reservoir offline for maintenance.
- When Sorosis Reservoir is offline, a vulnerability in the system is created due to lack of redundancy for the operating systems in place.
- Vista Reservoir cannot be taken offline without loss of pressure in some of the higher service elevations.

All of the City's five reservoirs are of welded steel construction. The Riverside Reservoirs are proposed to be welded steel construction as well. If tank coatings are well maintained, the anticipated life expectancy of a welded steel tank could exceed 50 years. The failure of interior and exterior coatings can lead to steel plate pitting and structural steel deterioration. Coating inspections will examine dry film thickness, lead based paint detection, adhesion tests, and a visual inspection. Reservoirs are recommended to undergo coating inspections every five years. Inspections of the tank interior may require taking the reservoir out of service or a dive inspection.

Operational challenges noted for the reservoirs are discussed in more detail in **Section 5.12**.

5.10.11 Summary of Reservoir Recommended Improvements

The City's storage system meets the specified performance criteria for normal operation and emergency conditions through reservoir storage and redundant systems for existing demands. However, a deficit of approximately 4.5 MG is anticipated in the 10- and 20-year planning horizons for the Riverside Reservoir service area (310 Zone) to serve future development. Additional Riverside storage is recommended and included in the CIP.

Minor seismic improvements were recommended in the 2014 assessment. The recommendations that have not been completed yet are included in the CIP as part of a larger Facilities Seismic Improvements project. This WSMP also recommends re-coating the interior and exterior of the Garrison Reservoir within the 20-year planning horizon following system improvements noted in **Section 5.12.1** to allow the reservoir to be taken offline.

Cost estimates and schedules for recommended reservoir improvement projects are summarized below and included in the CIP in **Chapter 7**.

- Riverside Storage Phase 2
- > Facilities Seismic and Wildfire Resilience Improvements
- Garrison Reservoir Recoating and Lining

5.11 Distribution SCADA Considerations

The City's SCADA system has reached end of useful life and requires upgrades to current technology and incorporation of certain security features which have become required by the US Environmental Protection Agency (EPA) cybersecurity regulations since the last generation of upgrades were performed over 20 years ago. A technical memorandum summarizing the work currently underway and work required to provide an upgraded and secure SCADA system is included in **Appendix C**. The SCADA improvements have been separated into two phases – Phase 1 is the Wicks WTP and Phase 2 is the distribution system. These recommendations have been included in the CIP. Phase 2 planning and engineering are anticipated to begin in 2025 with the facilities intended to be operational by late 2027.

5.12 Distribution Operational Challenges

Based on discussions with City staff, a number of operational challenges and recommendations are described below.

5.12.1 Garrison Reservoir

Currently, the Garrison Reservoir cannot be easily taken offline due to lack of operating systems. Under normal operating conditions, the existing Mill Creek Line transmission main does not directly feed the 460 Zone. Operators are concerned with over pressurizing the transmission main and causing failures and/or overflows directly to the creek if control valves were manually adjusted to feed the zone directly from the transmission main. Additionally, there is not an existing pathway to feed the 460 Zone from the Sorosis Reservoir.

There are two recommendations to modify operations and allow the Garrison Reservoir to be more easily taken offline for maintenance. The first is replacement of the existing Mill Creek Line and installation of PRV facilities to allow the 460 Zone to be fed directly from the transmission main. More details and discussion on the transmission lines and recommended replacement are included in the following section. The second recommendation is to install a PRV facility near W 16th Street and Liberty Way to connect the 660W and 460 Zones. There is aging steel pipe both upstream (in the 660W Zone) and downstream (in the 460 Zone) that is recommended to be replaced at the same time as the PRV facility is installed. These steel pipelines have been identified in the top priority category for replacement based on the pipe condition evaluation presented previously. It is recommended the PRV facility be included in the project when these steel pipes are replaced.

5.12.2 Sorosis Reservoir

Currently, there is a vulnerability in the system when the Sorosis Reservoir is taken offline due to a lack of supply redundancy. There is one PRV facility that provides supply to the Sorosis zones and failure of the PRV could result in over-pressuring the High Line causing main failure or loss of pressure in the High Line main and for customers served directly off the main. The High Line transmission main is recommended for replacement due to condition and future capacity limitations. More details and discussion on the transmission lines replacement are included in the following section. Replacement of the High Line is expected to allow for the High Line to directly serve the 660W and subsequently the lower Sorosis zones, which will resolve the vulnerability of the system when Sorosis Reservoir is taken offline.

5.12.3 Vista Reservoir

If the Vista Reservoir is taken offline, there are low pressures in some of the higher elevation service areas. The Sorosis BPS has constant speed pumps and is not able to provide closed zone operations of the Vista service area. Similar to the challenges of taking Sorosis Reservoir offline, the recommended replacement of the High Line will provide some redundancy in supply to the zones and allow for easier operations while performing maintenance on the Vista Reservoir. There is the possibility of providing direct feed to the 786 Zone from the new High Line. Additional discussion is included following section on the transmission lines, and further evaluation is recommended during the design phases. A secondary option to address this vulnerability is to install variable frequency drives (VFDs) at the Sorosis BPS to allow for closed zone operation of the Vista service area when the reservoir is offline. A CIP project has been included to add VFDs to the Sorosis BPS as a conservative approach to addressing the operating challenge. If the transmission line design evaluation indicates that the 786 Zones and lower can be fed directly from the new High Line, installing VFDs at the Sorosis BPS may not be necessary. The priority of these CIPs is aligned so that design details can be used to inform the projects as necessary.

5.12.4 Winter Operations of Columbia View Service Area

The Columbia View Reservoir and Intermediate BPS are taken offline in the winter due to lower demands and water stagnation challenges with Lone Pine Well not running. Under these operating conditions, there is only one hydraulically operated PRV facility (at E 18th Street and Morton St) that provides supply to the Columbia View service area. In addition, the operations and maintenance efforts required to take Columbia View Reservoir offline and put it back online take significant time and effort from the operations staff. It is recommended that SCADA control be added to the E 18th Street and Morton St PRV facility which would allow the Columbia View Reservoir to remain online year-round by operating the PRV based on the reservoir level. This allows for regular turnover of the reservoir volume and eliminates the water stagnation challenge of existing operations. A CIP project has been included to add SCADA and power to the PRV facility. This project should be designed and completed in conjunction with the distribution system SCADA improvements described in **Section 5.11** and planned to begin in fiscal year 25/26.

5.12.5 352 Zone PRVs

The PRV facility that provides backup supply to the 352 Zone from the 660E Zone experiences significant cavitation when open under current operations. This is particularly challenging if trying to take the Intermediate Reservoir offline. It is recommended operations staff consult with the valve manufacturer to evaluate if a specialty anti-cavitation valve trim would alleviate this issue or if a second PRV facility in series is recommended. This improvement is expected to be a low-cost solution and would be paid for from the annual operations budget.

5.12.6 395 Zone Sediment Buildup

City staff have noted some sediment buildup in the 395 Zone. The zone is long with relatively low demands/flows which can result in lower velocities and potential for solids to settle out of water. The sediment is believed to be iron and manganese from Marks and/or Jordan Well water that precipitates out with chlorination when the wells are in operation. The City has iron sequestration equipment at both wells which reduces precipitation within the distribution system. The operations staff also perform additional flushing in the zone to remove sediment buildup. Currently, both iron and manganese are secondary contaminants and only cause aesthetic water quality challenges. With the other priorities the water system is facing, it is recommended the City continue to current operations and monitor the water quality. If the

issue gets worse or the regulation for either contaminant changes to a primary contaminant, the City will want to re-evaluate if additional treatment is warranted. The City has seen success at the Discovery Center Well outside of town with a filtration system and could consider installing at Marks and Jordan Wells at that time.

5.13 Finished Water Transmission Lines

The two finished water transmission lines - the High Line and the Mill Creek Line – were both originally installed approximately 50 years ago. The original High Line pipe is 14-inch diameter welded steel; some sections have been replaced with 20-inch diameter ductile iron. The Mill Creek Line original pipe is 12-inch diameter welded steel; some sections have been replaced with 20-inch diameter ductile iron.

There are continued concerns with the conditions, resilience, and operations of the existing transmission lines. The 2006 WSMP highlighted these concerns and recommended the replacement of the transmission lines. Segments of both lines operate in an open-channel condition by controlling the flow rate entering the pipelines at the upstream WTP clearwell. If the upstream valve were fully opened or the downstream valves were closed or partially closed so that either line was allowed to flow fully under pressure, there is a risk of failures in pipe in areas of high pressure. The City operators have developed routine minimum and maximum flows and flow adjustment requirements for each line to protect the integrity of the lines and minimize the potential for damage to the lines from pressure/vacuum surges.

Additionally, the existing lines provide an approximate capacity of 7.5 MGD. As recommended in the Wicks WTP improvements and long-term supply analysis (see **Chapter 6** and **Chapter 4** for more discussion), the Wicks WTP is recommended to be upgraded to a larger capacity. These improvements will make the existing transmission lines undersized.

The 2006 WSMP evaluated the option to replace the transmission lines with two separate lines (matching existing) or with a single line. Providing transmission redundancy would be one of the main reasons for two separate lines. However, during the 1996 floods, both pipelines were damaged at creek crossings. The 2006 WSMP recommended replacing the transmission lines with a single pipe because two lines provides only limited redundancy and is much more expensive. There has been nothing since the previous analysis that would suggest the City should reconsider or re-evaluate two separate lines. The continued recommendation is for the transmission lines to be replaced with a single pipeline designed to reduce the risk of failures at creek crossings and to seismic standards.

There are a handful of components and options that should be considered during the predesign and design of the replacement transmission line. These include,

- The existing transmission main alignments should be assessed for options to improve O&M and/or constructability for the new transmission main, such shifting alignment within public rights of way where possible and optimal creek crossing locations.
- Design for high operating pressures (back pressure) along portions of the lines. The new transmission lines are recommended to be controlled on the inlet side of the City reservoirs (current operations control flow at the WTP clearwell outlet). This change in operational control could result in typical operating pressures of upwards of 270 psi in portions of the transmission line. Typically, pipeline material and specifications are different for pipelines with operating pressures at or above 250 psi. Typical operating pressures along the proposed new lines should be evaluated and portions with expected high operating pressures (250 psi or greater) should be designed accordingly.

- Existing services on the current transmission lines. Each transmission line serves a limited number of customers on properties adjacent to the pipeline alignments. Most of these services were granted many years ago in exchange for having the customers provide pipeline easements while others have been authorized more recently. These connections should be evaluated as part of the design process to provide optimal service and operations for the City and existing customers.
- Opportunity for energy recovery along the new main. A screening-level desktop study of potential energy recovery (in-conduit hydropower) in the new transmission main was completed as part of the WSMP. The technical memorandum describing the evaluation can be found in Appendix C. The recommendation is to complete a more detailed evaluation during the transmission line design process to understand if there are local drivers and funding opportunities at that time to pursue the project further.
- Potential to serve the 786 Zone directly. At a high-level, it appears there is potential to feed the 786 Zone directly from the new High Line during many operating scenarios. This could provide energy savings for the City by significantly reducing the operating time of the Sorosis BPS. This should be further evaluated and pursued if found feasible during the design phases of the transmission lines.
- Direct feeds to 460 and 660E Zones. As noted in the pervious section, taking Garrison or Sorosis Reservoirs offline for maintenance is challenging with the existing operations of the transmission lines. The lines are not designed or controlled to directly feed the distribution zones. Replacement of the transmission lines design should include facilities and controls to allow direct feed of the 460 and 660E Zones.

Replacement of the finished water transmission lines is included in the CIP and estimated to cost \$47,320,000. It is recommended the design start during the latter part of the Wicks WTP improvement projects so that operation of the new plant and transmission line can coincide for capacity and reliability purposes.

CHAPTER 6

Wicks WTP Analysis

6.1 Purpose

The Wicks WTP existing condition and alternatives for expansion were assessed as part of this WSMP process. The conditions and analysis are summarized in **Appendix D**. The results of the analyses serve as the basis for capital improvements and capital maintenance of the Wicks WTP as described in the CIP in **Chapter 7**.

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 7

Capital Improvement Plan

7.1 Purpose

This chapter summarizes the recommended water system improvements that are described in previous chapters into a Capital Improvement Plan (CIP) for the water system. The recommended improvements will correct system deficiencies associated with the performance criteria described in **Chapter 3** for the existing and future demand projections described in **Chapter 2**.

All recommended improvements are intended to serve existing development and planned growth that occurs within the service area. Projects that also increase system capacity may be eligible for System Development Charges (SDCs). Project cost estimates are presented for all recommended improvements.

7.1.1 System Development Charges

The SDC methodology, calculations, and project cost eligibility are also discussed in more detail in **Chapter** 8.

7.1.2 Prioritization and Scheduling

Through the analysis, identification of existing and future deficiencies and discussion with City staff, priorities were given to each project based on timing of need and consideration of the overall CIP needs on an annual basis. Improvements recommended during FY 24/25-FY 28/29 (years 1-5) are considered short-term projects, projects identified for FY 2030-FY 2044 (years 6-20) are considered medium-term projects, and those beyond the 20-year planning horizon are considered long-term improvements.

7.2 Cost Estimating Data

An estimated project cost has been developed for each recommended CIP project. The Association for the Advancement of Cost Engineering (AACE) classifies cost estimates depending on project definition, end usage, and other factors. The cost estimates presented in this document are considered Class 5 with an end usage being a study or feasibility evaluation and an expected accuracy range of -50 percent to +100 percent. As the projects are better defined the accuracy level of the estimates can be narrowed. The estimated planning level cost for each project includes construction, engineering, and contingencies and is presented in 2024 dollars. Since construction costs change periodically, an indexing method to adjust present estimates in the future is useful. The Engineering News Record Construction Cost Index is commonly used for this purpose (August 2024, 20-City ENR CCI = 13,593.65).

7.3 Capital Improvement Program

Based on the analysis of the water system's source, treatment, transmission, and distribution facilities presented in previous chapters, system-wide recommended improvements have been developed into the CIP. A brief description of each project is included below.

Wicks WTP SCADA Improvements (Phase 1) – This project includes planned SCADA improvements at the existing Wicks WTP to replace equipment that is beyond its useful life, upgrade to current technology, and incorporate certain security features which have become required by the US EPA cybersecurity regulations since the last generation of upgrades were performed over 20 years ago. SCADA system replacement is a priority and needed for continued, reliable, and resilient control system equipment.

- Wicks WTP Replacement and Expansion This project includes design and construction of a new WTP on the existing site with expanded capacity of approximately 9.5 MGD. The new WTP is needed due to age and condition of the existing Wicks WTP and to provide expanded capacity for future demands. The new expanded WTP will incorporate improved water clarification and filtration processes to maximize treatment capacity across a wide range of water temperature and turbidity levels. The project includes short-term improvements, pilot studies and predesign, followed by three design and construction phases. See Appendix D for further details.
- 18th & Morton PRV Control Upgrades This project includes adding SCADA control to the PRV facility at E 18th & Morton Streets. This project addresses current winter-time operational challenges and maintenance and would allow the Columbia View Reservoir to be kept online year-round. This project should be coordinated with the Distribution System SCADA Improvements (Phase 2) project.
- Distribution System SCADA Improvements (Phase 2) This project is the second phase of systemwide SCADA improvements to replace equipment past useful life and incorporated improved security measures at water system facilities including pump stations, reservoirs, and wells. It is expected that the wastewater fund will be used to pay for half of project costs as the improvements benefit both utilities. The cost included in the CIP represents the portion to be funded by the water utility.
- > Aquifer Storage and Recovery (ASR) Program
 - Artificial Groundwater Recharge (AR) License This project allows the City to apply for an AR limited license or permit using South Fork Mill Creek (SFMC) as the source of supply. Obtaining a limited license or permit for AR would increase the maximum rate the City is authorized to divert winter flows on SFMC beyond the City's existing water right for that source. If approved, this supply would be used and operated in conjunction with the ASR program and facilities.
 - ASR Expansion Planning The City has pilot and testing plans for the new ASR facilities that will begin operations in early 2025. This project would develop an ASR Expansion Plan based on the findings of the initial pilot and testing data. This plan would evaluate future options for expansion of the ASR Program, how it fits into the City's overall supply system, and recommendations for ASR operations and facilities.
 - Additional ASR Wells After the Wicks WTP and transmission line capacities are expanded, it is likely that in an average streamflow year the available water for ASR could exceed the current design capacity of the Riverside ASR facilities. Assuming that initial operations and testing results of the ASR facilities are positive, it is likely that the ASR Expansion Planning will identify the need for additional ASR wells to optimize the volume of water stored and utilized by an ASR Program. This project assumes the need for design and construction of two additional ASR wells. The scope and size of this project could change based on recommendations from the ASR Expansion Plan and should be adjusted as needed at that time.

- Facilities Seismic & Wildfire Resilience Improvements This project groups together recommended improvements at existing water system facilities including booster pump stations, wells, and reservoir facilities to improve seismic resilience and reduce risk of wildfire damage to facilities.
- Crow Creek Dam Seismic Evaluation and Emergency Action Plan (EAP) This project would update seismic and flood studies on the Crow Creek Dam to be consistent with current State of Oregon Dam Safety Program guidelines. These studies will provide initial analyses as a screening exercise to confirm adequate or unacceptable performance, and document data needs for more in-depth analyses should it be determined that the dam has an unacceptable performance. This project assumes a desktop study and site visit, without additional field data collection. Additionally, this project would include an update to the EAP for the dam as it is classified as a high hazard.
- Finished Water Transmission Main This project would replace the existing finished water transmission mains to address condition, reliability, and capacity concerns. The project includes design and construction of a single, resilient 24-inch diameter transmission main from the Wicks WTP clearwell to the distribution system with split discharge piping to the Garrison and Sorosis Reservoirs. During the predesign, it is recommended in-conduit hydropower be evaluated for the new transmission main design.
- Sorosis BPS Variable Frequency Drives (VFDs) This project would add VFDs at the Sorosis BPS to address the vulnerability of potential for low pressures in some of the higher elevation service areas if the Vista Reservoir is taken offline. VFDs at Sorosis BPS would allow closed zone operation of these areas if this situation arises. There is potential this vulnerability may be addressed with the new finished water transmission main and need for this project should be re-evaluated after design of the transmission main.
- Crow Creek Dam Updated Concept Design The last study completed on a Crow Creek Dam expansion and spillway improvement project was in 1996. Given changes to regulations, dam design and safety practices, and construction costs in the past 20 years; this project would complete an updated concept design for the Crow Creek Dam Expansion. The 1996 concept design may need to be significantly reformulated to conform with current Dam Safety Rules. Evaluation of spillway improvements with or without a dam raise at the same time should be evaluated as part of the updated concept design.
- Planning Updates With the magnitude of projects identified in this CIP and potential for changes in demand projection timing and supply system unknowns, it is recommended a master plan update be completed every 5 years. The primary focus of the update should be the existing water usage, projected demands, and re-evaluating and prioritizing needs for the system to continue to provide safe, resilient drinking water to the customers. It is recommended to update the WMCP and financial evaluation on the same timeline.
- Distribution Pipe Renewal & Replacement An annual renewal and replacement program for the distribution system can reduce the risk and high costs of responding to and repairing pipe breaks. An ongoing program allows the City to continue to invest in its distribution piping infrastructure and provide the desired level of service. Priorities for replacement are summarized in the Pipe Condition Assessment (see Section 5.7). The level of annual funding proposed in the CIP establishes a baseline for the City to replace high-priority pipes over the next 50 years.
- Short-Term Distribution Piping Improvements These projects include the design and construction of recommended pipe improvements to increase fire flow capacity in the distribution system.

Short-term distribution system projects include approx. 7,700 linear feet of pipe ranging from 8-inch to 12-inch diameter.

- Riverside BPS Phase 2 This includes design and construction of Riverside BPS Phase 2 to increase pumping capacity to match increasing demands in the 310 Pressure Zone.
- Riverside Storage Phase 2 This project includes the design and construction of a 4.5 MG reservoir to increase storage serving the 310 Pressure Zone with increases in demands.
- Garrison Reservoir Recoating & Lining This project includes spot repair and overcoat of the exterior coating and full removal and replacement of the interior lining of the Garrison Reservoir.
- Garrison BPS Improvements This project includes the design and construction of an expanded Garrison BPS to provide reliability and redundancy for supply to the upper reservoirs and pressure zones within the system in the event that surface water supply to the Sorosis Reservoir is disrupted.
- Medium-Term Distribution Piping Projects These projects include the design and construction of recommended pipe improvements to increase fire flow capacity in the distribution system as growth occurs. Medium-term distribution system projects include approx. 18,000 linear feet of pipe ranging from 8-inch to 16-inch diameter.
- Long-Term Distribution Piping Projects These projects include the design and construction of recommended pipe improvements to increase fire flow capacity in the distribution system as growth occurs. Long-term distribution system projects include approx. 53,000 linear feet of pipe ranging from 8-inch to 12-inch diameter.
- Crow Creek Dam Expansion Includes design and construction of a Crow Creek Dam raise. Additional raw water storage is part of the City's plan to meet long-term supply needs. The project cost estimate presented in this section is based on a higher degree of uncertainty and lower level of project definition than the remaining estimates given the long-range nature of this project and the need for updated conceptual designs identified earlier in the CIP.
 - Crow Creek Dam Spillway Improvements Spillway improvements are recommended regardless of a dam raise as the existing spillway is undersized for current conditions and regulatory requirements. The spillway improvements options with or without a dam raise should be evaluated as part of the Crow Creek Dam Updated Concept Design, so that these improvements are coordinated with any future dam expansion.

Table 7-1 summarizes the estimated project costs in 2024 dollars and recommended schedule over the study period for the recommended CIP. The estimated total 20-year CIP is \$205.2 million. For the long-term, 50-year supply and distribution system renewal and replacement, there are \$151.3 million of additional capital improvements beyond the 20-year planning horizon. **Table 7-2** summarizes estimated project costs for the 20-year CIP based on the recommended schedule and an assumed annual inflation rate of 3%.

Table 7-1 | Capital Improvement Plan (CIP) in 2024 Dollars

Project Type	Project Name	Total Project Cost	Year 0		5-Year					6-10 Year					11-20	Year					20-50 Year
Project Type	Project Name	Total Project Cost	FY 24/25	FY 25/26 FY 26/27	FY 27/28	FY 28/29	FY 29/30	FY 30/31	FY 31/32	FY 32/33 FY 33/34	FY 34/35 FY 35/36	FY 36/37	FY 37/38	FY 38/39 FY	Y 39/40	FY 40/41	FY 41/42	FY 42/43	FY 43/44	FY 44/45	FY 45/46-75/76
Other	Carryover Projects Budget	\$ 402,000	\$ 402,000																		
Supply	Wicks WTP Replacement and Expansion	\$ 74,909,000		\$ 3,602,000 \$ 3,143,000	\$ 14,005,000 \$	4,849,000	\$ 4,849,000	\$ 12,935,000	\$ 21,018,000	\$ 10,508,000											
Supply	Artificial Groundwater Recharge (AR)	\$ 250,000		\$ 250,000																	
Supply	License	\$ 230,000		\$ 250,000																	
Supply	ASR Expansion Planning	\$ 250,000		\$ 250,000																	
Supply	Additional ASR Wells	\$ 6,400,000			\$	300,000	\$ 3,100,000	\$ 3,000,000													
Supply	Crow Creek Dam Update Concept Design	\$ 660,000			\$ 660,000																
					+,																
Supply	Crow Creek Dam Expansion and Spillway	\$ 70,340,000												\$ 2	.122.000	\$ 2.122.000	\$ 2,122,000	\$ 2.122.000	\$ 2.122.000		\$ 59,730,000
	Improvements														,,	+ _,,	+ _,,	+ _,,	+ _,,		+,,,
Transmission	Finished Water Transmission Main	\$ 47,320,000						\$ 7,530,000	\$ 19,895,000	\$ 19,895,000											
Storage	Garrison Reservoir Recoating & Lining	\$ 2,500,000									\$ 1,250,000 \$ 1,250,000										
BPS	Garrison BPS Improvements	\$ 4,424,000									\$ 700,000 \$ 3,724,000	כ									
BPS	Riverside BPS Phase 2	\$ 1,600,000						\$ 210,000	\$ 1,390,000												
Storage	Riverside Storage Phase 2	\$ 16,590,000					\$ 2,625,000	\$ 13,965,000													
Operations		\$ 200,000		\$ 200,000																	
Operations		\$ 250,000						\$ 250,000													
SCADA	Wicks WTP SCADA Improvements (Phase	\$ 2,000,000	\$ 1 370 000	\$ 630,000																	
00,10,1	1)	\$ 2,000,000	\$ 1,57 0,000	¢ 000,000																	
SCADA	Distribution System SCADA	\$ 1,645,000		\$ 1,000,000 \$ 322,500	\$ 322.500																
	Improvements (Phase 2)	- 1,0+5,000		- 1,000,000 - 522,500	- 522,500																
Seismic &	Facilities Seismic & Wildfire Resilience	\$ 2,575,000		\$ 515,000	\$ 515,000 \$	515 000	\$ 515,000	\$ 515 000													
Resilience	Improvements	\$ 2,373,000		<i>\$</i> 515,000	φ 515,000 φ	515,000	\$ 515,000	<i>y</i> 515,000													
Seismic &	Crow Creek Dam Seismic Evaluation and	\$ 425,000			\$ 425,000																
Resilience	EAP	÷ +25,000			Ş 423,000																
Other	In-Conduit Hydropower Feasibility Study	\$ 100,000						\$ 100,000													
Other	In-conduit Hydropower Feasibility Study	\$ 100,000						\$ 100,000													
Distribution Pipe	LT-1: River & Columbia Rds	\$ 1,590,000																			\$ 1,590,000
Distribution Pipe	LT-10: Thompson & 10th St	\$ 3,120,000																			\$ 3,120,000
	LT-11: Old Dufur Rd & 9th, 10th, and	\$ 3.800.000																			ć 2,000,000
Distribution Pipe	12th St	\$ 3,800,000																			\$ 3,800,000
Distribution Pipe	LT-12: 10th, 13th, & 14th St	\$ 1,290,000																			\$ 1,290,000
Distribution Pipe	LT-13: Sorosis Park & 18th St	\$ 1,450,000																			\$ 1,450,000
Distribution Pipe	LT-14: Garrison St, Scenic Dr, & 16th St	\$ 2,120,000																			\$ 2,120,000
Distribution Disc	LT-2: Highway 30 - Myrtle to Cherry	ć 4 700 000																			¢ 4 700 000
Distribution Pipe	Heights	\$ 4,780,000																			\$ 4,780,000
Distribution Pipe	LT-3: W 6th St to 3rd St	\$ 3,810,000																			\$ 3,810,000
		\$ 1,880,000																			\$ 1,880,000
Distribution Pipe	LT-5: 8th, 10th, & Webber St	\$ 2,660,000																			\$ 2,660,000
	LT-6: Webber, 2nd, 1st St & off Bargeway																				
Distribution Pipe	Rd	\$ 3,310,000																			\$ 3,310,000
Distribution Pipe	LT-7: 6th, 7th, & Lincoln St	\$ 1,660,000																			\$ 1,660,000
	1T-8: Boat Launch Fire Rd Washington																				
Distribution Pipe	Federal, & Madison St	\$ 3,570,000																			\$ 3,570,000
Distribution Pipe		\$ 1,970,000																			\$ 1,970,000
	MT-1: W/15th St from Liberty to Trevitt																				+ _,,
Distribution Pipe	St	\$ 1,420,000										\$ 1,420,000									
	MT-2: W 14th St from Liberty to Trevitt																				
Distribution Pipe	St	\$ 1,030,000											\$ 1,030,000								
	MT-3: W/E 14th St from Liberty to Short																				
Distribution Pipe	St	\$ 1,050,000												\$ 1,050,000							
	MT-4: E 13th St Federal to Kelly St, 16th																				
Distribution Pipe	St west of G St	\$ 1,690,000												\$ 1	,690,000						
Distribution Pipe	MT-5: W/E 13th St & E 11th St	\$ 1,410,000														\$ 1,410,000					
	MT-6: G to I St between E 11th & 12th St																\$ 640,000				
	MT-7: E 13th, 14th, & 16th east of																				
Distribution Pipe	Riverview St	\$ 1,660,000																\$ 1,660,000			
Distribution Pine	MT-8: W 9th St, E 7th & 9th St, Kelly Ave	\$ 1,720,000																	\$ 1,720,000		
	ST-1: E 12th St, Riverview St, E 17th St, &																		- 1,. 20,000		
Distribution Pipe	H St	\$ 2,330,000			\$	2,330,000															
	ST-2: W15th St & Trevitt St, Bridge St at																				
Distribution Pipe	W 16th St	\$ 720,000			\$	720,000															
Distribution Pino		\$ 1,150,000			ć	1,150,000															
Distribution Pipe	ST-4: Diagonal off Cherry Heights Rd & W	, 1,130,000			Ş	1,130,000															
Distribution Pipe	10th St	\$ 250,000			\$	250,000															
Popowal 9																					
Renewal &	Distribution Pipe Renewal &	\$ 69,000,000	\$ -	\$ 250,000 \$ 250,000	\$ 250,000 \$	250,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000 \$ 500,00	0 \$ 1,000,000 \$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000 \$ 1	,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 54,500,000
	Replacement					200.000				A 750.00	0			¢ 200.000					ć 750.000		
Replacement	Master Dian Lindator				\$	200,000				\$ 750,00	U			\$ 200,000					\$ 750,000		
Replacement Planning		\$ 1,900,000								a	0			¢ ======					A		
Replacement Planning Planning	WMCP Updates	\$ 400,000			\$	50,000				\$ 150,00				\$ 50,000					\$ 150,000		
Replacement Planning		\$ 400,000 \$ 200,000		\$ 5,932,000 \$ 4,480,500	\$	50,000				\$ 50,00	0			\$ 50,000					\$ 50,000		

Notes:

CONSOR's construction cost estimate (estimate) is in 2024 dollars. This estimate is an opinion of probable cost based on information available at the time of its development. Final costs will depend on actual field conditions, actual material and labor costs, market conditions for construction, regulatory factors, final project scope, method of implementation, schedule, and other variables. This estimate is based on our perception, which is based on experience and research, yet nevertheless, an assessment of current conditions at the project location. This estimate reflects our professional opinion of current costs and is subject to change as the project design evolves. CONSOR has no control over, nor can it forecast variances in the cost of labor, materials, equipment; nor services provided by others, contractor's means, and methods of executing the work, or of determining prices, of the impact of competitive bidding or market conditions, practices, or bidding strategies. CONSOR neither warrants nor guarantees that proposals, bids, or actual construction costs will reflect the costs presented, which are for illustrative purposes only.

DRAFT

W196117OR.00 • October 2024 • Water System Master Plan Update • City of The Dalles Capital Improvement Plan • 7-5 Page 344 of 664

Table 7-2 | Capital Improvement Plan (CIP) with Inflation

			Year 0		· · · ·	5-Year					6-10 Year	-						11	-20 Year				
Project Type	Project Name	Total Project Cost	FY 24/25	FY 25/26	FY 26/27	FY 27/28	FY 28/29	FY 29/30	FY 30/31	FY 31/32	FY 32/33	FY 33/34	FY 34/35	FY 35/36	FY 36/37	FY 37/38	FY 38/39		FY 40/41	FY 41/42	FY 42/43	FY 43/44	FY 44/45
Other	Carryover Projects Budget	\$ 402,000	\$ 402,000																				
Supply	Wicks WTP Replacement and Expansion	\$ 88,038,000		\$ 3,711,000	\$ 3,335,000	\$ 15,304,000	\$ 5,458,000	\$ 5,622,000	\$ 15,446,000	\$ 25,850,000	\$ 13,312,000												
Supply	Artificial Groundwater Recharge (AR) License	\$ 258,000		\$ 258,000																			
Supply	ASR Expansion Planning	\$ 266,000			\$ 266,000																		
Supply	Additional ASR Wells	\$ 7,515,000					\$ 338,000	\$ 3,594,000	\$ 3,583,000														
Supply	Crow Creek Dam Update Concept Design	\$ 722,000				\$ 722,000																	
Supply	Crow Creek Dam Expansion and Spillway Improvements	\$ 17,555,000																\$ 3,307,000	\$ 3,406,000	\$ 3,508,000	\$ 3,613,000	\$ 3,721,000	
Transmission	Finished Water Transmission Main	\$ 58,664,000							\$ 8,992,000	\$ 24,469,000	\$ 25,203,000												
Storage	Garrison Reservoir Recoating &	\$ 3,411,000											\$ 1,680,000	\$ 1,731,000									
BPS	Garrison BPS Improvements	\$ 6,096,000											\$ 941,000	\$ 5,155,000									
BPS	Riverside BPS Phase 2	\$ 1,961,000							\$ 251,000	\$ 1,710,000													
Storage	Riverside Storage Phase 2	\$ 19,719,000						\$ 3,044,000	\$ 16,675,000														
Operations	18th & Morton PRV Control Upgrades	\$ 206,000		\$ 206,000																			
Operations	Sorosis BPS VFDs	\$ 299,000							\$ 299,000														
SCADA	Wicks WTP SCADA Improvements (Phase 1)	\$ 2,019,000	\$ 1,370,000	\$ 649,000																			
SCADA	Distribution System SCADA Improvements (Phase 2)	\$ 1,726,000		\$ 1,030,000	\$ 343,000	\$ 353,000																	
Seismic & Resilience	Facilities Seismic & Wildfire Resilience Improvements	\$ 2,903,000			\$ 547,000	\$ 563,000	\$ 580,000	\$ 598,000	\$ 615,000														
Seismic & Resilience	Crow Creek Dam Seismic Evaluation and EAP	\$ 465,000				\$ 465,000																	
Other	In-Conduit Hydropower Feasibility Study	\$ 120,000							\$ 120,000														
Distribution Pipe	MT-1: W 15th St from Liberty to	\$ 2,025,000													\$ 2,025,000								
Distribution Pipe	MT-2: W 14th St from Liberty to Trevitt St	\$ 1,513,000														\$ 1,513,000							
Distribution Pipe	MT_2: W/E 14th St from Liberty to	\$ 1,589,000															\$ 1,589,000						
Distribution Pipe	MT-4: E 13th St Federal to Kelly St.	\$ 2,633,000																\$ 2,633,000					
Distribution Pipe	MT-5: W/E 13th St & E 11th St	\$ 2,263,000																	\$ 2,263,000				
Distribution Pipe	IVIT-P. PTOT NT DETWEED FILTER &	\$ 1,058,000																		\$ 1,058,000			
Distribution Pipe	MT-7: E 13th, 14th, & 16th east of	\$ 2,827,000																			\$ 2,827,000		
Distribution Pipe		\$ 3,017,000																				\$ 3,017,000	
Distribution Pipe	ST-1: E 12th St, Riverview St, E 17th St, & H St						\$ 2,623,000																
Distribution Pipe	ST-2: W15th St & Trevitt St. Bridge	\$ 811,000					\$ 811,000																
Distribution Pipe	ST-3: W 23rd St, Wright St & Dr	\$ 1,295,000					\$ 1,295,000																
Distribution Pipe	ST-4: Diagonal off Cherry Heights Rd & W 10th St	\$ 282,000					\$ 282,000																
Renewal & Replacement	Distribution Pipe Renewal & Replacement	\$ 21,377,000	\$ -	\$ 258,000	\$ 266,000	\$ 274,000	\$ 282,000	\$ 580,000	\$ 598,000	\$ 615,000	\$ 634,000	\$ 653,000	\$ 1,344,000	\$ 1,385,000	\$ 1,426,000	\$ 1,469,000	\$ 1,513,000	\$ 1,558,000	\$ 1,605,000	\$ 1,653,000	\$ 1,703,000	\$ 1,754,000	\$ 1,807,000
Planning	Master Plan Updates	\$ 2,824,000					\$ 226,000					\$ 979,000					\$ 303,000					\$ 1,316,000	
Planning	WMCP Updates	\$ 2,824,000					\$ 220,000					\$ 196,000					\$ 76,000					\$ 264,000	
Planning	Financial Evalaution Updates	\$ 287,000					\$ 57,000 \$ 57,000					\$ 196,000					\$ 76,000					\$ 284,000 \$ 88,000	
		Annual Subtotals:		\$ 6,112,000	\$ 4,757.000	\$ 17.681.000		\$ 13,438,000	\$ 46,579,000	\$ 52,644,000	\$ 39,149.000		\$ 3,965.000	\$ 8,271,000	\$ 3,451.000	\$ 2,982,000		\$ 7,498,000	\$ 7,274.000	\$ 6,219,000			\$ 1,807.000
						- 17,001,000	+ 12,000,000	+ 10, .00,000	+ .0,070,000		÷ 55,1+5,000			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	+ 0,.01,000	+ =,552,000	+ 0,007,000	+ ,,.50,000	7 , , _ , = , = ,000	- 0,210,000	+ 0,1 .0,000	- 10,100,000	,007,00

Notes:

CONSOR's construction cost estimate (estimate) is based on an annual inflation rate of 3% with Year 0 being FY 2024/2025. This estimate is an opinion of probable cost based on information available at the time of its development. Final costs will depend on actual inflation, field conditions, actual material and labor costs, market conditions for construction, regulatory factors, final project scope, method of implementation, schedule, and other variables. This estimate is based on our perception, which is based on experience and research, yet nevertheless, an assessment of current conditions at the project location. This estimate reflects our professional opinion of current costs and is subject to change as the project design evolves. CONSOR has no control over, nor can it forecast variances in the cost of labor, materials, equipment; nor services provided by others, contractor's means, and methods of executing the work, or of determining prices, of the impact of competitive bidding or market conditions, practices, or bidding strategies. CONSOR neither warrants nor guarantees that proposals, bids, or actual construction costs will reflect the costs presented, which are for illustrative purposes only.

DRAFT

CHAPTER 8

Financial Evaluation

8.1 Introduction

A Water System Financial Plan (WSFP) has been developed to identify potential future funding sources for the recommended CIP projects and to project changes to the City's water rates that may be needed to support WSMP recommendations and fund ongoing operations and maintenance costs. The building blocks of the WSFP include projections of revenues from existing rates (which have not been increased in over a decade)² and projected rate increases and costs or "revenue requirements" that the City will incur during the 20-year WSFP planning period. To better align rates with customer class service demands and characteristics, the WSFP also includes an updated rate structure analysis.

The WSFP provides important information for decision-makers to help define expectations related to future capital financing needs and associated water rate increases. Because circumstances and priorities change, these projections typically vary (at least marginally) from future approved budgeting and rate-setting decisions. Prospective financial and rate planning should involve periodic updating of revenue requirement and cost of service projections in the context of changing economic and credit market conditions, more refined CIP cash flows and cost estimates, and customer water demands. Accordingly, the WSFP elements presented in this section are intended to serve as a benchmark and reference for the City's prospective budgeting, capital planning, and rate setting decisions.

8.2 Water System Revenue Requirements

The WSFP includes projections of annual revenue requirements that the City will incur for the water system during the 20-year planning period. The primary components of water system revenue requirements are:

- Operation and maintenance (O&M) costs Ongoing personnel, materials and internal and external services costs associated with water system operation and routine facility maintenance.
- Capital expenditures Funding for capital improvements in the form as annual "pay-as-you-go" (PAYGO) funding from user charges and other revenue sources and debt service expenses (principal and interest) on long-term debt used to finance prior investments and WSMP recommended capital improvements.
- Reserves Annual contingencies and reserves needed to maintain system financial integrity and service reliability, and rate stability. Designated cash reserves benefit the system by strengthening credit quality (supporting more favorable borrowing terms) and the City's ability to address unforeseen emergencies.

Each component of revenue requirements is discussed below.

8.2.1 Operation and Maintenance Costs

Operation and maintenance costs include all costs associated with operating and maintaining the system, including personnel (salary and benefits) costs, materials and services costs, internal service charges (the

² The City's last rate adjustment (in December 2014) was a five (5) percent rate decrease, that was facilitated by water sales to a new industrial customer.

water system's portion of shared City services), and transfers. Water system operating costs are projected for the WSFP planning period based on the City's Fiscal Year (FY) 2024-25 budget and the following annual escalation factors, reflecting current general economic conditions and City policies:

- Personnel costs (salaries and wages and benefits) = 4 percent
- Materials and services costs = 3.5 percent
- Internal service charges = 4.0 percent
- Non-CIP capital expenses = annual projections reflect the City's 5-Year CIP through FY2027-28; subsequent years include 3.0 percent cost escalation
- Street transfers = 3.0 percent of annual user charge revenue

Table 8-1 shows FY 2024-25 budgeted O&M costs by major expense category and future projections (in five-year increments) based on the assumptions noted above.

Table 8-1 | Projected O&M Cost Summary (\$ Millions)

C-t	Budget	Projected (Fiscal Year)						
Category	2024-25	2029-30	2034-35	2039-40	2044-45			
Salary Expenses	\$2.03	\$2.47	\$3.01	\$3.66	\$4.46			
Benefits	1.00	1.21	1.48	1.80	2.19			
Material & Services	1.64	1.92	2.28	2.71	3.22			
Non-CIP Capital Expenses	0.37	0.40	0.47	0.54	0.63			
Internal Fees & Charges1	0.97	1.24	1.58	1.94	2.29			
Total O&M	\$6.01	\$7.26	\$8.82	\$10.65	\$12.78			

Note:

1. Includes internal service charges and street transfers

8.2.2 Capital Expenditures

8.2.2.1 WSMP CIP

The 20-year CIP based on the WSMP recommendations is summarized in **Table 8-2**. The total projected improvement costs are approximately \$259 million, including an adjustment for inflation of 3.0 percent per year based on long-term growth in construction costs, as estimated from 20-city average cost indices published by the Engineering News Record (ENR). Projects anticipated to be constructed beyond the 20-year WSFP period are estimated to be \$151.3 million in 2024 dollars.

To estimate potential future funding of the WSMP CIP from System Development Charges (SDCs),³ each project was reviewed to determine the portion of project costs associated with expanding capacity for future growth versus replacing existing capacity or addressing existing deficiencies. **Table 8-2** shows these preliminary estimates as a percentage of each project's costs. Capacity-increasing project costs are eligible for funding through SDCs or other developer contributions.⁴

³ System Development Charges are one-time charges assessed on new development upon connection to the local water system.

⁴ Developers may be required to advance-fund infrastructure needed to extend service to their development. To the extent that facilities constructed directly by developers have capacity beyond the individual need of the development, the City may provide SDC credits for the oversized portion or otherwise establish a mechanism for reimbursement directly by future developments.

Table 8-2 | Capital Improvement Plan

Category	Total 20-Year (\$)¹	Beyond 20-Year (\$) ²	Growth Share
Carryover Budget Projects	401,521	-	0%
Wicks WTP Replacement and Expansion	88,032,798	-	41%
Artificial Groundwater Recharge (AR) License	257,500	-	100%
ASR Expansion Planning	265,225	-	100%
Additional ASR Wells	7,513,559	-	100%
Crow Creek Dam Update Concept Design	721,200	-	100%
Crow Creek Dam Expansion and Spillway Improvements	17,552,039	59,730,000	100%
Finished Water Transmission Main	58,661,945	-	52%
Garrison Reservoir Recoating & Lining	3,410,188	-	0%
Garrison BPS Improvements	6,095,628	-	16%
Riverside BPS Phase 2	1,960,276	-	100%
Riverside Storage Phase 2	19,718,035	-	100%
18th & Morton PRV Control Upgrades	206,000	-	40%
Sorosis BPS VFDs	299,000	-	40%
Wicks WTP SCADA Improvements (Phase 1)	2,018,900	-	52%
Distribution System SCADA Improvements (Phase 2)	1,724,545	-	52%
Facilities Seismic & Wildfire Resilience Improvements	2,900,718	-	52%
Crow Creek Dam Seismic Evaluation and EAP	464,409	-	52%
In-Conduit Hydropower Feasibility Study	119,405	-	52%
LT-1 thru 14: Distribution Pipe Fire Flow Improvements	-	37,010,000	34-60%
MT-1: W 15th St from Liberty to Trevitt St	2,024,580	-	29%
MT-2: W 14th St from Liberty to Trevitt St	1,512,590	-	44%
MT-3: W/E 14th St from Liberty to Short St	1,588,219	-	55%
MT-4: E 13th St Federal to Kelly St, 16th St west of G St	2,632,965	-	44%
MT-5: W/E 13th St & E 11th St	2,262,636	-	50%
MT-6: G to I St between E 11th & 12th St	1,057,822	-	44%
MT-7: E 13th, 14th, & 16th east of Riverview St	2,826,039	-	44%
MT-8: W 9th St, E 7th & 9th St, Kelly Ave	3,016,030	-	47%
ST-1: E 12th St, Riverview St, E 17th St, & H St	2,622,436	-	0%
ST-2: W15th St & Trevitt St, Bridge St at W 16th St	810,366	-	0%
ST-3: W 23rd St, Wright St & Dr	1,294,335	-	0%
ST-4: Diagonal off Cherry Heights Rd & W 10th St	281,377	-	0%
Distribution Pipe Renewal & Replacement	21,367,262	54,500,000	52%
Master Plan Updates	2,821,329	-	52%
WMCP Updates	590,647	-	52%
Financial Evaluation Updates	284,819	-	52%
Total	\$259,316,344	\$151,240,000	

Notes:

1. 1Includes 3.0% annual inflation.

2. 2Presented in 2024 dollars.

8.2.2.2 Funding Sources

A key element of the WSFP is the preliminary capital funding strategy that identifies the projected annual sources of funds that may be available to implement the WSMP CIP. Grant funding opportunities are generally limited, so agencies must rely on local funding from system revenues (primarily user fees and SDCs) to fund capital expenditures. Furthermore, because water systems generally require intermittent capital projects that are larger in scale than available current revenue funding, utilities utilize longer-term debt to fund a portion of the CIP. Fixed rate financings in the form of loans made available through state

and federal financing programs and revenue bonds issued through the municipal credit market are the most common debt instruments used to fund large-scale improvements on an "as-needed" basis.

Because the WSMP CIP includes several large-scale capital investments, the WSFP funding strategy assumes the majority (approximately 76 percent) of projects costs will be funded with proceeds from long-term debt financing, The projected annual WSMP CIP costs and annual debt service costs and proceeds and other funding sources for the 20-year period are shown in **Table 8-3**.

	Expen	ditures		FUNDING SOURCES							
Fiscal Year	Debt Service ¹	CIP ²	Rates/ Reserves	SIP ³	Debt Proceeds⁴	Other ⁵					
2024-25	\$1.06	\$1.78	\$2.62	-	-	0.22					
2025-26	\$1.21	\$6.11	\$1.00	3.00	\$4.17	0.06					
2026-27	\$1.33	4.75	\$1.00	3.00	3.60	0.08					
2027-28	\$1.91	17.68	\$2.00	3.00	16.49	0.11					
2028-29	\$2.29	12.00	\$2.00	3.00	10.80	0.15					
2029-30	\$2.58	13.43	\$3.00	3.00	9.22	0.19					
2030-31	\$3.56	46.57	\$4.00	3.00	45.77	0.18					
2031-32	\$5.92	52.64	\$4.00	3.00	43.08	0.23					
2032-33	\$7.44	39.15	\$6.00	3.00	44.36	0.07					
2033-34	\$8.91	1.89	\$7.00	3.00	-	0.21					
2034-35	\$9.62	3.96	\$8.50	3.00	-	0.20					
2035-36	\$9.62	8.27	\$10.50	3.00	-	0.16					
2036-37	\$9.62	3.45	\$9.90	3.00	-	0.08					
2037-38	\$9.62	2.98	\$9.50	3.00	-	0.08					
2038-39	\$9.62	3.55	\$10.20	3.00	-	0.08					
2039-40	\$9.62	7.50	\$10.00	3.00	20.00	0.09					
2040-41	\$10.69	7.27	\$10.50	3.00	-	0.41					
2041-42	\$11.02	6.22	\$11.00	3.00	-	0.33					
2042-43	\$11.02	8.14	\$11.25	3.00	-	0.28					
2043-44	\$11.03	10.16	\$13.50	3.00	-	0.19					
2044-45	\$11.03	1.81	\$9.62	3.00	-	0.10					
Total	\$148.75	\$259.32	\$147.09	\$60.00	\$197.49	\$3.49					
Total Expend.	\$408.07										
Total Sources	\$408.07										

Table 8-3 | Projected Cash Flow Capital (\$ Millions)

Notes:

1. 1Includes existing debt service and projected debt service.

2. 2FY2024-25 budgeted expenses include \$0.35 M materials & services costs

3. 3Strategic Investment Program revenue

4. 4Includes projected \$128 M WIFIA and \$68.8 M other debt proceeds

5. 5Includes SDC and interest revenue; FY2024-25 includes grant proceeds

As shown in **Table 8-3**, the City intends to dedicate a portion of its annual revenue from the Strategic Investment Program (SIP) to the water system. The WSFP includes \$3.0 million per year in SIP (or other General Fund) revenues beginning in FY 2025-26 that may be used for cash funding CIP costs or repayment

of future debt service.⁵ The remaining WSMP CIP and debt service costs are assumed to be funded through user charges, SDCs⁶, and limited existing reserves. While the City will continue to explore grant funding opportunities, assumed grant proceeds for the WSFP period are limited to \$120,000 included in the FY 2024-25 budget.

8.2.2.3 Debt Service

8.2.2.3.1 Future Debt

As shown in **Table 8-3**, debt proceeds of \$197.5 million are assumed to fund a portion of the CIP costs. Specifically, the City intends to pursue a loan agreement with the U.S. Environmental Protection Agency (EPA) to borrow up 80 percent of the funds needed for the Wicks WTP, aquifer storage and recovery (ASR) improvements, and finished water transmission and short-term distribution main projects through the Water Infrastructure Finance and Innovation Act (WIFIA) loan program. While a formal invitation to apply for WIFIA generally occurs at some point following 30 percent project design, for purposes of the WSFP, the following debt assumptions are incorporated into the capital financing plan:

- WIFIA proceeds structured as two separate loans: 1) \$81.9 million total construction draws between FY 2025-26-FY 2031-32) for Wicks WTP, ASR, and other improvements, 2) \$46.8 million total draw between FY 2030-31 and FY 2032-33 for finished water transmission main project. Debt service for both loans assume:
 - 3.5 percent interest rate
 - Interest paid during construction
 - Repayment period = 35 years (beginning FY 2032-33 for loan 1 and FY 2033-34 for loan 2)
- Additional debt proceeds structured as three separate revenue bonds: 1) 17.8 million in 2031 to provide a match for WIFIA Loan 1 projects, 2) \$31 million in 2033 to provide a match for WIFIA Loan 2 projects and fund other projects, and 3) \$20 million in FY 2040 to fund a portion of the Crow Creek Dam and distribution projects. Estimated debt service payments for the revenue bonds assume:
 - 4.5 percent interest rate
 - Repayment period = 30 years (beginning one year following year of issuance)

The City may ultimately secure more favorable financing terms for the WIFIA debt repayment (e.g., lower interest rate, capitalized interest, delayed principal repayment) and one or more lower interest loans for the non-WIFIA debt (e.g., state revolving loans instead of revenue bonds.) However, for WSFP purposes, a "middle case" (i.e., not best or worst case) capital financing scenario is assumed for purposes of evaluating potential future rate impacts of the WSMP CIP. As future WSMP CIP costs and available financing terms are better defined, the City may elect to change the amount of debt vs. PAYGO funding or adjust other elements of the preliminary CIP funding strategy to reduce projected water system revenue requirements and rate increases.

⁵ Proceeds from the SIP are anticipated for the first 15 years of the plan, followed by other General Fund supported transfers through retirement of the WSMP debt.

⁶ Projected SDC revenue for the WSFP period is based on the City's existing SDC levels. The City may consider increases to SDCs in the future as it further evaluates housing and other development needs.

8.2.2.3.2 Existing Debt

In addition to capital expenditures related to the WSMP CIP, the water revenue requirements for the planning period include existing debt service associated with prior investments including:

- > 2007 Water Revenue Bonds (\$0.5 million through FY 2031-32)
- > Terminal Reservoir Project debt (\$0.24 million through FY 2032-33),
- East Port Local Improvement District (LID) debt (\$0.03 million through FY 2028-29), and
- > Dog River Pipeline Safe Drinking Water loan (\$0.3 million throughout the WSFP planning period).

Total annual debt service on the existing debt ranges from \$0.3 million to \$1.1 million throughout the WSFP period.

8.2.2.4 Projected Capital Cash Flow

Figure 8-1 shows the projected annual WSMP CIP and debt service costs and funding sources and capital fund balances. The first half of the plan is dominated by debt to fund the large-scale legacy investments. Pay-as-you-go rate funding increases incrementally each year, with the goal of building a sustainable level of CIP funding capacity from rates to meet WSMP CIP needs in the second half of the plan. The phasing in of larger amounts of PAYGO requires utilization of other available resources (SIP and debt) in years where CIP costs exceed PAYGO funding capacity from projected rate increases (discussed in the following section). In years where CIP costs are below the funding capacity of annual revenue sources, capital reserve levels increase and are then used to fund CIP costs later in the plan.

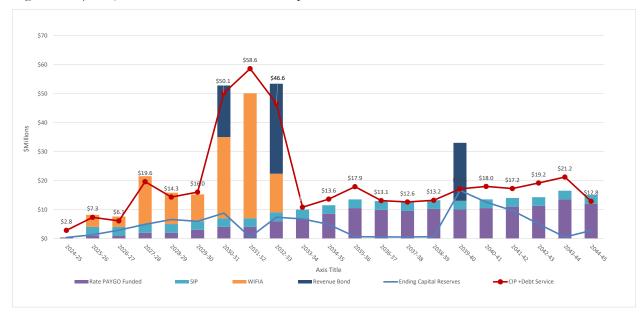


Figure 8-1 | Projected CIP Cash Flow and Capital Reserves

As mentioned previously, future financial and CIP planning may give rise to re-evaluation of the planned use of debt vs. current revenues to fund WSMP costs, as estimated CIP costs and credit market conditions continue to evolve.

8.2.3 Projected Requirements and Rate Increases

The WSFP was developed to project system revenue requirements and estimate water rate adjustments to meet those requirements, in accordance with the capital funding strategy and cost escalation assumptions described previously. **Figure 8-2** shows the projections for O&M and rate-supported capital expenditure

(transfers) and operating reserves over the planning period, and the annual rate revenues (and percent increases), projected to meet the planned expenditures and minimum reserves ⁷.

Forecast revenue from user rates is based on assumptions related to customer growth, water consumption trends, and future industrial water demands. The following key assumptions are used to forecast future revenue from rates for the purpose of evaluating overall rate increases:

- Customer growth will average 0.35 percent per year, reflecting recent historical growth in accounts
- Water use per account for non-industrial uses is projected to decline an average of 0.50 percent per year from the most recent FY 2023-24 estimates. These reductions are intended to reflect water conservation measures by customers.
- Industrial water use is forecast to increase annually by 5 percent and 9 percent between FY 2024-25 and FY 2033-34, reflecting planned expansion of industrial processes.

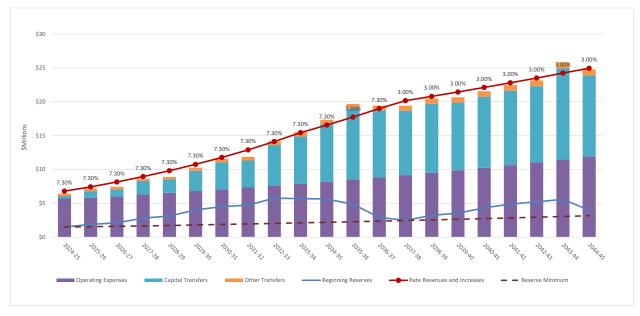


Figure 8-2 | Projected Water Rate Revenues, Requirements, and Operating Cash Reserves*

*Excludes SDC revenue and capital-related reserves

The revenue from existing rates that is available for capital expenses is currently less than \$0.5 million per year, while required capital transfers are projected to be \$8.5 million by FY2034-35 and \$13.5 million by FY 2043-44. Therefore, rate increases will be needed to build capital funding capacity (both for PAYGO CIP and future debt service costs), and to adequately fund future projected O&M costs.

The pace of rate increases is projected to be greatest in the first half of the planning period due to the phasing of the WSMP CIP shown in **Table 8-3**. During these years, system-wide rate increases are projected to exceed assumed general cost inflation (3.5 percent) and result in a more than doubling of the FY 2023-24 rates. As shown in **Figure 8-2**, projected annual rate increases are as follows:

- > FY 2024-25 through FY 2033-2034 = 7.3 percent
- ▶ FY 2034-35 and beyond inflationary increases of about 3.0 percent

⁷ Minimum operating reserve contingency is assumed to be 90 days of annual operating expenses. The contingency is included in annual requirements but is assumed to be unspent and therefore roll forward in each year to the following year's beginning fund balance.

The projected rate adjustments are based on customer growth and water use trends discussed previously, as well as the initial capital funding strategy. As noted previously, the City may be able to secure more favorable financing terms over the planning period to further reduce revenue requirements from rates and projected rate increases in the shorter term. The projected rate of growth in industrial water use may also impact rate increases. The WSFP is intended to provide a framework for the City to begin conversations around CIP and debt phasing, and plan for future rate increases. The base assumptions should be monitored closely and rate increases adjusted as needed to reflect actual circumstances.

8.2.3.1 Operating Revenues and Debt Service Coverage

Table 8-4 shows projected annual revenues, operating requirements, and debt service coverage, based on the preliminary capital funding strategy and rate increases. A revenue bond repays creditors from net revenues generated by the overall system, so the utility is required to set its rates and charges in a manner that generates the funds to repay bondholders from system revenues, pay O&M costs, and contribute to the replacement of system facilities. Debt service "coverage" is calculated as the ratio of net revenues (total system revenues less O&M expenses) to annual debt service. Typically, revenue bond (and some loan) covenants require the utility to charge rates that target coverage ratios between 1.20 and 1.30 times the annual debt service requirement. Projected debt service coverage targets meet or exceed these minimum benchmarks, as shown in **Table 8-4**.

					Projected	Fiscal Year				
WSFP Component	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34
Revenues										
Water User Fees ¹	\$6.59	\$7.25	\$7.96	\$8.75	\$9.60	\$10.53	\$11.55	\$12.65	\$13.86	\$15.18
SIP/General Funds	\$0.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00
Other Operating Revenue	\$0.18	\$0.16	\$0.17	\$0.18	\$0.19	\$0.20	\$0.21	\$0.22	\$0.24	\$0.24
Total Revenues	\$6.77	\$10.41	\$11.13	\$11.93	\$12.79	\$13.73	\$14.76	\$15.87	\$17.10	\$18.42
Operation & Maintenance	\$4.67	\$4.83	\$5.01	\$5.20	\$5.40	\$5.61	\$5.83	\$6.05	\$6.28	\$6.52
Debt Service	\$1.06	\$1.07	\$1.06	\$1.06	\$1.06	\$1.03	\$1.03	\$1.89	\$5.80	\$8.91
Debt Service Coverage	I									
Net Rev. Available for Debt Service ²	\$2.10	\$5.58	\$6.12	\$6.72	\$7.38	\$8.12	\$8.93	\$9.82	\$10.82	\$11.90
Debt Service Coverage	1.98	5.24	5.76	6.32	6.94	7.88	8.68	5.21	1.86	1.34
Revenues	I									
Water User Fees ¹	\$16.30	\$17.51	\$18.80	\$19.98	\$20.60	\$21.23	\$21.89	\$22.57	\$23.27	\$23.99
SIP/General Funds	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00
Other Revenue	\$0.24	\$0.22	\$0.18	\$0.17	\$0.19	\$0.19	\$0.21	\$0.22	\$0.23	\$0.23
Total Revenues	\$19.54	\$20.73	\$21.98	\$23.15	\$23.78	\$24.43	\$25.10	\$25.79	\$26.49	\$27.22
Operation & Maintenance	\$6.77	\$7.03	\$7.30	\$7.58	\$7.87	\$8.17	\$8.49	\$8.81	\$9.15	\$9.50
Debt Service	\$9.62	\$9.62	\$9.62	\$9.62	\$9.62	\$9.62	\$10.69	\$11.02	\$11.02	\$11.03
Debt Service Coverage										
Net Rev. Available for Debt Service ²	\$12.77	\$13.70	\$14.68	\$15.57	\$15.91	\$16.25	\$16.61	\$16.98	\$17.34	\$17.72
Debt Service Coverage	1.33	1.42	1.53	1.62	1.65	1.69	1.55	1.54	1.57	1.61

Table 8-4 | Summary of Projected Revenues, Requirements, Debt Service Coverage (\$ Millions)

Notes:

1. 1Revenues assume rate adjustments effective in the third quarter of each fiscal year.

2. 2Total revenue less operation & maintenance costs.

8.3 Rate Analysis

In addition to the development of the WSFP to determine overall water rate increases needed to support the WSMP CIP, an important objective of the financial analysis is development of a revised rate structure. The rate analysis follows a cost-of-service (COS) framework that considers how water system costs are incurred in relationship to the specific services provided to each customer class. The COS analysis estimates the portion of annual revenue requirements attributable to each customer class and rate component (fixed and volume charges).

8.3.1 COS Framework

The general process of developing COS rates begins with the development of utility revenue requirements (i.e., the annual costs to be recovered from rates as determined by the WSFP analysis). The annual revenue requirements are then distributed to customer classes based on a multi-step allocation process described below.

8.3.1.1 System Functions and Service Characteristics

A water system comprises several different types of facilities that function to make water available to customers year-round, including peak demand periods and under emergency conditions. The primary functional categories that comprise the City's water system are listed in **Table 8-5**. Some costs incurred by the utility are a function of the quantity of water consumed (on an average demand or peak demand basis), while other costs are associated with serving customers regardless of their water use (e.g., standby capacity for fire protection or other emergencies, customer service, meter repair, and billing costs). The American Water Works Association (AWWA) recommends a COS framework comprised of average and peak water demand, meter, customer, and fire protection service characteristics, as well as utility-specific cost factors. For the City's system, planned ASR facilities will provide supply to a limited area (Zone 310), so water use in the 310 zone is included as a separate service category.

Functional Category	Average Demand	Peak Day Demand	Peak Hour Demand	Zone 310 Demand	Standby & Emerg. Storage	Fire Protect	Customer	Meter
Dog River/ Crow Creek	100%	0%	0%	0%	0%	0%	0%	0%
Treatment	44%	56%	0%	0%	0%	0%	0%	0%
Water Quality Lab	100%	0%	0%	0%	0%	0%	0%	0%
Wells	44%	56%	0%	0%	0%	0%	0%	0%
ASR	0%	0%	0%	100%	0%	0%	0%	0%
Transmission	44%	56%	0%	0%	0%	0%	0%	0%
Storage & Pumping	8%	10%	0%	0%	70%	12%	0%	0%
Distribution	34%	43%	23%	0%	0%	0%	0%	0%
Customer	0%	0%	0%	0%	0%	0%	100%	0%
Meter	0%	0%	0%	0%	0%	0%	0%	100%
Fire Protection	0%	0%	0%	0%	0%	0%	0%	0%

Table 8-5 | Allocation of Costs to Service Characteristics

The cost allocation percentages shown in **Table 8-5** are based on facility design considerations from the WSMP and historical system production data. These percentages are applied to annual O&M and capital requirements from the WSFP to determine annual costs by service characteristics for the rate-setting period. **Table 8-6** shows costs by service characteristics for FY 2024-25 and FY 2030-31. The utility cost structure (i.e., how costs align with system functions and service characteristics) changes over time due to

varying investments in system O&M and capital facilities. A 5-year COS rate-setting period (beyond the current budget year) was analyzed to determine how the overall rate increases projected in the WSFP could be applied to the rates of each of the City's customer classes. In general, cost-of-service rates should be updated every 3-5 years, as costs and customer demands change.

		Total		Residential	Non-residential		
Service Characteristic	\$	% Total Costs	\$	% Service Category	\$	% Service Category	
FY 2024-25 (Current Rates)	\$6.52	100%	\$3.17	49%	\$3.35	51%	
Updated Cost of Service ¹				·			
FY 2024-25							
Avg. Demand	\$2.45	35%	\$0.86	35%	\$1.59	65%	
Max Day Demand	\$2.29	33%	\$1.05	46%	\$1.24	54%	
Peak Hour Demand	\$0.24	3%	\$0.10	41%	\$0.14	59%	
ASR Zone 310 Demand	\$0.14	2%	\$0.00	3%	\$0.14	97%	
Standby/Emergency Storage	\$0.50	7%	\$0.21	41%	\$0.29	59%	
Fire - Pump/ Storage	\$0.08	1%	\$0.02	19%	\$0.07	81%	
Fire - Distribution	\$0.32	5%	\$0.19	60%	\$0.13	40%	
Customer	\$0.67	10%	\$0.58	87%	\$0.09	13%	
Meter	\$0.29	4%	\$0.17	56%	\$0.13	44%	
Total	\$6.99	100%	\$3.19	46%	\$3.80	54%	
FY 2030-31							
Avg. Demand	\$4.38	36%	\$1.28	29%	\$3.10	71%	
Max Day Demand	\$4.08	33%	\$1.60	39%	\$2.48	61%	
Peak Hour Demand	\$0.30	2%	\$0.10	35%	\$0.20	65%	
ASR Zone 310 Demand	\$0.27	2%	\$0.01	2%	\$0.26	98%	
Standby/Emergency Storage	\$1.03	8%	\$0.36	35%	\$0.67	65%	
Fire - Pump/ Storage	\$0.18	1%	\$0.03	19%	\$0.14	81%	
Fire - Distribution	\$0.84	7%	\$0.51	61%	\$0.33	39%	
Customer	\$0.83	7%	\$0.72	87%	\$0.11	13%	
Meter	\$0.35	3%	\$0.20	57%	\$0.15	43%	
Total	\$12.25	100%	\$4.81	39%	\$7.44	61%	

Table 8-6 | Costs by Service Characteristic and Customer Class (\$ Million)

Note:

1. Total requirements are adjusted from revenues shown in Table 8-4 to reflect a full budget year.

8.3.1.2 Allocations to Customer Classes

Costs by service characteristic are allocated to each customer class in proportion to their service requirements, as estimated from billing records that contain information on each customer's meter size(s) and annual and summer peak month water use. **Table 8-6** shows the allocation of costs to the City's primary customer classes (residential and non-residential). For rate-setting purposes, residential customers include single-family, duplex, triplex and quadplex customers. Non-residential customers include larger (five units and above) multifamily customers, as well as commercial, government, and industrial customers.

As shown in **Table 8-6**, rates from residential customers currently generate about 49 percent of total annual revenue from user charges, and the portion of revenue from nonresidential customers is about 51 percent. Based on the updated COS analysis, the residential cost share decreases to 46 percent (based on FY 2024-25 revenue requirements) and the non-residential share increases to 54 percent. By FY 2030-31, additional shifts from residential to non-residential customers are projected, as both the costs by service characteristics change due to the increase in capital investment, and annual water demands from non-

residential customers are projected to increase more significantly (from 65 percent of total annual demand to 71 percent).

8.3.2 Rate Design

The last step in the rate development process is the design of the rate structure and the development of rates to recover the COS of each class. There are a variety of rate structure options available to meet a range of policy objectives. The primary objective of the WSMP rate analysis is to update rates to reflect the revised COS analysis and to evaluate the fixed and volume rates of each class in the context of resource efficiency and customer affordability.

Water rates are generally comprised of a fixed ("base") charge per customer per billing period, and a variable ("volume") rate that is charged based on the quantity of water used. **Table 8-7** shows the City's current rate structure (in effect since 2014) which includes a monthly base rate that varies by meter size and a volume rate applied to each unit of volume over the base quantity. The base and volume rates and the base quantities differ for residential and non-residential customer classes.

	Current	FY 202	24-25	FY 2030-31	Avg Annual	
Rate Component	(Effective 2014)	Updated	% Change	Updated	Increase (FY 2025- FY 2031)	
Systemwide Average Increase			7.3%		7.3%	
Volume Rates (\$/kgal)*						
*(per kgal > base qty)						
Residential	\$1.68	\$1.87	11.6%	\$2.64	5.9%	
Non-residential	\$3.61	\$4.08	13.0%	\$5.90	6.4%	
Base Charge (\$/month)						
Residential						
Quantity (kgal) included	10	7.5		7.5		
1" and below	\$55.30	\$53.21	-3.8%	\$79.50	6.9%	
1.5"	\$55.30	\$53.21	-3.8%	\$79.50	6.9%	
2"	\$66.36	\$70.28	5.9%	\$116.94	8.9%	
Non-residential						
Quantity (kgal) Included	5	5		5		
3/4"	\$44.56	\$46.72	4.8%	\$80.23	9.4%	
1"	\$50.30	\$50.81	1.0%	\$92.95	10.6%	
1.5"	\$61.56	\$69.20	12.4%	\$150.17	13.8%	
2"	\$78.95	\$89.65	13.5%	\$213.75	15.6%	
3"	\$119.00	\$183.68	54.4%	\$506.23	18.4%	
4"	\$181.93	\$306.33	68.4%	\$887.71	19.4%	
6"	\$325.06	\$612.96	88.6%	\$1,841.43	20.1%	
8"	\$518.67	\$1,021.81	97.0%	\$3,113.05	20.4%	
10"	\$763.17	\$1,471.53	92.8%	\$4,511.83	20.5%	
12"	\$1,056.71	\$1,839.49	74.1%	\$5,656.29	20.6%	

Table 8-7 | Current (Effective December 2014) and Updated Water Rates

The updated rates follow the same basic structure as the current rates, however, the quantity included in the base rates for residential customers is reduced from ten (10) 1,000 gallons (kgal) per month to 7.5 kgal reflecting the City's desire to balance customer affordability and water efficiency goals. Based on recent years' water usage data, approximately 70 percent of residential customer bills are based on volumes lower than 10 kgal per month, while about 52 percent of customer bills reflect volumes less than 7.5 kgal per month.

The updated rates for FY 2024-25 and FY 2030-31 shown in **Table 8-7** include the overall 7.3 percent per year rate increases discussed in **Section 8.2.3** distributed to the customer classes in proportion to the updated COS framework shown in **Table 8-6**. Under the updated COS framework, residential rates increase over the rate-setting period slightly less than the systemwide average, while non-residential rates increase slightly more.

Residential base rates decrease initially for small water meters, reflecting the reduction in the base quantity. In future years, the base rates for all customers will increase at a higher rate than the volume rates reflecting the updated COS framework (specifically, a larger portion of costs attributable to emergency storage and fire protection capacity needs which are recovered through the base charges and scaled based on meter size).

Another difference between the existing and revised rates are the scaling factors used to determine the relative base charges for each non-residential meter size. Base charges include some costs (customer billing costs) that are assessed uniformly to all customers regardless of their meter size. However, other costs (meter replacement, fire protection and standby storage costs) are scaled based on the size of the water meter, as larger non-residential customers are more costly to serve. The updated scaling factors shown in **Table 8-8** reflect AWWA standard hydraulic capacities for each meter size relative to a ¾" meter. As shown in **Table 8-7**, meter sizes over 2" experience proportionately larger rate increases in FY 2024-25, due to the re-alignment to the new factors.⁸ Subsequent year's increases reflect moderate shifts in the projected utility cost structure with some increase in base cost components relative to volume components.

Customer Class/ Meter Size	High-Normal Flow Rate (gpm)	Meter Factor
Residential ¹		
<1"	15	1.0
1"	25	1.7
1-1/2"	50	3.3
2"	80	5.3
Nonresidential ²		
3/4"	15	1.0
1"	25	1.7
1-1/2"	70	4.7
2"	120	8.0
3"	350	23.3
4"	650	43.3
6"	1,400	93.3
8"	2,400	160.0
10"	3,500	233.3
12"	4,400	293.3

Table 8-8 | Meter Factors

Notes:

1. AWWA c700-15 Positive Displacement meters

2. 2" and above based on AWWA c701-15 Turbine Class II meter capacities. 1.5" based on average Positive Displacement and Turbine Class II meter capacity.

Currently, the base rates generate about 52 percent of total water rate revenues (residential and nonresidential combined). With the reduction in the residential base quantity and projected growth in industrial water demands, projected revenue from base charges is projected to be about 45 percent by FY

⁸ The portion of base costs scaled based on meter size is about 15 percent in FY2024-25 and almost 25 precent in FY2030-31.

2030-31. Given that the majority (over 80 percent) of water system costs are fixed (do not vary with water use), it is important for the utility to maintain sufficient revenue recovery from fixed charges in the future.

8.3.2.1 Projected Customer Bills

A typical residential customer has an average monthly volume of eight (8) units (8,000 gallons);⁹ thus, the current monthly bill is equal to the base rate of \$55.30. As shown in **Table 8-9**, future monthly bill increases during the first 10 years of the planning period would average approximately \$4.50 per month. During the second half of the plan, projected bill increases would average slightly over \$5.00 per month.

Customers with water use less than 7.5 kgal per month would experience bill reductions in FY 2024-25 of almost 4 percent due to the reduction in the fixed charge. Larger volume water users with usage greater than 10 kgal per month would experience bill increases of 5-10 percent in the first year because of the increase in the volume rate and an additional 2.5 units (2,500 gallons) subject to the volume charges as a result of the rate structure change.

Fiscal Year	Base Rate ²	User Rate Per Unit ³	Typical Res. Bill per Month⁴	Increase in Monthly Bill	% Change
2023-24	\$55.30	\$1.68	\$55.30		
2024-25	\$53.21	\$1.87	\$54.15	(\$1.15)	-2.1%
2025-26	\$56.66	\$1.98	\$57.65	\$3.50	6.5%
2026-27	\$60.42	\$2.10	\$61.47	\$3.82	6.6%
2027-28	\$64.53	\$2.23	\$65.64	\$4.17	6.8%
2028-29	\$69.04	\$2.36	\$70.22	\$4.58	7.0%
2029-30	\$74.01	\$2.50	\$75.26	\$5.04	7.2%
2030-31	\$79.50	\$2.64	\$80.82	\$5.56	7.4%
2031-32	\$85.30	\$2.83	\$86.72	\$5.90	7.3%
2032-33	\$91.53	\$3.04	\$93.05	\$6.33	7.3%
2033-34	\$98.21	\$3.26	\$99.84	\$6.79	7.3%
2034-35	\$105.38	\$3.50	\$107.13	\$7.29	7.3%
2035-36	\$113.07	\$3.76	\$114.95	\$7.82	7.3%
2036-37	\$121.33	\$4.03	\$123.34	\$8.39	7.3%
2037-38	\$124.97	\$4.15	\$127.05	\$3.70	3.0%
2038-39	\$128.72	\$4.28	\$130.86	\$3.81	3.0%
2039-40	\$132.58	\$4.41	\$134.78	\$3.93	3.0%
2040-41	\$136.56	\$4.54	\$138.83	\$4.04	3.0%
2041-42	\$140.65	\$4.67	\$142.99	\$4.16	3.0%
2042-43	\$144.87	\$4.81	\$147.28	\$4.29	3.0%
2043-44	\$149.22	\$4.96	\$151.70	\$4.42	3.0%

Table 8-9 | Current and Projected Residential Water Rates and Typical Bills¹

Notes:

1. 1Reflects revised rate structure and cost-of-service analysis through FY 2030-31. Subsequent year increases based on systemwide average rate increase.

2. 2Current rates include base quantity of 10 Kgal/month; projected rates include 7.5 Kgal/month

3. 3Charged only on water use that is greater than the base quantity.

4. 4Bill based on total consumption of 8 units (8,000 gallons).

⁹ As noted previously, billable water volumes per account are projected to decline marginally over the planning period such that a typical residential customer's monthly volume is anticipated to be less than eight units; however, for purposes of projecting bill impacts in Table 8-8, a consistent monthly volume is used throughout the planning period.

Bill impacts for non-residential customers vary based on the meter size and volume used. **Table 8-10** shows sample bill impacts for non-residential customers. Bill increase for customers with meters larger than 1" are more significant initially due to the updated meter factors. The subsequent average annual increases range from 7-9 percent for all of the sample customers shown reflecting the updated COS framework and the 7.3 percent overall projected annual rate increases.

Sample Customers	Monthly Water Use (kgal)	Current (Eff. 2014)	Updated FY2024-25	% Change	Projected FY2030-31	Avg Ann. Inc. (2025- 2031)
3/4" meter Customer	10	\$62.61	\$67.12	7.2%	\$109.76	8.5%
1"-meter Customer	20	\$104.45	\$112.00	7.2%	\$181.52	8.4%
1.5"-meter Customer	50	\$224.01	\$252.79	12.8%	\$415.89	8.7%
2"-meter Customer	100	\$421.90	\$477.21	13.1%	\$774.72	8.4%
3"-meter Customer	300	\$1,183.95	\$1,387.16	17.2%	\$2,248.18	8.4%
4"-meter Customer	600	\$2,329.88	\$2,733.70	17.3%	\$4,401.14	8.3%
6"-meter Customer	2500	\$9,332.01	\$10,791.58	15.6%	\$16,574.22	7.4%
8"-meter Customer	10000	\$36,600.62	\$41,797.45	14.2%	\$62,132.77	6.8%

Table 8-10 | Current and Projected Sample Non-residential Water Bills¹

8.4 Conclusions

The WSFP and rate analysis provide a framework for the City to begin initiating rate changes to support the WSMP CIP and to further develop the capital financing strategy as project costs are further defined. The preliminary capital funding strategy contained herein relies on a combination of debt and PAYGO funding from user rates and SIP proceeds to pay for the estimated \$259 million (inflation-adjusted) capital project costs over the next 20 years. While the WSFP does not assume an increase in SDCs, the City may consider adjustments in the future to recover the growth-related portion of CIP project costs shown in **Table 8-2**.¹⁰

Annual rate increases, based on this preliminary funding strategy, are initially projected at 7.3 percent per year for the first half of the WSFP and are projected at inflationary levels in the second half of the plan. The WSFP funding strategy relies on SIP/General Fund revenues to offset rate increases.¹¹ Projected growth in industrial water sales revenues also help moderate rate increases for other customers. The WSFP provides a framework to assess the financial implications of a variety of alternative capital funding scenarios that may include re-balancing of debt and equity financing, revised project scheduling, or debt payment restructuring, while adhering to financial management targets (i.e., maintenance of operating reserves and debt service coverage levels).

The updated COS framework provides the opportunity to realign rates by customer class and rate components to reflect current customer service requirements. Changes to the residential rate structure to reduce the monthly quantity included in the base charges will initially reduce bills for smaller customers and send stronger pricing signals to customers who use more than 7.5 kgal of water. Realignment of non-residential base charges will shift some costs to larger customers and help the utility maintain a minimum amount of revenue from fixed charges.

¹⁰ The SDC analysis conducted as part of the WSMP estimated an SDC of \$9,334 (for a ¾-inch meter) to support the growth-related CIP costs. The City's current SDC is \$2,317 for a ¾-inch meter.

¹¹ The \$3 million in annual SIP/General Fund revenue represents a 46 percent increase in current water system revenue that otherwise would need to come from rate increases.

The projected cash flows and COS analysis are based on available information on revenue, expenditures, customer accounts, and water use as of August 2024. There will usually be differences between assumed and actual conditions because events and circumstances frequently do not occur as expected, and those differences may be significant. Among the variables that could impact future rate increases are changes in customer growth, economic and other factors impacting water consumption patterns (particularly for industrial customers), cost escalation, and interest rates on long-term debt. Furthermore, any changes to CIP funding or other key assumptions would likely necessitate changes to the rate increases.

It is important that the City monitors the WSFP and regularly updates the overall rate increases and COS framework in the future.



APPENDIX A CLIMATE CHANGE IMPACTS TECHNICAL MEMORANDUM

Page 362 of 664

Jacobs

Technical Memorandum

2020 SW Fourth Avenue, 3rd Floor Portland, OR 97201 503.235.5000 www.jacobs.com

Subject	Task 4.1 Water Supply Evaluation – Climate Change Impacts
Project Name	City of The Dalles Water Master Plan
City Project Number	2022-005
Jacobs Project Number	D3718900
То	Dave Anderson/City of the Dalles
From	Tyler Jantzen/Jacobs Mark Lee/Jacobs
Reviewed by	Brady Fuller/Jacobs
Date	July 25, 2023

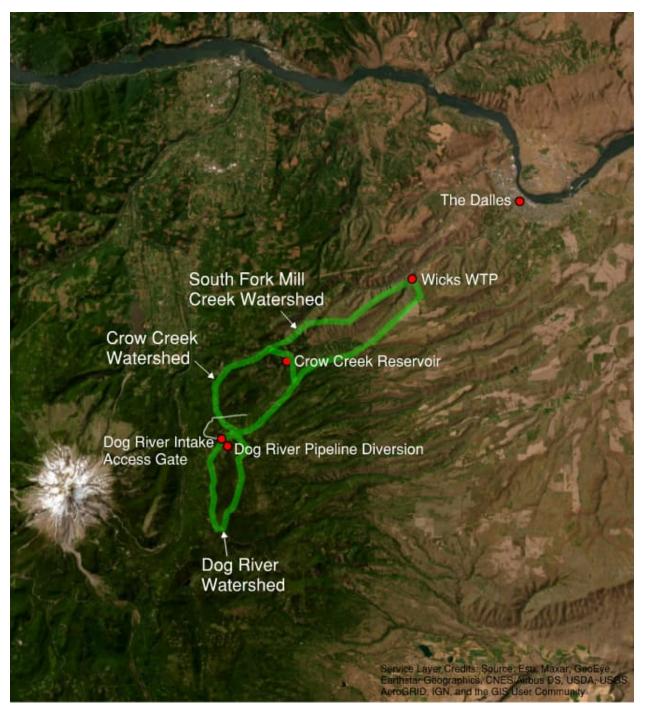
1. Purpose

The City of The Dalles (City) is developing a water system master plan to guide system investments over the next 50 years. As part of that master plan, the City has contracted Consor (with Jacobs as subconsultant) to provide an evaluation of climate change impacts on the overall City surface water supply. The City's surface water is sourced from portions of the Dog River, Crow Creek Reservoir, and South Fork Mill Creek watersheds. Additional groundwater wells supplement the surface water flows, but analysis of climate change impacts on groundwater was specifically excluded from this analysis due to complexity and lack of available data to inform the analysis, and such groundwater resources could be evaluated in the future. This report characterizes the historical and projected future climate and flows from the Dog River, Crow Creek Reservoir, and South Fork Mill Creek watersheds (Figure 1), but also generally applies to climate in the vicinity of the Wicks Water Treatment Plant (WTP) as well as the City itself.

The Intergovernmental Panel on Climate Change (IPCC) identified that changes in temperature and rainfall patterns have already been observed and will worsen significantly over the 21st century across the planet (IPCC, 2022). These observations make planning for climate change an important component of planning for future water supply and watershed management.

To determine these risk exposures, this study collected data and performed analysis for the following parameters:

- Stream flow
- Ambient (air) temperature
- Precipitation
- Snowmelt





2. Approach

Climate change is projected to affect many parameters that impact surface water supplies, including precipitation, temperature, snowpack, and snowmelt. Global climate models (GCMs) developed by academic and government research agencies around the globe are used to develop future climate projections, based on assumed future human greenhouse gas emissions. These climate models can be used to make projections of specific parameters of interest, including those that affect surface water supplies, and for specific locations of interest. As with all models, GCMs represent simplifications of natural processes, and each different model resolves climate processes slightly differently, reflecting

uncertainties in the science. This, in combination with the range of greenhouse gas emissions scenarios used as input to the GCMs, results in a range of projections for future conditions. The industry standard approach to understanding and planning for future climate uncertainty is to use a range of climate projections from multiple GCMs, known as an *ensemble approach*. Using an ensemble approach helps to communicate the range of uncertainty in plausible future climate projections.

This memorandum describes the industry standard methods used for the analysis of Dog River, Crow Creek Reservoir, and South Fork Mill Creek watersheds.

Future climate projections for snowmelt, temperature, precipitation, and runoff were informed by a 32member ensemble of Coupled Model Intercomparison Project Phase 5 (CMIP5)¹ GCMs under Representative Concentration Pathway 8.5 (RCP8.5) and downscaled to 1/16th degree (roughly 6 kilometers) resolution using the Localized Constructed Analogs (LOCA) method. Wildfire projections used an ensemble of 18 CMIP5 GCMs. The GCMs model atmospheric interactions across the globe at a relatively coarse temporal and spatial scale. The LOCA downscaling method increases the spatial resolution of the GCM results to be more appropriate to watershed scale water supply planning. Most GCMs use a temporal scale of 1-day, and so are more appropriate for long duration events (such as annual, seasonal and monthly volumetric projections used for water supply planning) and less for short duration (such as sub-daily) precipitation event projections. For this reason, the projections are more accurate for annual and seasonal volumes than for short duration peaks.

RCP8.5 is one of the four greenhouse gas emissions scenarios used in CMIP5, and represents continued use of fossil fuels through the end of the 21st century. It is often used to represent a realistic to slightly conservative level of climate change. Raw climate model projection parameters (temperature, precipitation) were run through the Variable Infiltration Capacity (VIC) land surface model to generate hydrologic parameters such as snow water equivalent, runoff, and stream flow. The VIC model is calibrated at a broad spatial scale to historical flow and volumes in large watersheds that are substantially larger than the Dog River, Crow Creek Reservoir, and South Fork Mill Creek Watersheds. But the results are still meaningful at smaller watershed scales, especially when interpreted as relative change (comparing future projected to historical). The VIC model includes all major aspects of the hydrologic cycle, including precipitation, evapotranspiration, infiltration, and runoff, at a 6-kilometer grid scale. The 6-kilometer grid means that smaller features such as Crow Creek Reservoir are included in the overall land cover contributing to hydrologic calculations but are not explicitly represented.

For all projections except wildfire, data were requested using Lawrence Livermore National Lab's *Downscaled CMIP3 and CMIP5 Climate and Hydrology Projections* tool for the entirety of the Dog River, Crow Creek Reservoir, and South Fork Mill Creek watersheds (Figure 1) (LLNL, 2023). Given the coarse resolution of these data, the fine-scale boundaries of the watershed are not captured; however, it was assumed that this was likely to have little difference in the output results as only the spatial average of this watershed was assessed. For the purposes of this report, information from this source will be referred to as "LOCA-CMIP5 data."

LOCA-CMIP5 and resultant VIC data are available for projected future conditions for any given variable. For future projections, daily data from January 1, 1950, to December 31, 2099, are available for all climate models in a given RCP. To assess changes in future conditions, three representative 30-year time periods were considered and centered on 1995, 2040, and 2080:

- Historical Simulated: Daily data from water year 1980 to 2010 and centered on 1995.
- Mid-Century: Daily data from water year 2030 to 2060 and centered on 2045.

3

¹ More recent climate model results, known as CMIP6, are recently published in their raw form. However, CMIP6 results are not yet readily available through the LLNL portal and have not been processed for hydrologic parameters such as stream flow and runoff. Because this analysis focuses on stream flow, older CMIP5 climate model results were utilized.

• Late-Century: Daily data from water year 2065 to 2095 and centered on 2080.

Statistics (10th percentile, 50th percentile, and 90th percentile) for the ensemble of 32 climate models for each time period were generated and compared to capture a range of future climate model results. These statistics summarize the range of plausible future conditions projected by the GCM ensemble. For this report, projections representing the 10th percentile, 50th percentile, and 90th percentile of the ensemble of climate models are referred to as the low, median, and high projections, respectively.

For precipitation and runoff projections, LOCA-CMIP5 data are provided in units of millimeters per day (mm/day). This can be converted to equivalent streamflow in cubic feet per second (cfs) by using the watershed area. Historical simulated results from the LOCA-CMIP5 data were compared to and validated using available gage data for Dog River. Because there is observed flow data for Dog River but not Crow Creek or South Fork Mill Creek, the Dog River watershed area is used to calculate the streamflow values.

Wildfire projections utilized climate model data processing and visualization obtained through Risk Factor (2022) and *Climate Toolbox* provided by Hegewisch and Abatzoglou (2022). The *Climate Toolbox* wildfire projections evaluate number of fire danger days above three separate thresholds: high, very high, and extreme. The *Climate Toolbox* future climate outputs are presented in this report as box and whisker style plots, presenting the variability of climate model ensemble results, where the box represents the 25th to 75th percentile of the ensemble result, and the middle line represents the median (50th percentile) (Figure 2).

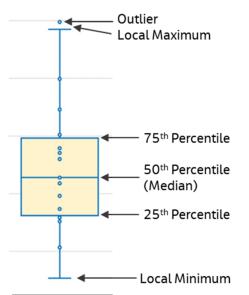


Figure 2. Climate Toolbox Box and Whisker Style Plots

3. Climate Characterization

The following historical and future climate parameters were characterized: stream flow, temperature, precipitation, and snowmelt. Because wildfire conditions can impact runoff and drinking water quality, projections for future wildfire conditions were also analyzed.

3.1 Stream Flow

3.1.1 Historical Stream Flow

The Dog River watershed is located southwest of the City, directly east of Mt. Hood and is tributary to East Fork Hood River. The historical diversion of Dog River into South Fork Mill Creek provides connectivity of Dog River to the City of The Dalles water supply. The Dog River diversion is located at approximately River

Mile (RM) 6. Historically, seasonal peak flows in the Dog River are driven by rain-on-snow as well as snowmelt runoff. The City is currently replacing the existing diversion pipeline in the Dog River to increase capacity to 26.3 cfs and will continue to divert water into the South Fork Mill Creek and the Crow Creek Reservoir watershed. Water released from the Crow Creek reservoir flows downstream in South Fork Mill Creek and is treated at the Wicks WTP, and is then supplied to the City distribution system. See Figure 1 for location of the Dog River watershed, Dog River diversion, and Crow Creek watershed.

Historical stream flow data for the Dog River are sparse, but there is a period from 2012–2021 with consistent flow data provided from the City. These data are a combination of flow measurements at the diversion point, as well as stream flow measurements at an old USGS v-notch weir gage just upstream of the diversion (USGS gage ID 14113400, located at Latitude 45°24'30", Longitude 121°31'10"). The combined data assume the greater recorded value of the diversion flow or v-notch weir streamflow each day. The combined stream flow data are used in this report as the basis for historical and projected stream flows, and referred to as Dog River stream flows at the location of the diversion facilities (approximately RM 6).

Figure 3 shows historical observed daily flow, aggregated across the water year to median (50th percentile), low (10th percentile), and high (90th percentile). Figure 4 shows the same data, aggregated to monthly average.

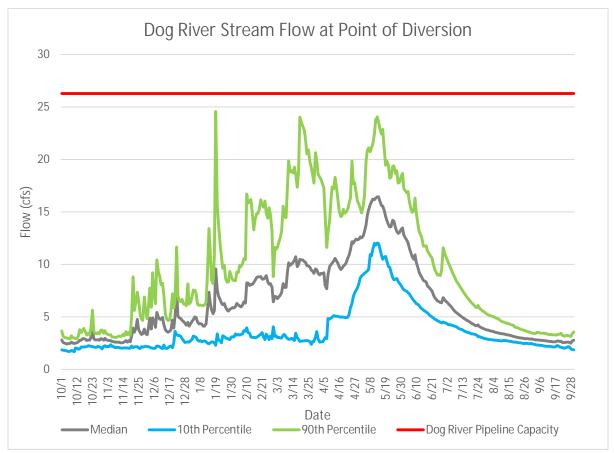


Figure 3. Historical Dog River Daily Observed Stream Flow at Point of Diversion *Median (50th percentile), Low (10th percentile), and High (90th percentile) of daily gauged flow from 2012–2021*

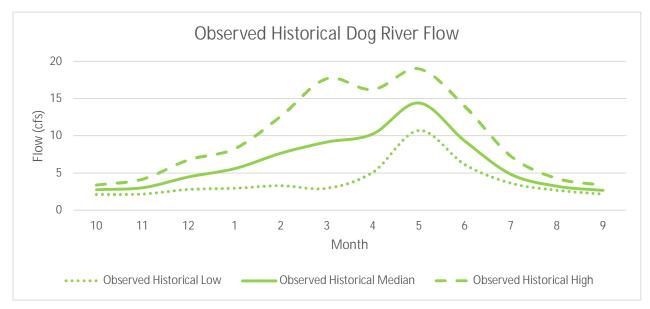


Figure 4. Historical Dog River Average Monthly Observed Stream Flow at Point of Diversion *Median (50th percentile), Low (10th percentile), and High (90th percentile) of monthly gauged flow from 2012–2021*

3.1.2 Projected Stream Flow

LOCA-CMIP5 data were extracted for the Dog Creek, Crow Creek and South Fork Mill Creek watersheds. These spatially averaged runoff data were converted to equivalent Dog River stream flows at the point of diversion (approximately RM 6), using the Dog River watershed area to convert from mm/day, in units of depth per time, over a unit area to cfs, in order to compare the climate model results to observed values. This comparison was used to validate use of the LOCA-CMIP5 simulated historical data as a baseline for future climate data projection. While the datasets are not a perfect match, they show similar seasonal peak flow timing and magnitude, especially for the median of the observed and the median of the simulated. The observed data show higher variation (low and high values), due to natural variability, whereas the climate model tends to produce more seasonally consistent values. The comparison of the median values is sufficiently similar to justify using simulated data over the entire watershed (Dog River, Crow Creek Reservoir, and South Fork Mill Creek) to project changes in overall watershed runoff due to climate change. Figure 5 shows the comparison of the simulated historical data and the observed historical data for the Dog River watershed.

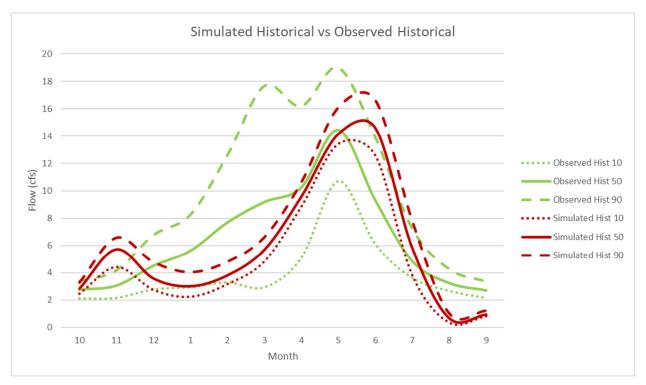


Figure 5. Dog River Average Monthly Observed Historical Stream Flow Compared to Simulated Historical Flow

Median (50th percentile), Low (10th percentile), and High (90th percentile) of monthly gauged flow from 2012–2021, and of simulated historical average monthly flow

Figure 6 shows the low, median, and high scenarios for all LOCA-CMIP5 data. Note that these data are in area-normalized units of mm/day. Future projected stream flows were developed using the change between historical and future LOCA-CMIP5 climate model runoff data (Figure 6). Future climate streamflow change factors were applied to historical observed Dog River flow data to develop future projected streamflow at an average monthly time scale (Figure 7). Full watershed total projected flow rates (Dog River, Crow Creek Reservoir, and South Fork Mill Creek watersheds) were developed by increasing the Dog River flows proportional to the total watershed size (Figure 8).

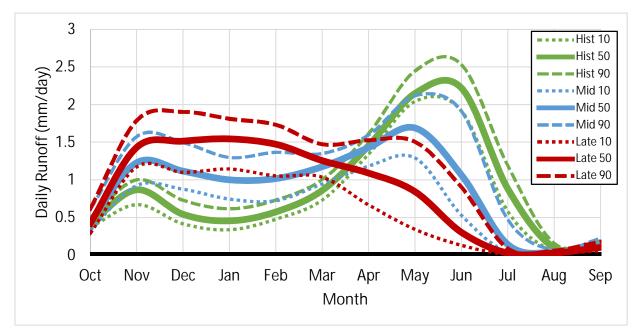


Figure 6. LOCA-CMIP5 Projected Daily Runoff for Dog River, Crow Creek Reservoir, and South Fork Mill Creek Watersheds

Median (50th percentile), Low (10th percentile), and High (90th percentile) of LOCA-CMIP5 simulated historical, mid-century, and late-century daily runoff projections

Future climate projections were developed for both mid-century and late-century time periods. Figure 7 shows these mid-century and late-century data projections for the Dog River stream flow along with the observed historical data. Figure 8 shows the similar patterns as Figure 7, but upscaled to the combined full watershed. Figure 9 shows the individual watershed components of the full watershed runoff, based on proportion of the full watershed area. The Dog River watershed makes up 18% of the full watershed, Crow Creek Reservoir watershed makes up 39% of the full watershed, and the South Fork Mill Creek watershed makes up 43% of the full watershed. These projections show a clear shift in the seasonal hydrograph. Historically, the combined watershed system was predominantly a snowmelt based system (with peak runoff in May). By mid-century, projections show this shifting to a rain/snow mixed sytem, with two similar magnitude peaks, one in winter (February) due to precipititon runoff and one in spring (May) due to snowmelt runoff. By end of century, this system shifts to a precipitation runoff dominant system, with a single peak in winter (February).

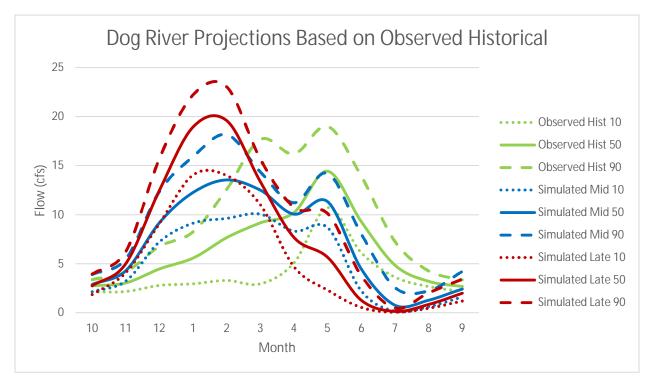


Figure 7. Projected Dog River Stream Flow Using Observed Historical Flow as Baseline Median (50th percentile), Low (10th percentile), and High (90th percentile) of monthly gauged flow from 2012–2021; Median, Low, and High of Mid-Century and Late-Century projected future average monthly flows

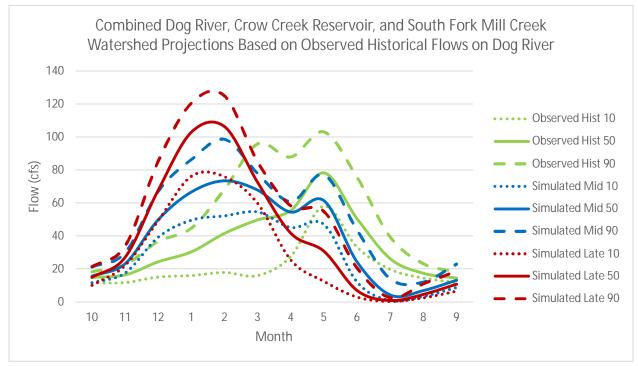


Figure 8. Combined Projected Dog River, Crow Creek Reservoir, and South Fork Mill Creek Watershed Flow Using Observed Historical Flow as Baseline

Median (50th percentile), Low (10th percentile), and High (90th percentile) of monthly gauged flow from 2012–2021; Median, Low, and High of Mid-Century and Late-Century projected future average monthly flows

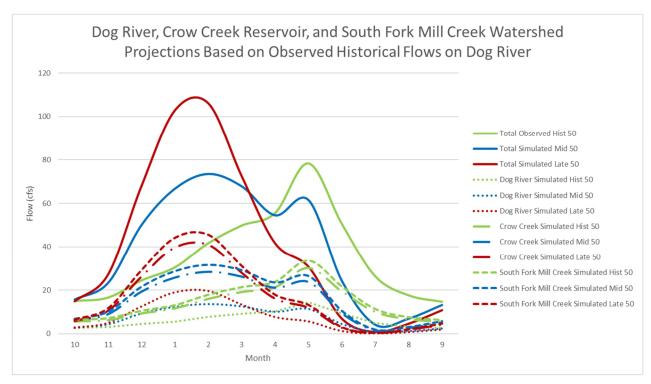


Figure 9. Projected Dog River, Crow Creek Reservoir, and South Fork Mill Creek Watershed Flow as Using Observed Historical Flow as Baseline

Median (50th percentile), monthly gauged flow from 2012–2021; Median of Mid-Century and Late-Century projected future average monthly flows

In addition to daily and monthly flow data, cumulative yearly flow volume was calculated for all LOCA-CMIP5 data and observed historical data. The results of these calculations are shown for the Dog River watershed in Figure 10. At the median (50th percentile), the projections show a decrease in total annual runoff volume of about 5% decrease by mid-century and about 9% decrease by end of century. This decrease in projected runoff is despite a projected increase in annual precipitation (Section 3.3), and is due primarily to increase in evapotranspiration due to higher atmospheric temperatures. Note that the observed historical values have much higher and lower volumes in the low and high scenarios. This is due to high variation found in observed data. Annual volume projections for the entire watershed (Dog River, Crow Creek Reservoir, and South Fork Mill Creek) are shown in Figure 11. The change in annual projected runoff volume relative to historical simulated are the same as that for the Dog River (Figure 10), with total volumes upscaled to the larger watershed.

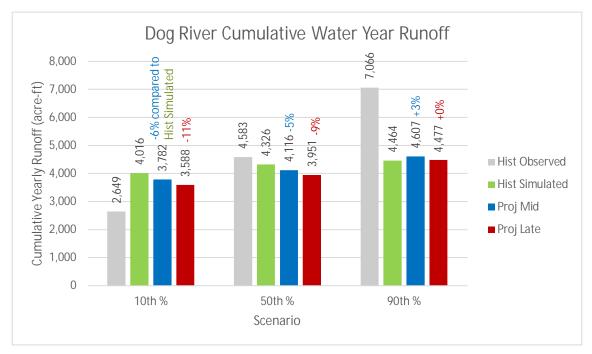


Figure 10. Cumulative Average Yearly Runoff in Dog River Watershed Median (50th percentile), Low (10th percentile), and High (90th percentile) of cumulative yearly runoff for monthly gauged flow from 2012–2021, LOCA-CMIP5 simulated historical, mid-century, and late-century runoff projections

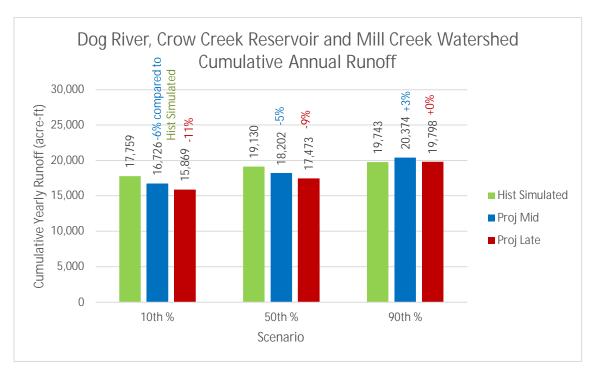


Figure 11. Cumulative Average Yearly Runoff in Dog River, Crow Creek Reservoir, and South Fork Mill Creek Watersheds

Median (50th percentile), Low (10th percentile), and High (90th percentile) of cumulative yearly runoff for LOCA-CMIP5 simulated historical, mid-century, and late-century runoff projections

3.2 Temperature

Temperature characterization utilized LOCA-CMIP5 data, both for historical and future climate projections. These temperature values are averaged across the entire LOCA-CMIP5 data extract area described in Section 2 and encompass the Dog River, Crow Creek Reservoir, and South Fork Mill Creek watersheds. Projected mid-century and late-century temperatures are higher across all seasons. Peak summer temperatures in the mid-century projection reach up to 2.5 degrees Celsius (°C) above simulated historical average, and peak summer temperatures in the late-century projection reach as much as 5.5°C above simulated historical average. The temperature increases are generally higher in summer.

Figure 12 shows the average daily temperature for each month, while Figure 13 shows the difference in average daily temperature for the mid-century and late-century projections as compared to the simulated historical data.

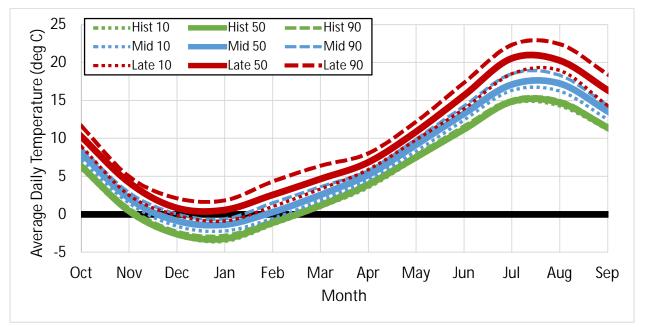


Figure 12. LOCA-CMIP5 Projected Daily Temperature Median (50th percentile), Low (10th percentile), and High (90th percentile) for LOCA-CMIP5 simulated historical, mid-century, and late-century daily temperature projections

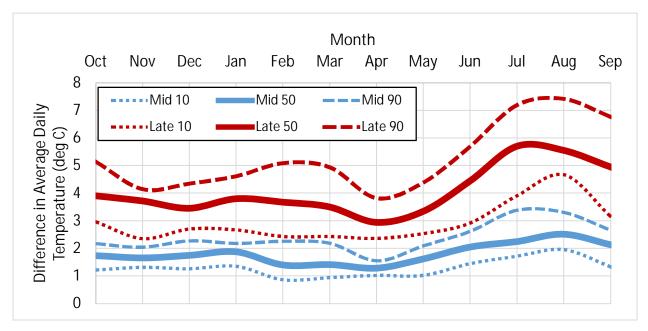


Figure 13. LOCA-CMIP5 Future Projected Change in Average Daily Temperature Median (50th percentile), Low (10th percentile), and High (90th percentile) for the difference between LOCA-CMIP5 simulated historical daily temperature compared to LOCA-CMIP5 mid-century and late-century daily temperature projections

3.3 Precipitation

Precipitation characterization utilized LOCA-CMIP5 data, both for historical and future climate projections. These precipitation values are averaged across the entire LOCA-CMIP5 data extract area described in Section 2 and encompass the Dog River, Crow Creek Reservoir, and South Fork Mill Creek watersheds. Projected mid-century and late-century precipitation is higher in the winter months and slightly lower in the summer months. Maximum summer precipitation in both the mid-century and late-century projections reaches as much as -0.2 mm/day below simulated historical average. Peak winter precipitation in the mid-century projection reaches as much as 0.35 mm/day higher than simulated historical average, and peak winter precipitation in the late-century project reaches as much as 0.65 mm/day higher than simulated historical average. Total annual precipitation for the median projection is projected to increase by 18 mm (0.7 inches) by mid-century and by 28 mm (1.1 inches) by end of century.

The increase in precipitation volume over the winter months in both the mid-century and late-century projections is one of the major drivers for the change in peak flow season in the Dog River, as shown in Section 3.1.2. When combined with the increase in projected average winter temperature, this means a larger proportion of this increased precipitation will fall as rain instead of snow. This increases the volume of winter runoff, while decreasing the amount of snowpack available for melt in the summer months. More detail on the impacts to snowmelt will be discussed in Section 3.4.

Figure 14 shows the average daily precipitation in mm/day for each month, while Figure 15 shows the difference in average daily precipitation for the mid-century and late-century projections as compared to the simulated historical data.

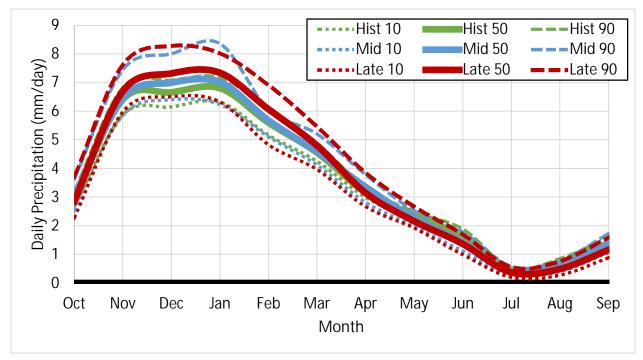


Figure 14. LOCA-CMIP5 Projected Daily Precipitation

Median (50th percentile), Low (10th percentile), and High (90th percentile) for LOCA-CMIP5 simulated historical, mid-century, and late-century daily precipitation projections

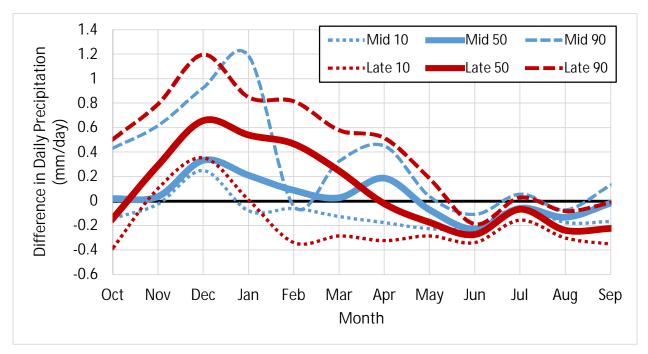


Figure 15. LOCA-CMIP5 Difference in Average Daily Precipitation

Median (50th percentile), Low (10th percentile), and High (90th percentile) for the difference between LOCA-CMIP5 simulated historical daily precipitation compared to LOCA-CMIP5 mid-century and late-century daily precipitation projections

3.4 Snowmelt

Snowmelt characterization utilized LOCA-CMIP5 data, both for historical and future climate projections. These snowmelt values are averaged across the entire LOCA-CMIP5 data extract area described in Section 2 and encompass the Dog River, Crow Creek Reservoir, and South Fork Mill Creek watersheds. Projected mid-century and late-century snowmelt is higher in the winter months and much lower in the summer months. Maximum winter snowmelt in the mid-century projection reaches 1.5 mm/day higher than simulated historical average, and late-century projections reach as much as 2.0 mm/day higher than simulated historical average. Peak spring/summer snowmelt in the mid-century projection reaches as much as -3.0 mm/day less than simulated historical average, and peak spring/summer snowmelt in the late-century project reaches as much as -5.5 mm/day less than simulated historical average.

The increase in winter month snowmelt is driven by the increase in average winter temperature, seen in Section 3.2. Higher winter temperatures cause snowpack to melt earlier, which is compounded by winter precipitation falling as rain that increases the rate of melting. When most winter precipitation falls as rain instead of snow, and the winter temperatures are high enough to melt some existing snowpack, this leads to significantly less snowpack available for melt in the spring and summer months.

Figure 16 shows the average daily snowmelt rate in mm/day for each month, while Figure 17 shows the difference in average daily snowmelt rate for the mid-century and late-century projections as compared to the simulated historical data.

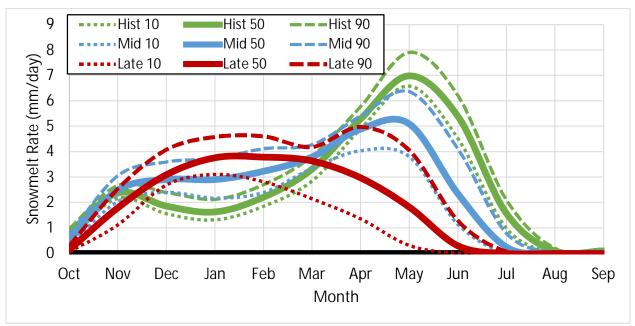


Figure 16. LOCA-CMIP5 Projected Monthly Snowmelt Rate

Median (50th percentile), Low (10th percentile), and High (90th percentile) for LOCA-CMIP5 simulated historical, mid-century, and late-century snowmelt rate projections

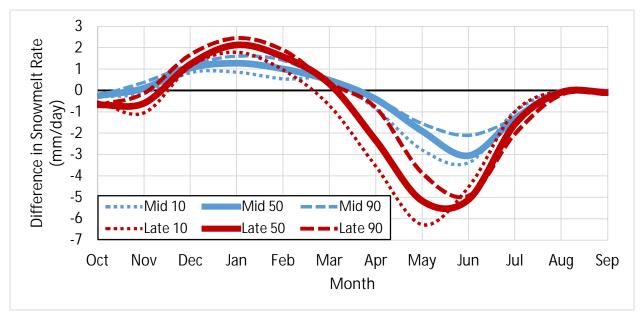


Figure 17. LOCA-CMIP5 Difference in Monthly Snowmelt Rate

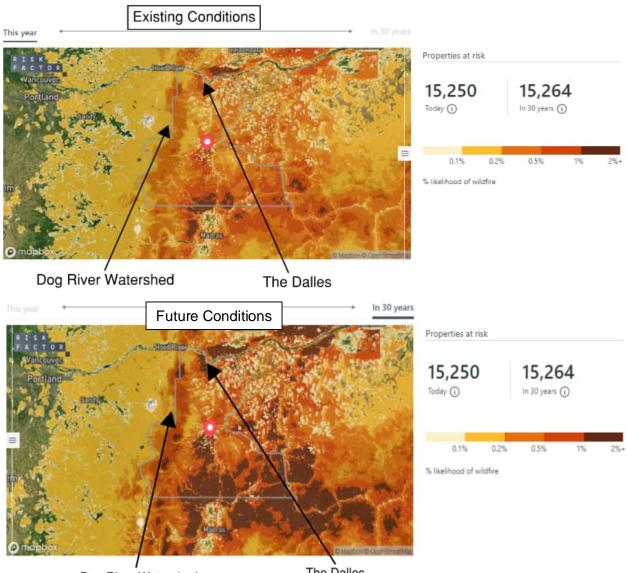
Median (50th percentile), Low (10th percentile), and High (90th percentile) for the difference between LOCA-CMIP5 simulated historical snowmelt rate compared to LOCA-CMIP5 mid-century and late-century snowmelt rate projections

3.5 Wildfire

This section characterizes projected future wildfire trends, quantified as wildfire risk (Risk Factor, 2022), and fire danger days (Hegewisch and Abatzoglou, 2022). The forested Dog River, Crow Creek Reservoir, and South Fork Mill Creek watersheds are characteristic of high Cascades mixed conifer forests. Substantial downed timber exists. Significant wildfires have occurred in the lower end of the watershed, below Crow Creek Dam and at elevations below 3000 feet, in both 1967 (School Marm Fire) and 2013 (Government Flats Complex Fire). Wildfires in the watershed will have material effects on water supply quality and quantity in the short term and long term. This section evaluates potential future impacts of climate change on wildfires, as wildfires may affect City water supplies.

Because nearly all the identified properties within the watershed in Hood River and Wasco Counties are identified as "at risk" for current conditions (today), the Risk Factor (2022) evaluation shows minimal numerical increase between today and future conditions (in 30 years) (Figure 18). However, the map does show substantial additional portions of the Counties with greater (1%) wildfire likelihood in the future than in the existing condition.

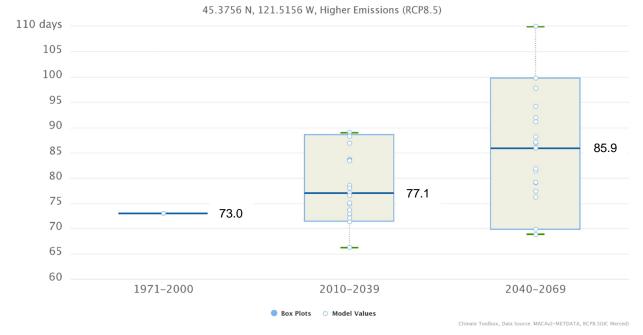
In addition to information on future projected wildfire risk, *Climate Toolbox* provides projections of Annual Fire Danger Days above the "high" (Figure 19), "very high" (Figure 20), and "extreme" (Figure 21) levels. Future projections show increases in each of these metrics by the middle of the 21st century. This parameter is a measure of the amount of moisture in dead vegetation in the 1-to-3-inch-diameter class available to a fire.



Dog River Watershed

The Dalles

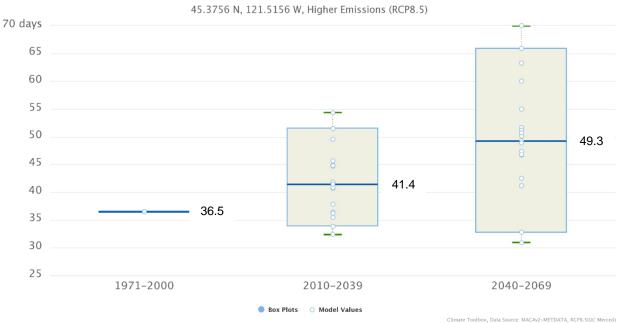
Figure 18. Existing and Future Projected Wildfire Risk in Hood River and Wasco County Near The Dalles *Source: Risk Factor, 2022*



Annual "High" Fire Danger Days

Figure 19. Dog River Watershed Future Projected Wildfire Exposure: Annual Number of "High" Fire Danger Days

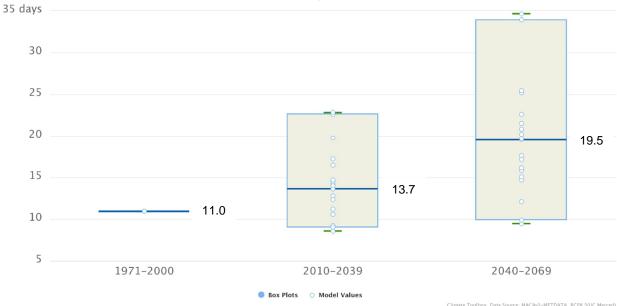
Source: Hegewisch and Abatzoglou, 2022



Annual "Very High" Fire Danger Days

Figure 20. Dog River Watershed Future Projected Wildfire Exposure: Annual Number of "Very High" Fire Danger Days

Source: Hegewisch and Abatzoglou, 2022



Annual "Extreme" Fire Danger Days

45.3756 N, 121.5156 W, Higher Emissions (RCP8.5)

Figure 21. Dog River Watershed Future Projected Wildfire Exposure: Annual Number of "Extreme" Fire Danger Days

Source: Hegewisch and Abatzoglou, 2022

4. Summary

Future climate projections utilized LOCA-CMIP5 data (Section 2.1), with limited observed historical stream flow information used as a comparison point (Section 3.1.1). The results are summarized as follows (see Section 3 for additional detail about each parameter):

- Runoff: Future Dog River, Crow Creek Reservoir, and South Fork Mill Creek watershed stream flow hydrographs are expected to experience a substantial change in the timing of seasonal runoff (Figures 7, 8 and 9). This change is driven by higher winter temperatures and increased winter precipitation. These changes lead to peak seasonal runoff driven by winter rainfall rather than summer snowmelt. Seasonal peak runoff shifts from occurring in late spring (May) to occurring in winter (February) by late century. The overall trend is about 5% reduction in annual runoff by mid-century and 9% reduction by end-of century for the median (50th percentile) projection (Figure 10). The low (10th percentile) scenario also shows reduced future climate total runoff. This decrease is due mostly to increased evapotranspiration, which exceeds small increases in annual precipitation. The high (90th percentile) scenario shows a slight increase in annual runoff for the mid-century projection and no change for the late-century projection.
- Temperature: Average monthly temperatures at the Dog River, Crow Creek Reservoir, and South Fork Mill Creek watersheds are projected to increase an average of 1.5 to 2.0°C in the mid-century projection, and by an average of 3.0 to 6.0°C in the late-century projection (median scenario).
- Precipitation: Average annual precipitation at the Dog River, Crow Creek Reservoir, and South Fork Mill Creek watersheds is projected to increase slightly by about 0.7 inch per year in the mid-century projection and 1.1 inches per year in the late-century projection (median scenario). This annual increase is the product of a decrease in the summer and an increase in the winter (Figure 15).
- Snowmelt: Snowmelt rates in the Dog River, Crow Creek Reservoir, and South Fork Mill Creek watersheds are projected to increase over the winter months by as much as 1 mm/day in the mid-

19

century projection and 2 mm/day in the late-century projection (median scenario). Summer month snowmelt rates decrease by as much as -3 mm/day in the mid-century projection and -5.5 mm/day in the late-century projection (median scenario).

• Fire Management: Climate projections predict an increase in average temperature and increase of dry vegetation; it can be anticipated that wildfire frequency and intensity will also increase. The analysis for wildfire impact is qualitative rather than quantitative. As projected wildfire frequency increases, this can impact both the water supply quantity and water quality at Crow Creek Reservoir and Wicks WTP. After a wildfire, soils are more hydrophobic, which leads to increased peak runoff and decreased long-term baseflows. Wildfires also impact water quality, as the burned area will contribute increased sediment and burnt material into the water supply. A catastrophic fire in the watershed may occur this century and could substantially affect water quality from Dog River and runoff to Crow Creek Reservoir and South Fork Mill Creek.

5. Recommendations

To ensure resilient future water supply, the City of the Dalles should consider the projected future change in seasonal runoff in the Dog River, Crow Creek Reservoir, and **South Fork** Mill Creek Watersheds (Figures 7 and 8), relative to the City's current water usage and projected demands. The City should consider additional storage options as well as aquifer storage and recovery (ASR) as methods to capture earlier spring and winter projected peak runoff. Water demand forecasting being performed as part of this Water Master Plan must be compared in context to supply from watershed yield, groundwater supply, and storage options to develop treatment, conveyance and distribution alternatives that satisfy the City's need for resilient water supply.

6. References

Hegewisch, K.C., and J.T. Abatzoglou. 2022. "Future Boxplots tool." *Climate Toolbox*. Accessed April 20, 2023. <u>https://climatetoolbox.org/tool/Future-Boxplots</u>.

Intergovernmental Panel on Climate Change (IPCC). 2022. *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama, editors. Cambridge University Press. In Press. <u>https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/</u>

Lawrence Livermore National Laboratory (LLNL). 2023. "Projections: Subset Request." Downscaled CMIP3 and CMIP5 Climate and Hydrology Projections. Accessed February 23, 2023. <u>https://gdo-dcp.ucllnl.org/downscaled_cmip_projections/dcpInterface.html#Projections:%20Subset%20Request</u>

Risk Factor. 2022. "Wasco County Faces Risk from 2 of 3 Environmental Factors." *Wasco County Oregon*. Accessed April 21, 2023. <u>https://riskfactor.com/county/wasco-</u> <u>county/41065_fsid/fire#current_&_future_risk</u>.



APPENDIX B HYDRAULIC MODEL DATA

Page 383 of 664

Flow Test	Location	Date of Test	Time	Hydrant Flow	Model Results		Field Results		Difference	
No.				(gpm)	Static Pressure (psi)	Residual Pressure (psi)	Static Pressure (psi)	Residual Pressure (psi)	Static Pressure (psi)	Residual Pressure (psi)
1	701 W. 12th St	8/30/2023	12:43 PM	1,515	91	72	86	76	5	-4
2	1300 G St	8/30/2023	10:34 AM	1,184	47	40	45	37	2	3
3	E. 1st St and Federal St	10/4/2023	8:08 AM	1,695	79	74	88	78	-9	-4
4	2014 W. 7th St	10/4/2023	7:31 AM	1,562	62	10	72	48	-10	-38
5	3840 Crates Wy	6/1/2023	1:50 PM	1,348	67	52	72	51	-5	1
6	1520 W. 1st St	10/4/2023	8:33 AM	1,764	75	58	78	60	-3	-2
7	16th Pl and Scenic	5/8/2023	10:54 AM	1,814	92	75	98	65	-6	10
8 ¹	E. 11th St off E. Morton St	8/30/2023	9:30 AM	-	51	-	59	-	-8	-
9	13th St & G St	8/30/2023	12:22 PM	662	78	61	82	54	-4	7
10	522 W. 14th St	6/2/2023	10:14 AM	1,324	57	41	54	38	3	3
11	12th St & Oregon Ave	8/30/2023	10:07 AM	1,327	108	86	100	80	8	6
12	Lone Pine Ln & Osprey at Water's Edge	6/2/2023	10:53 AM	1,545	102	92	102	95	0	-3
13	Brentwood Dr & Royal Crest Dr	6/1/2023	1:20 PM	1,448	82	67	80	62	2	5
14 ²	2503 W. Wright St	6/1/2023	12:30 PM	1,910	-	-	98	74	-	-
15	W. 22nd St & Garrison St	6/2/2023	9:59 AM	493	64	26	56	23	8	3
16	400 E. Scenic Dr (CGCC)	6/1/2023	10:53 AM	1,651	73	69	116	87	-43	-18
17	Oakwood Dr	6/1/2023	12:59 PM	780	74	68	72	64	2	4
18.1	755 E. 18th St	6/1/2023	10:13 AM	1,190	53	0	50	16	3	-16
18.2	919 E. 18th St	6/1/2023	10:31 AM	1,023	62	0	60	37	2	-37
19	2543 E 18th St	5/8/2023	1:13 PM	1,620	114	103	110	104	4	-1

Table B-1 | Hydraulic or Steady-State Calibration Results

Note:

1. Static pressure reading was the only measurement recorded during the hydrant fire flow test.

2. Due to open channel flow conditions upstream, the hydrant fire flow test was not modeled.



Test No. 1	Calibration is acceptable.
2	Calibration is acceptable.
3	A 10 psi static pressure difference. PRV settings verified from system information on hand.
4	A static pressure difference of 10 psi. A large difference in residual pressure. Small diameter pipes in the area are limiting flow capacities.
5	Calibration is acceptable.
6	Calibration is acceptable.
7	Calibration is acceptable.
8	A difference in 8 psi in static pressure. PRV settings verified from system information on hand.
9	Calibration is acceptable.
10	Calibration is acceptable.
11	Calibration is acceptable.
12	Calibration is acceptable.
13	Calibration is acceptable.
14	Did not calibrate.
15	Calibration is acceptable.
16	A static pressure difference of 43 psi and residual pressure difference of 18 psi. The residual hydrant may be further east, south of 18 th St and Jefferson.
17	Calibration is acceptable.
18.1	The residual pressure drops to zero due the limiting capacity of the 6-inch pipe along 20 th St.
18.2	The residual pressure drops to zero due the limiting capacity of the 6-inch pipe along 20 th St.
19	Calibration is acceptable.

Table B-2 | Hydraulic or Steady-State Calibration Findings

Note:

1. Use a superscript number for your table notes

2. This is where your table notes go



Minimum Day Demand Operational Calibration (February 26, 2023)

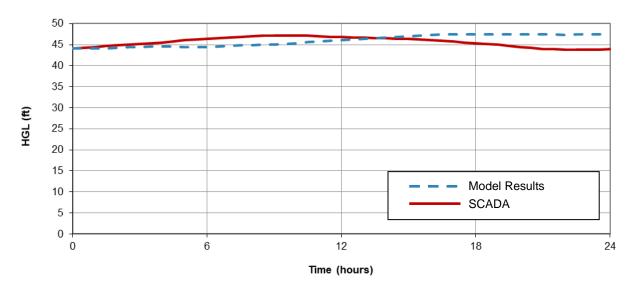
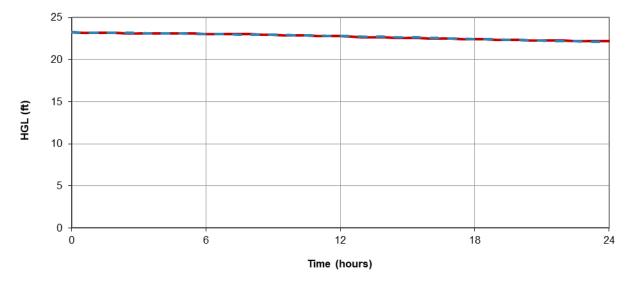


Figure B-1 | Garrison Tank







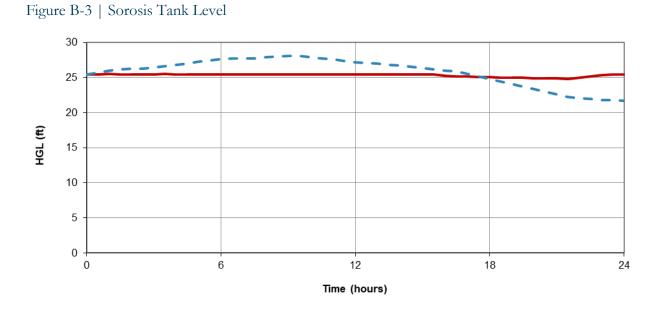
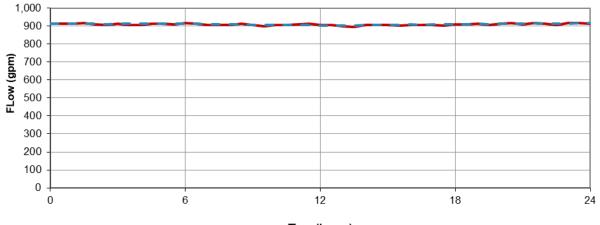
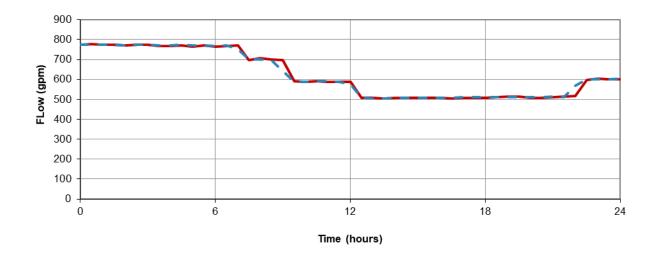


Figure B-4 | Wicks WTP High Line Flow









Maximum Day Demand Operational Calibration (August 15, 2023)

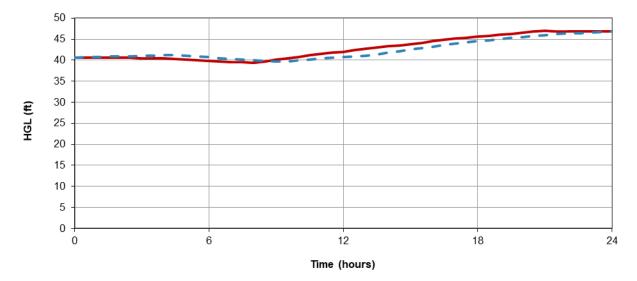
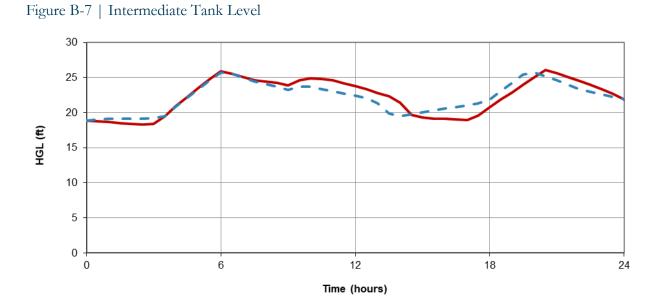
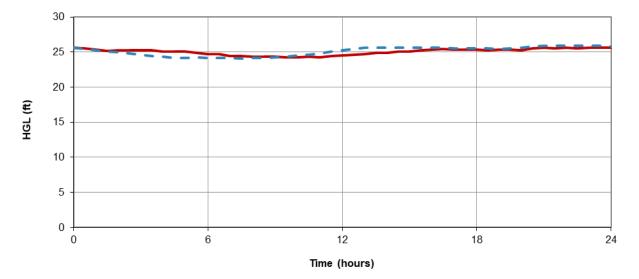


Figure B-6 | Garrison Tank Level

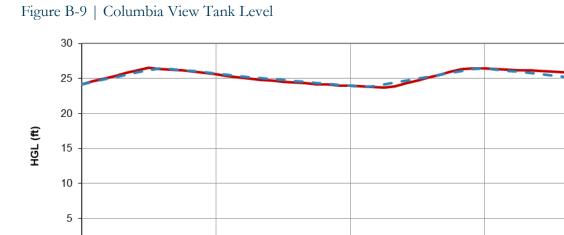












18

24



6

0 + 0

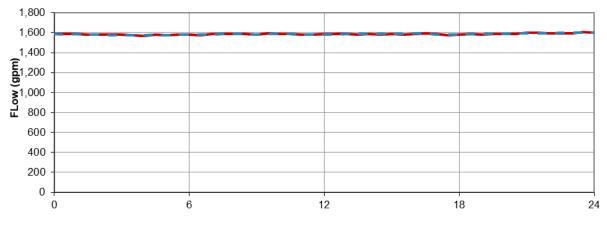
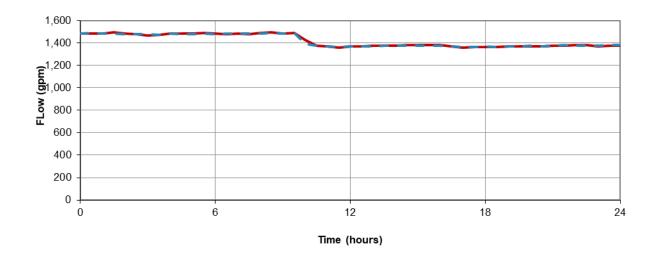
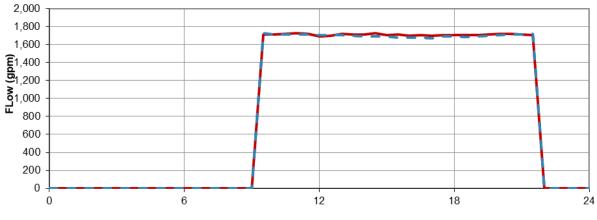




Figure B-11 | Wicks WTP Mill Creek Flow

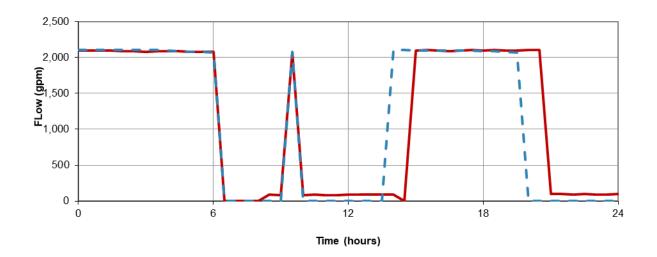




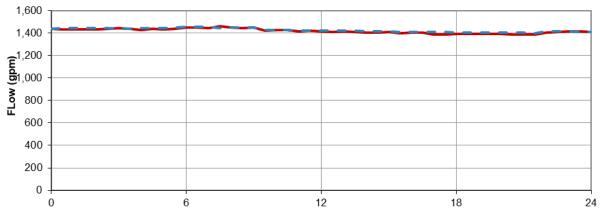




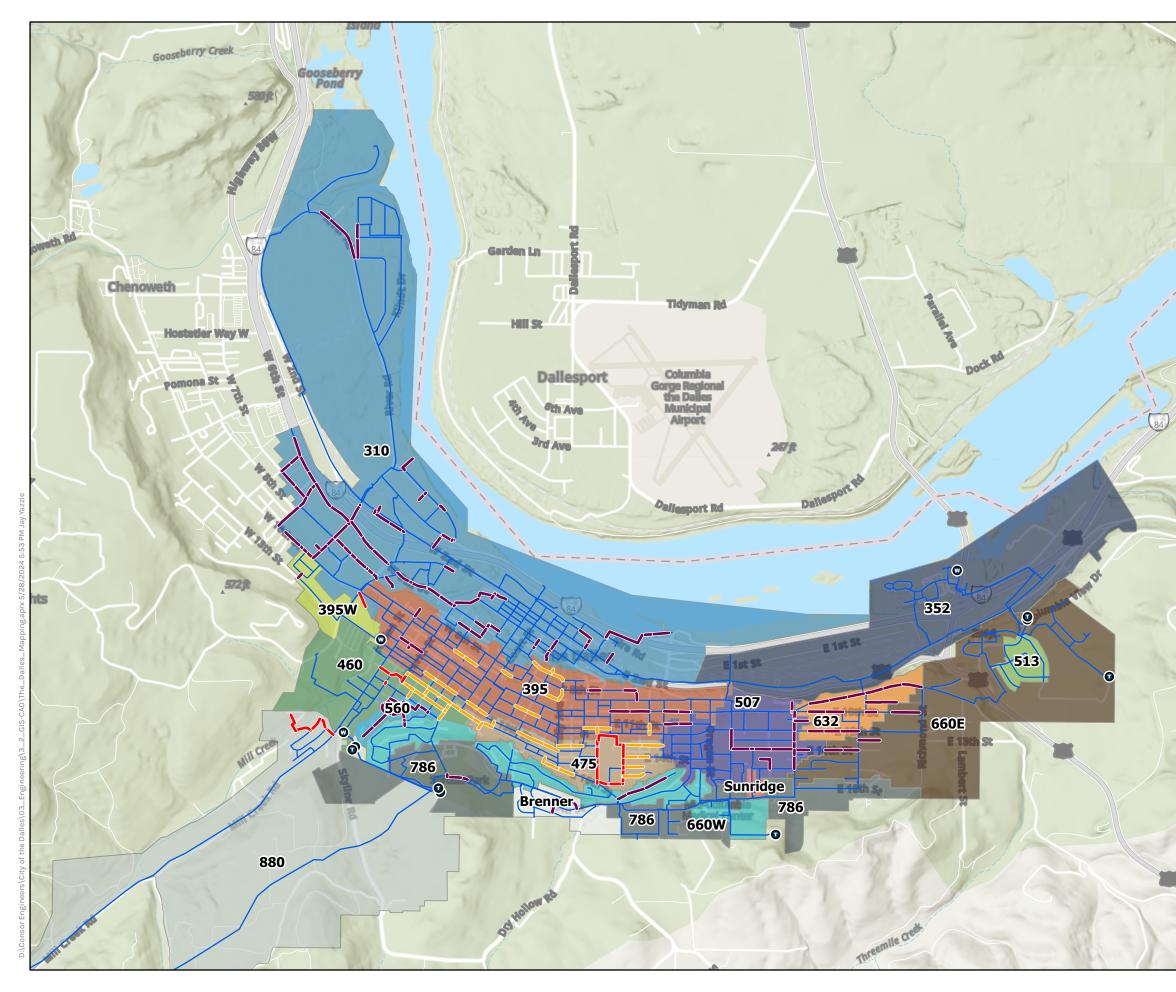












Data Sources: NTUA 2020; ESRI; World Topographic Map: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS World Hillshade: Esri, NASA, NGA, USGS, FEMA <u>Coordinate System</u>: NAD 1927 StatePlane Oregon North FIPS 3601 NAD 1983 State Plane Coordinate System

Disclaimer: Consor and NTUA make no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, or surveying purposes. Notification of any errors is appreciated.

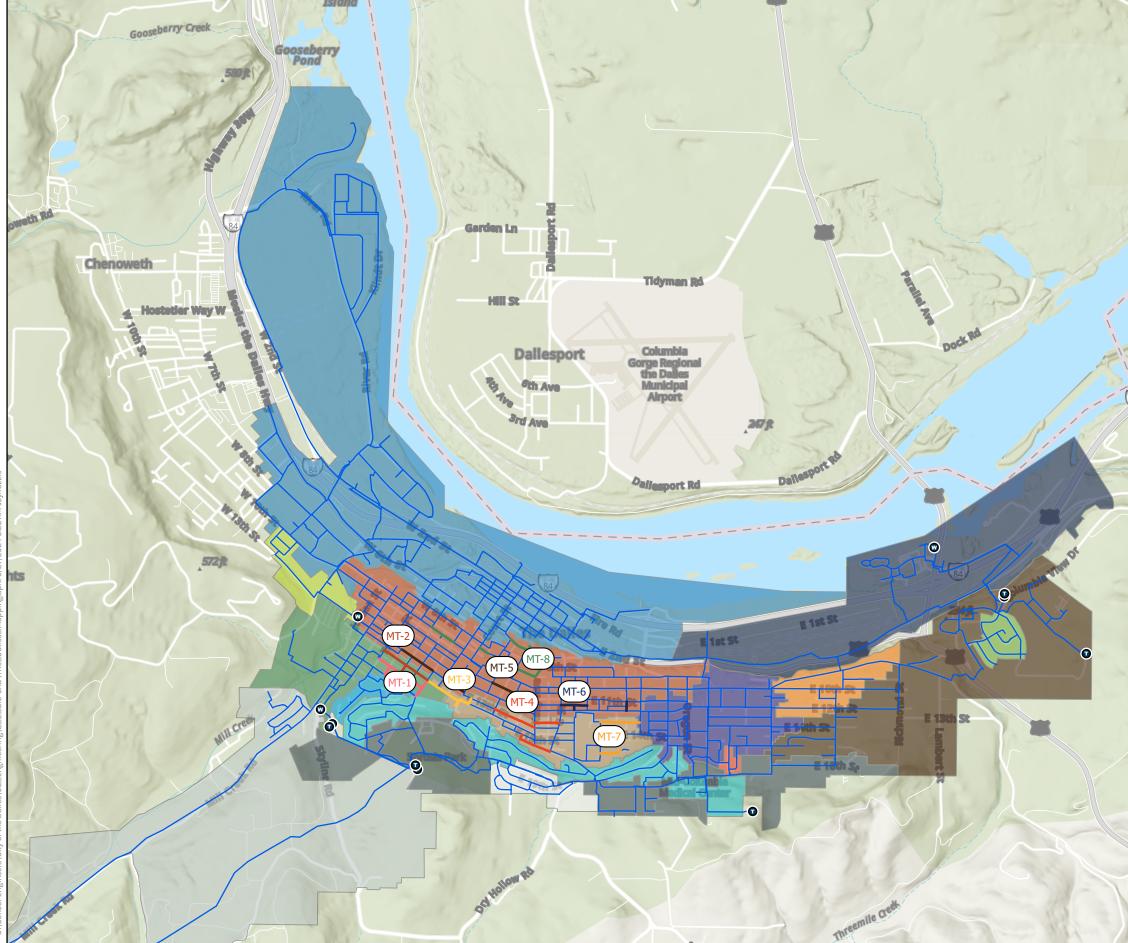




The Dalles Water Master Plan

Figure B.15. Overview of Recommended Piping Improvements for Fire Flow

Project No. W1961170R.00



Data Sources: NTUA 2020; ESRI; World Topographic Map: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS World Hillshade: Esri, NASA, NGA, USGS, FEMA <u>Coordinate System</u>: NAD 1927 StatePlane Oregon North FIPS 3601 NAD 1983 State Plane Coordinate System <u>Disclaimer</u>: Consor and NTUA make no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, or surveying purposes. Notification of any errors is appreciated.

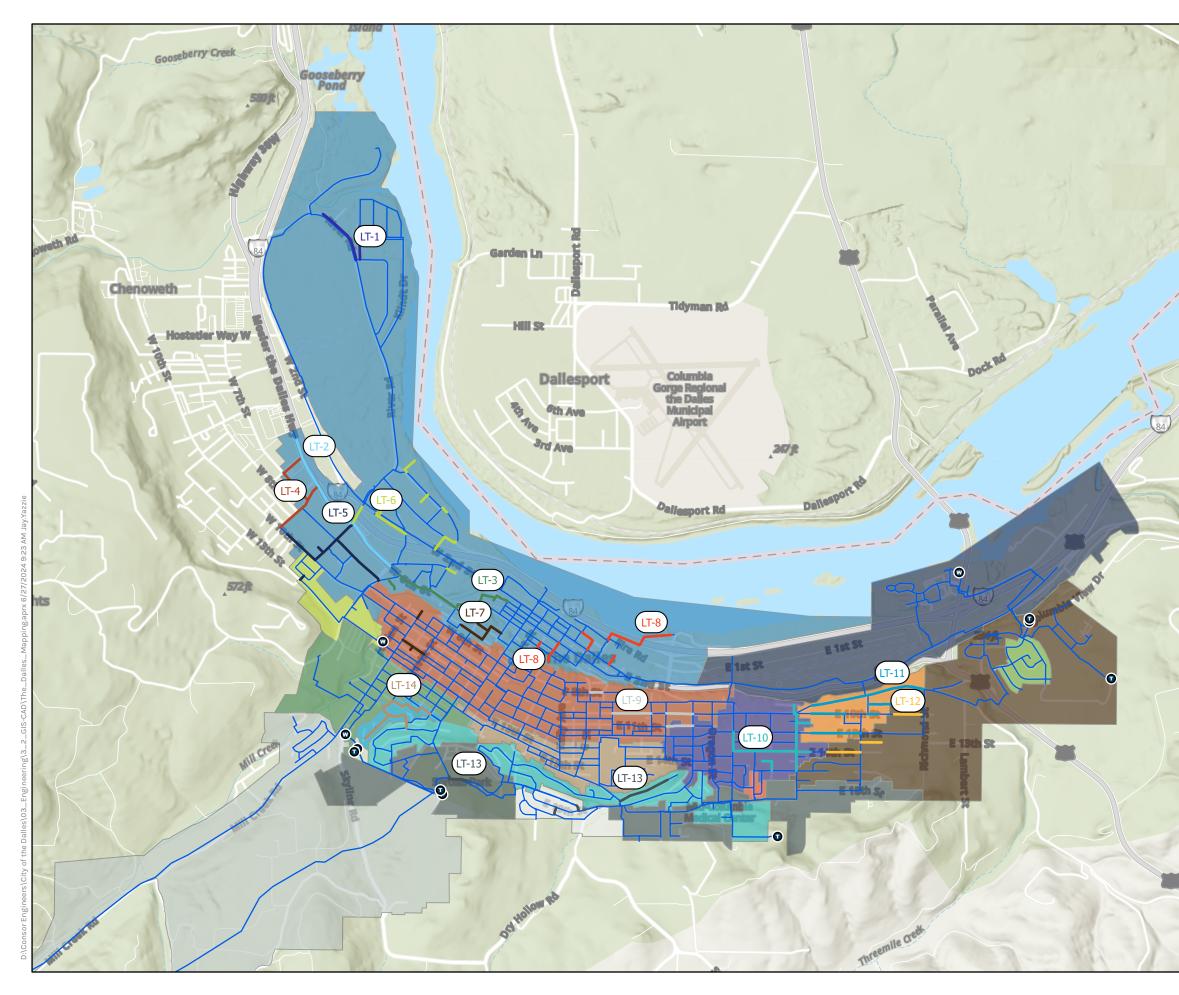
•	Well		660E
0	Tank		660W
0	Pump		786
	Distribution Main		880
Pres	sure Zone		Brenner
	310		Sunridge
	352	Mid-	-term CIP
	395		MT-1
	395W	_	MT-2
	460		MT-3
	475		MT-4
	507	_	MT-5
	513		MT-6
	560	_	MT-7
	632		MT-8



The Dalles Water Master Plan

Figure B.16. Mid-Term Capital Piping Improvements

Project No. W1961170R.00



Data Sources: NTUA 2020; ESRI; World Topographic Map: Oregon State Parks, State of Oregon GEO, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS World Hillshade: Esri, NASA, NGA, USGS, FEMA <u>Coordinate System</u>: NAD 1927 StatePlane Oregon North FIPS 3601 NAD 1983 State Plane Coordinate System

Disclaimer: Consor and NTUA make no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, or surveying purposes. Notification of any errors is appreciated.

•	Well	880		
0	Tank	Brenner		
0	Pump	Sunridge		
	Distribution Main	Long-term CIP		
Pres	sure Zone	LT-1		
	310	—— LT-2		
	352	— LT-3		
	395	— LT-4		
	395W	— LT-5		
	460	—— LT-6		
	475	— LT-7		
	507	— LT-8		
	513	LT-9		
	560	— LT-10		
	632	— LT-11		
	660E	— LT-12		
	660W	— LT-13		
	786	— LT-14		





REG

consor



APPENDIX C DISTRIBUTION SYSTEM EVALUATION TECHNICAL MEMORANDA

Page 396 of 664

Jacobs

Technical Memorandum

2020 SW Fourth Avenue, 3rd Floor Portland, OR 97201 503.235.5000 www.jacobs.com

Subject	Task 6.1 Pipeline and Distribution Facility Seismic Risk Assessment
Project Name	City of The Dalles Water Master Plan
City Project Number	2022-005
Jacobs Project Number	D3718900
То	Dave Anderson/City of the Dalles
From	Brady Fuller, PE/Jacobs Terri Tovey, PE, CWI/Jacobs
Reviewed by	Brady Fuller, PE/Jacobs
Date	July 26, 2024

1. Introduction

The project scope for the City of the Dalles Water Master Plan pipeline and distribution facility seismic risk assessment includes completing an initial assessment of existing structures using record drawings, and identifying structural upgrades based on the age of the structures, and building construction materials for seismic resiliency. The detailed evaluation of Crow Dam was not included in the scope of work for the Water Master Plan, but the 1996 Crow Dam seismic assessment was reviewed and recommendations made for further analyses.

This technical memorandum (TM) presents a summary of these assessments, potential changes in regulatory requirements and other conditions, and recommends an approach for future studies to refine the City's understanding of the structural conditions, seismic vulnerabilities, and potential expansions.

Depending on outcomes of Wick Water Treatment Plant (WTP) process evaluations, additional studies may be conducted to determine structural conditions and seismic performances of the Wick WTP facilities that are recommended to remain and/or be modified in proposed improvements.

The following buildings and structures were evaluated:

- Wells (Lone Pine, Jordan, Marks)
- Booster Pump Stations (Intermediate PS, Garrison PS, Vista PS located at the Sorosis Reservoir site)

Oregon Building Codes Division (OBCD) has established recommendations to improve fire resilience of existing structures. According to an OBCD publication, "Senate Bill 762 (2021) created a statewide approach to a wide range of wildfire mitigation measures. The legislature directed the Building Codes Division to adopt fire hardening building code standards that could be applied to areas of the state mapped as extreme or high risk and that are in the wildland urban interface. Fire hardening refers to building materials and practices that can reduce the risk of ignition of a home by embers from wildfires." While these recommendations are focused on residential structures, they are applicable to the structures considered under this evaluation. Improvements or modifications to these structures that are subject to building permits are expected to trigger code-required fire resilient construction materials and methods. (See guidance from State of Oregon Department of Consumer and Business Services,

Building Codes Division. For more information about fire hardening, contact the OBCD at bcd.firehardening@dcbs.oregon.gov.)

2. Review of Existing Facilities

2.1 Wells

The existing Lone Pine Well, Jordan Street Well, and Marks Well are reviewed below. The City Hall, Stadelman, and Mill Creek well sites are no longer in use and were not evaluated.

2.1.1 Lone Pine Well

The facility has four main rooms as shown in Table 1.

Table 1. Lone Pine Well Building Rooms

Room Number	Description
Room 106	Pump Room
Room 103/104/105	Fluoride Room/Vestibule/Janitor
Room 102	Hypochlorite Pumping Room
Room 101	Hypochlorite Storage Room

The Lone Pine Well Building was constructed in 1982, directly adjacent to the existing Chlorine Building. The well and pump building is 19 feet 5 inches by 17 feet 4 inches by approximately 10 feet high with concrete masonry unit (CMU) walls, a wood-framed roof, and an 8-inch-thick, reinforced concrete, slab-on-grade floor. The CMU walls were designed with bond beams and the building has a concrete column in each corner. The roof of the Lone Pine Well Building includes two removable sections, and a steel monorail beam (member size: S10x25.4). The building has single doors on both the east and west walls. The east wall includes a large removable, wood-framed wall section that is plywood with 2-inch by 4-inch blocking, located adjacent to the east door.

The Lone Pine Well Building was remodeled in 2016 at the same time the well column was upgraded. The building is typically unoccupied. The CMU walls are doweled into an 18-inch by 18-inch perimeter concrete footing that connects to an 8-inch-thick floor slab.

The existing Chlorine Building is roughly 48 feet by 30 feet and the date of its original construction is not known. The building was remodeled in 1982 when the Well building was constructed, and again in 2016. The Chlorine Building has a wood-framed roof, wood-framed walls, and exterior metal siding. The building has an S6x12.5 monorail with an electric hoist that was centered over two chlorine tanks, which were removed when the treatment process was upgraded to fluoride. The monorail is supported by three W8x17 beams. The building has a perimeter concrete footing and a 4-inch-thick concrete floor slab.

Photos of the Lone Pine Well facility are provided below.



Seismic Evaluations and Upgrades:

CMU buildings constructed in this era would typically include anchorage of walls to foundations, include partially grouted cells, and may not include bond-beam construction. Modern design codes and design approaches would typically provide full cell grouting, bond beams at top and bottom of wall, over openings and at 48" (or closer) on center (or horizontal joint reinforcing).

The removable wall section of the well and Pump Room may need bracing. This is because the large opening in the east side of this CMU wall may not have adequate capacity to resist lateral loads. At the Chlorine Building, it will need to be confirmed that the building frame has seismic tie-downs to the concrete foundation.

Piping connections, and anchorage for heaters, tanks and other equipment should be checked for lateral stability and bracing, but are likely up to code since the equipment in both buildings was upgraded to 2012 International Building Code requirements in 2016.

Based on age, and the critical need for reliable operation, electrical facilities should be considered for upgrade during the planning period including replacement Motor Control Center, Panel Board, Distribution Transform, and

3

Soft Starter. Vendor quotes for these elements were obtained and an allowance estimated for construction. A detailed electrical predesign is recommended to confirm condition and intended scope.

2.1.2 Jordan Street Well

The Jordan Street Well site consists of two buildings. The rooms are listed in Table 2.

Table 2. Jordan Street Well Facility Rooms

Room Number*	Description
Room 100	Pump Room
Room 200	Chlorination Room
Room 210	Safety Shower

*Number assigned for this study.

No design or as-built drawings were available for review of this facility. Both buildings have CMU walls with concrete slab floors and wood-framed roofs, and the openings in the CMU walls are relatively small. The Pump Room has a large removable roof section, required for pulling the pump and motor from the facility. It is likely that the CMU walls are doweled into a concrete foundation, but this should be verified if possible. A pachometer (a hand-held electronic instrument used to detect reinforcing bars) can be used to verify that the CMU walls have bond beams, vertical reinforcement at openings, pier and column reinforcement.

The lights are wall mounted (due to removable ceiling and roof at the Pump Room), and the electrical equipment is wall or floor mounted.

Photos of the facility are provided below.









Seismic Evaluations and Upgrades:

CMU buildings constructed in this era would typically include anchorage of walls to foundations, include partially grouted cells, and may not include bond-beam construction. Modern design codes and design approaches would typically provide full cell grouting, bond beams at top and bottom of wall, over openings and at 48" (or closer) on center (or horizontal joint reinforcing).

Check anchorage and lateral bracing for equipment and piping. Using a pachometer, verify that CMU walls have bond beams, vertical reinforcement at openings, and pier and column reinforcement.

Based on age, and the critical need for reliable operation, electrical facilities should be considered for upgrade during the planning period including new service rated disconnect, replacement Motor Control Center, and Soft Starter. Vendor quotes for these elements were obtained and an allowance estimated for construction. A detailed electrical predesign is recommended to confirm condition and intended scope.

2.1.3 Marks Well

The Marks Well site includes two wood-framed buildings with metal roofing and siding and slab-on-grade concrete floors. No shop or design drawings were available for review. The rooms are listed in Table 3.

······································		
Room Number*	Description	
Room 100	Pump Room	
Room 210	Hypochlorite Pumping Room	

Table 3. Marks Well Facility Rooms

Room 220	Hypochlorite Storage
----------	----------------------

*Room number assigned for this study.

Wood-framed construction typically performs fairly well in a seismic event. The equipment should be checked to ensure it has adequate lateral bracing and is properly tied to the concrete foundation.

The lights are suspended from the ceiling, and the electrical equipment is wall mounted.

A small, lined pond is located across Skyline Road to the south, but no structures there exist.

The proximity of the structures to Skyline Road represent a risk of potential and substantial damage from a downhill moving vehicle on Skyline Road.

Photos of the Marks Well facilities are provided below.













Seismic Evaluations and Upgrades:

Wood and metal frame buildings constructed in this era would typically include anchorage of walls to foundations, Modern design codes would provide prescriptive design requirements, or custom designs including seismic bracing.

Check anchorage and lateral bracing for equipment and piping. Add seismic straps for building frame to concrete foundation.

Based on age, and the critical need for reliable operation, electrical facilities should be considered for upgrade during the planning period including new service rated disconnect, replacement Motor Control Center, low voltage transformer, panelboard and Soft Starter. Vendor quotes for these elements were obtained and an allowance estimated for construction. A detailed electrical predesign is recommended to confirm condition and intended scope.

2.2 Booster Pump Stations

2.2.1 Intermediate Pump Station

The Intermediate Booster Pump Station was constructed in 1982 and is a CMU building with a wood-framed roof. The pump station is located near the Intermediate Reservoir. A single monorail is located above the two installed pumps. Structural drawings were not available for review.

The lights are mounted directly to the ceiling, and the electrical equipment is adjacent to the CMU walls. Lateral bracing for piping and equipment should be checked to verify adequate support for anticipated seismic forces. Walls should be checked to confirm sufficient shear capacity. A pachometer can be used to verify that the CMU walls have bond beams, vertical reinforcement at openings, and pier reinforcement.

Photos of the Intermediate Pump Station are provided below.







Seismic Evaluations and Upgrades:

CMU buildings constructed in this era would typically include anchorage of walls to foundations, include partially grouted cells, and may not include bond-beam construction. Modern design codes and design approaches would typically provide full cell grouting, bond beams at top and bottom of wall, over openings and at 48" (or closer) on center (or horizontal joint reinforcing).

Check anchorage and lateral bracing for equipment and piping. Using a pachometer, verify that CMU walls have bond beams, vertical reinforcement at openings, and pier and column reinforcement.

2.2.2 Garrison Pump Station

The Garrison Pump Station was constructed in 1983 and is adjacent to the Garrison Reservoir. The pump station building is 19 feet 4 inches by 23 feet 4 inches by approximately 10 feet high with CMU walls, a wood-framed roof, and an 8-inch-thick, reinforced concrete, slab-on-grade floor. The building has a 2-foot-6-inch by 8-foot-0-inch meal roof hatch located over the pumps, and the east wall includes a double door. The CMU walls were designed with horizontal bond beams and vertical reinforcement at 32 inches on center, including reinforcement at the building corners, and on each side of the door.

Lateral bracing for piping and equipment should be checked to verify adequate support for anticipated seismic forces. The wall with the double-door should be evaluated to confirm that it has sufficient shear capacity. Equipment mounted to the outside walls may also need additional bracing.



Photos of the Garrison Pump Station are provided below.







Seismic Evaluations and Upgrades:

CMU buildings constructed in this era would typically include anchorage of walls to foundations, include partially grouted cells, and may not include bond-beam construction. Modern design codes and design approaches would typically provide full cell grouting, bond beams at top and bottom of wall, over openings and at 48" (or closer) on center (or horizontal joint reinforcing).

Check anchorage and lateral bracing for equipment and piping. Evaluate CMU wall with double-door for adequate shear capacity.

2.2.3 Vista Pump Station (at Sorosis Site)

Three structures were evaluated to the Sorosis Reservoir site. The rooms at this facility are listed in Table 4.

Room Number*	Description
Room 100	Vista Pump Station
Room 200	Surge Tank Building
Room 300	Communications Building (Control House from original 1947 rectangular Sorosis No. 1 Reservoir)
Not applicable	Telecommunications Antennae Pole

Table 4. Vista Pump Station Rooms

*Room number assigned for this study.

Vista Pump Station is adjacent to the 3 million gallon (MG) American Water Works Association (AWWA) D100 steel Sorosis Reservoir No. 2, which was designed in 1953. The pump station building was built in approximately 2012 based on record drawings.. The building has CMU walls and a metal-framed roof, and a monorail that extends through the door on one side of the building. The monorail is laterally braced by the steel roof beams. Existing equipment, lights, transformers and tanks should be checked to ensure that they are properly braced for lateral loads.

A surge tank is located in a separate structure, which appears to be constructed of wood-framed walls and roof.

A legacy concrete structure houses safety and public works telecommunication equipment. The building is a combination of brick and concrete with a flat concrete roof. No design drawings are available for review and it is not known if the building could be strengthened to meet current seismic codes in a cost effective manner. Telecommunications antennae are mounted to a wood pole approximately 25 feet tall. The pole appears to be in good condition.

A small wood storage shed adjacent and to the south to the Communication Building was not evaluated.

Photos of the Vista Pump Station facilities are provided below.





Seismic Evaluations and Upgrades:

CMU buildings constructed in this era would typically include anchorage of walls to foundations, include partially grouted cells, and may not include bond-beam construction. Modern design codes and design approaches would typically provide full cell grouting, bond beams at top and bottom of wall, over openings and at 48" (or closer) on center (or horizontal joint reinforcing).

Check anchorage and lateral bracing for equipment and piping. Using a pachometer, verify that CMU walls have bond beams, vertical reinforcement at openings, and pier and column reinforcement.

2.3 Reservoirs

No new analyses of reservoirs were conducted during this master plan update, but a summary of a recent prior study is summarized herein. In 2014, a seismic assessment of four of the City's AWWA D100 carbon steel reservoirs was conducted, including:

- Garrison Reservoir (6 MG)
- Sorosis Reservoir (3 MG)
- Intermediate Reservoir (1 MG)
- Columbia View Reservoir (3 MG)

Vista Reservoir had recently been built at the time and was not evaluated as part of the study. The study provided similar recommendations to mitigate seismic damage for all four tanks. Some of these repairs have been completed, others underway, and others remain to be performed. These include:

- Lowering the overflow weir height to provide adequate freeboard for seismic sloshing.
- Not leaving the tanks empty if wind gusts exceeding 60 mph are expected.

- Installing additional support brackets on the interior of the tank shell to support the overflow pipes.
- Providing flexible movement joints for buried pipe connections.
- Replacing damaged grout beneath tank base plates below the tank shell, and above the concrete ringwall.

2.3.1 Garrison Reservoir

The Garrison Reservoir is a 6 MG AWWA D100 carbon steel tank fabricated in 1983. The reservoir has a 140-foot diameter and includes two 24-inch-diameter manways, an outside ladder, inside ladder and roof hatch. The overflow weir is 52 feet 0 inches from the floor plate, providing only 1 foot 0 inches of freeboard according to the design drawings provided by CRS Group Engineers.

The tank is self-anchored and the tank shell is supported by a 7-foot-0-inch-deep by 2-foot-0-inch-wide concrete ringwall.



Photos of the Garrison Reservoir are provided below.

2.3.2 Sorosis Reservoir

Sorosis Reservoir No. 1 has been abandoned. Sorosis Reservoir No. 2 is now simply referred to as "Sorosis Reservoir." Sorosis Reservoir was constructed in 1954 and is a 3 MG tank. It has a diameter of 133 feet, shell height of 28.75 feet, and is considered "self-anchored" (anchor chairs and anchor bolts are not required to resist overturning forces). Seismic upgrades were completed in 2017, in conjunction with a tank repainting project. The upgrades included lowering the height of the tank overflow, adding pipe supports for the overflow pipe, replacing damaged grout above the ringwall, and rotating the inlet pipe so that water is directed toward the tank center. The City also installed flexible joints on the inlet and outlet pipes. Corrosion damage to the roof structure, which is of bolted construction, was discovered during blasting in preparation for repainting, and minor interim repairs were completed in 2024 to repair and restore structural capacity of the roof members and supports.

Photos of the Sorosis Reservoir are provided below.



2.3.3 Intermediate Reservoir

The Intermediate Reservoir is a 1 MG AWWA D100 steel tank fabricated in 1982. The reservoir has a shell height of 28 feet, a diameter of 78 feet, and two manways. A 12-inch-diameter overflow weir is set 12 inches below the top of the tank shell. The tank has a 30-inch square roof hatch, and exterior ladder with a safety cage. The overflow, inlet, and outlet pipes enter the tank through the tank floor. The tank foundation is an 18-inch-wide concrete ringwall, and the tank floor plate is underlain by 6 inches of oiled sand. The piping inside the tank is steel, which transitions to ductile iron below grade, outside of the tank footprint.

In addition to the seismic upgrades listed in Section 2.3, the 2014 Seismic Assessment report recommended removing tank anchor straps. The straps are 4-inch-wide steel plate, welded to the tank shell and embedded into the concrete ringwall at 12 feet 0 inch on center around the reservoir circumference. The straps are not adequate to serve as mechanically anchoring the tank and their embedment depth is unknown. An analysis for overturning showed that the tank would not uplift during a seismic event, and therefore the tank is considered to be self-anchored. Since the tank is not recommended to be left empty if the wind speed exceeds 60 mph, any chance of sliding is mitigated.

Photos of the Intermediate Reservoir are provided below.

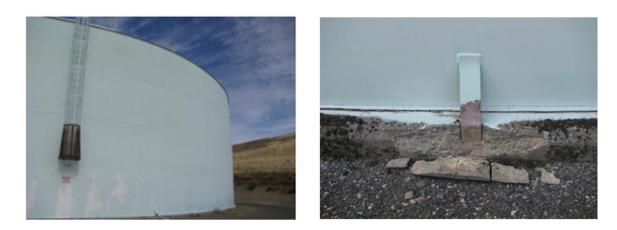


2.3.4 Columbia View Reservoir

The Columbia View Reservoir is a 3 MG AWWA D100 steel tank fabricated in 1980. This site was not visited in the January 2023 site visit due to muddy access roads. The reservoir has a shell height of 31.2 feet, a diameter of 128 feet, and two, 36-inch-diameter manways. A 1-foot-0-inch-diameter overflow weir is set 3 feet 6 inches below the top of the tank shell based on improvements completed in 2017. The tank has two 30-inch square roof hatches, and an exterior ladder with a safety cage. The overflow, inlet, and outlet pipes enter the tank through the tank floor. The tank foundation is a concrete ringwall, and the tank floor plate is underlain by 6 inches of oiled sand. The piping inside the tank is steel, which transitions to ductile iron below grade, outside of the tank footprint. A control vault and CMU chlorination building are located at the same site.

Seismic upgrades were completed in 2017, in conjunction with a tank repainting project. The upgrades included lowering the height of the tank overflow, adding pipe supports for the overflow pipe, and replacing damaged grout above the ringwall. An analysis for overturning showed that the tank would not uplift during a seismic event, and therefore the tank is considered to be self-anchored. Since the tank is not recommended to be left empty if the wind speed exceeds 60 mph, any chance of sliding is mitigated.

Photos of the Columbia View Reservoir are provided below.



2.3.5 Vista Reservoir (named "Terminal Reservoir" on construction drawings)

Vista Reservoir is a 2.7 MG AWWA D100 steel tank fabricated in 2012. This site was not visited in the January 2023 site visit. The reservoir has a shell height of 40.0 feet, a diameter of 116 feet, two, 30-inch- diameter manways and a flush cleanout flanged opening. A 24-inch diameter overflow weir is set 4 feet 0 inch below the top of the tank shell and overflows into a 12-inch-diameter overflow pipe. The tank has one 39-inch square roof hatch, and an exterior ladder with a safety cage. The overflow, inlet/outlet pipes enter the tank through the tank floor. The tank foundation is a concrete ringwall, and the tank floor plate is underlain by 3 inches of asphalt over 6 inches of crushed rock. The piping inside the tank is steel, which transitions to ductile iron below grade, outside of the tank footprint.

The 2014 Seismic Assessment did not include Vista Reservoir as it had just been constructed recently.

2.4 Crow Dam Previous Studies and Recommendations

In 1996 the City performed seismic hazard evaluation, stability analysis, flood studies and spillway evaluation, dam break analysis, and dam raise feasibility evaluation for Crow Dam. Stability analyses indicated that the existing and raised dam have adequate static stability, including during rapid drawdown. The static and rapid drawdown stability analyses, though 27 years old, followed standards that are similar to current standards, and the conclusion of adequate stability is unlikely to change.

The seismic stability analyses indicated that the existing and raised dam would experience minor deformations, which would likely not cause severe damage to the dam. However, there have been updates to evaluating the seismic hazard in the region since 1996, including updates to the knowledge of the regional faults and the Cascadia Subduction Zone as well as the methods of analyses to evaluate seismic stability. A cursory review indicates that ground motions from the 1996 evaluation are similar to those that would currently be used, though the methods of analyses to evaluate deformations are outdated.

Flood studies performed indicate that the existing spillway can convey a 1,000 year flood event, and that the dam could overtop during a probable maximum flood with severe damage likely. Dam break analysis identified potential inundation of a "sudden dam failure on downstream developments." Typical spillway design considers the probable maximum flood (PMF); the study indicated that the 1,000 year flood was approximately 16% of the PMF. Though there have been updates to flood studies, it is unlikely that this level of exceedance would be improved to be closer to the PMF. Recommendations from the evaluation included:

- Construct spillway improvements even without a dam raise to bring the spillway capacity to 50% of the PMF.
- Spillway improvements to be considered in a project that raised the dam, with the spillway to pass 50 to 100% of the PMF.
- Prepare Emergency Action Plan (EAP).
- Perform dam inspection after all major natural events (e.g., earthquake, flood).
- Provide of additional topographic mapping to inform reservoir storage volumes under a dam raise.
- Perform Intake slide gate repair/replacement.

It is recommended that the seismic and flood studies be updated to be consistent with current practice. These studies should be performed using a phased approach, where initial analyses are conducted as a screening exercise to confirm adequate or unacceptable performance, and document data needs for more in-depth analyses should it be determined that the dam has an unacceptable performance. The initial screening level analyses are estimated to cost approximately \$150,000 to \$200,000, assuming the work includes a desktop study and site visit, without additional field data collection (e.g., geotechnical borings). The second phase cost will depend on the conclusions of the first phase evaluation, and are therefore not provided.

If an EAP has not been developed, it is recommended that this be developed considering that the dam is classified as high hazard. It is estimated that developing an EAP would cost approximately \$150,000 to \$200,000, depending on the applicability of current flood modeling and emergency response planning.

It is understood that the intake slide gate has been repaired/replaced. Maintaining operable conditions is important to allow for safe inspection and operation of the dam.

Construction costs estimates from the 1996 study for a dam raise, and modifications to the spillway are not considered or updated here. Spillway modification without raising the dam was estimated at \$2 million in 1996 dollars, and a dam raise of 35 feet was estimated as \$6.9 million in 1996 dollars. It is likely that construction costs would significantly exceed even escalated estimates, because of environmental and permitting requirements and conditions. Updated estimates for these facilities is beyond the scope of this study.

Photos of Crow Dam and Reservoir are provided below.



3. Recommendations for Maintenance Activities

Annual inspections of building envelopes is good practice for maintaining facilities in good condition. Following significant snow/ice/wind events, additional inspections should also be performed. The following inspection activities are recommended:

- Metal siding inspect for corrosion, water intrusion, and failure of external fasteners.
- Wood frame buildings inspect for water damage, loose fasteners.
- Insulation where visible, inspect for deterioration and damage.
- Doors and windows inspect for proper function, and damage.
- Hardware inspect for proper function and corrosion.
- Sealants (windows, ducts, doors) inspect for proper placement, function, and condition.
- Heating, ventilation, and air conditioning (HVAC) inspect for proper function.

Capital improvements are recommended to improve resilience against wildfire. Specific improvements are recommended as follows:

- Provide 1/8-inch metal intake screens at all HVAC intakes and passive vents to prevent embers from entering building, and to prevent pest intrusion.
- Roofing materials: Replace all roofs with Class A ASTM E108 or UL 790 materials and systems.
- Exterior wall covering (siding) replacement: Replace combustible siding and trim with noncombustible siding and trim (cement fiber board).
- Soffits and eves. Enclose soffits with noncombustible materials.
- Windows and Skylights. Best practices include retrofit of existing windows with tempered, multi-layered, or fire resistant rated glass to prevent ember intrusion if glass would otherwise break when exposed to fire.
- Walking surfaces: All surfaces are noncombustible. No work recommended.
- Gutters: provide gutter guards to prevent accumulation of leaves, needles, and debris.
- Painting: Cement fiber board products are often factory painted. Repainting as an asset management activity every 15 to 20 years is a reasonable duration for planning purposes.

Planning and Design:

These proposed improvements are largely architectural and so the City should plan to engage a qualified architect (that would engage a structural engineer as required) to evaluate each site and develop site-specific designs to address these recommendations. The budgets developed below assume all design and construction work is

performed in a single professional services contract. Breaking the project across multiple years will cost more due to reduction in efficiencies. The City could still decide to prioritize improvements if required by budget constraints.

Prioritization and timing of improvements

Completion of recommendations from the 2014 reservoir seismic improvement study are a high priority and should be implemented as soon as practical, and early in the first 5 years of the CIP.

Pump station and well architectural improvements are mostly based on good practices for resilient facilities and specifically intended to reduce risk of damage due to wildfire. The City may be eligible for grant funding to address some or all of these resilience based needs, so it is recommended to investigate and apply for such funding early in the 20 year CIP, and proceed with immediate implementation if grant funding is available. Otherwise, it is recommended to start planning and design in the first 5 years of the CIP, and implement in accordance with other priorities.

Electrical recommendations at pump stations and wells should be reviewed by the City's contract electrician for endorsement. These electrical improvements may also be considered for improved resilience if equipment is at end of service life, and should be included in any applications for grants based on utility resilience. Equipment is not necessarily in need of replacement because it's old – for example the original well pump motors that were reportedly recently re-wound should have a long service life and may be of higher quality and durability than newer motors if they are regularly tested in accordance with industry standards. Electrical sub-components (such as relays, and switches) are relatively low cost and spare parts are easy to maintain in supply. The City should review and update its spare parts inventory for critical spares across all facilities and equipment.

The Crow Dam seismic and flood studies should be performed within the 5 year CIP to set the basis for future improvements. The EAP should be completed, if not already complete.

4. Recommendations for Future Seismic Evaluation, Structural Rehabilitation and Other Improvements

Recommendations for future seismic evaluation, structural rehabilitation, and other improvements are shown in Table 5 with cost estimates.

ltem	Description of Additional Study or Improvements	Construction Cost*
Buildings- Wells	I	
Lone Pine	Planning and design	\$127,000
	Construction	\$470,000
Jordan	Planning and design	\$94,000
	Construction	\$349,000
Marks	Planning and design	\$60,000
	Construction	\$224,000
Buildings-Booster Pump Station	s	
Intermediate	Planning and design	\$27,000
	Construction	\$100,000
Garrison	Planning and design	\$51,000
	Construction	\$188,000
Vista	Planning and design	\$23,000
	Construction	\$84,000
	Subtotal- Buildings	\$1,797,000
Reservoirs		
Garrison	Planning and design	\$66,000
	Construction	\$243,000
Intermediate	Planning and design	\$56,000
	Construction	\$206,000
Columbia View	Planning and design	\$43,000
	Construction	\$160,000
Sorosis	Planning and design	\$0
	Construction	\$0
Vista	Planning and design	\$0
	Construction	\$0
	Subtotal – Reservoirs	\$774,000
Crow Dam		
	Update seismic evaluation	\$225,000

Table 5. Recommended Studies or Improvements Cost Estimates

	<i><i><i><i></i></i></i></i>
Prepare/update Emergency Action Plan	
	\$200,000
Subtotal – Crow Dam	\$425,000
	· · · · · · · · · · · · · · · · · · ·

*Association for the Advancement of Cost Estimating Class 5 planning level estimates with an accuracy range of +100%/-50%.

Attachment 1 2014 Reservoir Seismic Assessment (CH2M, 2014)

Final Report

Steel Tank Seismic Evaluation

The Dalles, Oregon

December 2014

Prepared by



1100 NE Circle Blvd. Suite 300 Corvallis, Or 97330

Final Report

Steel Tank Seismic Evaluation

Prepared for The Dalles, Oregon

December 2014



Introduction

The project consisted of a seismic condition assessment of four of the City's drinking water storage tanks (reservoirs). All four are constructed of welded steel and were designed and built prior to modern seismic design codes. The assessment was conducted using available design drawings and site information, and observations made during a site visit. The four tanks included in this investigation were the following:

- Garrison Reservoir (6 million gallons)
- Sorosis Reservoir (3 million gallons)
- Columbia View Reservoir (3 million gallons)
- Intermediate Reservoir (1 million gallons)

Summary of Findings

The findings for the four tanks were similar. It was concluded that neither ringwall improvements nor the addition of anchor chairs are necessary to address seismic stability concerns. However, to improve the likelihood of the tanks remaining in service following an earthquake, the following mitigation measures are recommended:

- Consider reducing the maximum operating water levels in the tanks to minimize the risk of damage and failures caused by seismic slosh waves. This item warrants further discussion with the City as it reduces the City's available storage volume. Lowering the maximum operating level in a tank represents a trade-off between storing a greater volume of water, which provides more supply during emergencies, and the risk of incurring damage and possibly losing the service of a reservoir following an earthquake.
- Do not leave the reservoirs empty during high wind times, a mitigation measure that the City has been implementing in recent years.
- For the Columbia View and Intermediate Reservoirs, remove the existing anchor straps and repair the foundations. The removal of the anchor straps will reduce the ongoing damage to the concrete ringwalls from the shallow embedment of the straps.
- Improve the overflow pipe to side wall connections. The breakage of the overflow pipe, especially if it occurred near the floor of a tank, could render the tank unusable following an earthquake.
- Add flexibility to the buried pipe connections outside of the tanks to allow for differential movement between the tanks and the buried piping. Breaks in the inlet/outlet pipes to the tanks would take them out of service until repairs could be made.

Limited geotechnical and structural design data were available for use in the analyses. The above findings and recommendations were based on what CH2M HILL believes are conservative assumptions for geotechnical site conditions.

CH2M HILL's interpretation of the Oregon Structural Specialty code is that site-specific geotechnical investigations are not required for modifying the overflow pipe supports, adding flexibility to the connecting pipelines, and removing the anchor straps. The code chapter on Existing Buildings and Structures states that alterations to existing structures do not trigger a site-specific geotechnical investigation provided that the altered structure is no less conforming to the code than it was prior to the alteration. That would be true for implementing these improvements to the tanks, even if the maximum operating water levels are not lowered.

However, although the intent was to use conservative geotechnical values, the actual conditions may be more or less favorable than the assumed values. CH2M HILL recommends that the City collect additional

geotechnical data to confirm the assumptions for the tanks as part of the final design effort. The collection of additional geotechnical data could be especially valuable if it is found that the conditions are more favorable than assumed and the maximum operating water level does not need to be lowered as much as recommended in this report. The data collection could be as simple as excavating test pits within the vicinity of the foundations to determine whether the foundations are on bedrock or soil.

Seismic Site Class D was assumed for all sites given the minimal project site-specific geotechnical information. If it is confirmed that the foundation(s) are on bedrock, Site Class C could be assumed. Further site work, including collection of site-specific shear wave velocity measurements, would be required to conclude that Site Class B is appropriate.

Project Team

The following CH2M HILL staff were the primary engineers for the project:

Kevin Whittier, Structural Engineer Nason McCullough, Geotechnical Engineer Paul Berg, Civil Engineer and Project Manager

Section		Page
Executive Sum	imary	ES-1
1 Analysis App	proach	1-1
1.1	Site-Specific Geotechnical Information	1-1
1.2	Seismic Ground Motions	1-2
1.3	Other Geotechnical Seismic Hazards	1-4
1.4	Structural Design Codes and Assumptions	1-4
2 Garrison Res	ervoir	2-1
2.1	Tank Information	2-1
2.2	Results of Analysis Based on Seismic Risk	2-3
	2.2.1 General	2-3
	2.2.2 Foundation Conditions	2-3
	2.2.3 Overturning	2-3
	2.2.4 Slosh Height	2-4
	2.2.5 Pipe Connections	2-4
2.3	Recommendations to Mitigate Seismic Risks	2-4
2.4	General Observations	2-5
	2.4.1 Base of Tank Shell at the Concrete Foundation	2-5
	2.4.2 Interior Paint	2-5
3 Sorosis Rese	rvoir	3-1
3.1	Tank Information	
3.2	Results of Analysis Based on Seismic Risk	
	3.2.1 General	
	3.2.2 Foundation Conditions	
	3.2.3 Overturning	
	3.2.4 Slosh Height	
	3.2.5 Pipe Connections	
3.3	Recommendations to Mitigate Seismic Risks	
3.4	General Observations	
	3.4.1 Base of Tank Shell at the Concrete Foundation	
	3.4.2 Interior Paint	
4 Columbia Vie	ew Reservoir	4-1
4.1	Tank Information	
4.2	Results of Analysis Based on Seismic Risk	
7.2	4.2.1 General	
	4.2.2 Foundation Conditions	
	4.2.3 Overturning	
	4.2.4 Slosh Height	
	4.2.5 Pipe Connections	
4.3	Recommendations to Mitigate Seismic Risks	
4.4	General Observations	
7.7	4.4.1 Base of Tank Shell at the Concrete Foundation	
	4.4.2 Interior Paint	
 · · ··		
5 intermediate	e Reservoir	5-1

V

5.1	Tank Information		
5.2	Result	s of Analysis Based on Seismic Risk	5-2
	5.2.1	General	5-2
	5.2.2	Foundation Conditions	5-3
	5.2.3	Overturning	5-3
	5.2.4	Slosh Height	5-4
	5.2.5	Piping Connections	5-4
5.3	Recom	mendations to Mitigate Seismic Risks	5-5
5.4	Gener	al Observations	5-5
	5.4.1	Interior Paint	5-5

Tables

Bedrock Ground Motions Parameters (per 2010 USGS)	1-2
Ground Surface Ground Motions Parameters (per 2012 IBC)	1-3
Garrison Reservoir Tank Stability	2-4
Garrison Reservoir Slosh Wave Height	2-4
Garrison Reservoir Minimum Design Displacements for Piping Attachments	2-4
Sorosis Reservoir Tank Stability	3-3
Sorosis Reservoir Slosh Wave Height	3-3
Sorosis Reservoir Minimum Design Displacements for Piping Attachments	3-4
Columbia View Reservoir Tank Stability	4-3
Columbia View Reservoir Slosh Wave Height	4-3
Columbia View Reservoir Minimum Design Displacements for Piping Attachments	4-4
Intermediate Reservoir Tank Stability	5-4
Intermediate Reservoir Slosh Wave Height	5-4
Intermediate Reservoir Minimum Design Displacements for Piping Attachments	5-4
	Bedrock Ground Motions Parameters (per 2010 USGS) Ground Surface Ground Motions Parameters (per 2012 IBC) Garrison Reservoir Tank Stability Garrison Reservoir Slosh Wave Height Garrison Reservoir Minimum Design Displacements for Piping Attachments. Sorosis Reservoir Tank Stability. Sorosis Reservoir Slosh Wave Height Sorosis Reservoir Minimum Design Displacements for Piping Attachments Columbia View Reservoir Tank Stability. Columbia View Reservoir Slosh Wave Height Columbia View Reservoir Slosh Wave Height Intermediate Reservoir Tank Stability. Intermediate Reservoir Tank Stability.

Figures

1	Examples of the Sandstone from the October 2014 Site Visit	1-1
2	Garrison Reservoir Cross Section	2-2
3	Garrison Reservoir Overflow and Ringwall Footing	2-2
4	Garrison Reservoir Base of Tank Shell at Foundation	2-5
5	Garrison Reservoir Overflow	2-6
6	Garrison Reservoir Underside of Roof Plate (looking through roof hatch)	2-6
7	Sorosis Reservoir Cross Section	3-2
8	Sorosis Reservoir Base of Tank Shell at Foundation	3-5
9	Sorosis Reservoir Roof Beam and Roof Plate (looking through roof hatch)	3-5
10	Sorosis Reservoir Roof Beam and Roof Plate (looking through roof hatch)	3-6
11	Columbia Reservoir Cross Section	4-2
12	Columbia View Reservoir Base of Tank Shell at Foundation	4-5
13	Columbia View Reservoir Base of Tank Anchors	4-5
14	Columbia View Reservoir Roof Beam and Roof Plate (looking through roof hatch)	4-6
15	Columbia View Reservoir Roof Beam and Roof Plate (looking through roof hatch)	
16	Intermediate Reservoir Cross Section	5-2
17	Intermediate Reservoir Roof Beam and Roof Plate (looking through roof hatch)	5-5
18	Intermediate Reservoir Roof Beam and Roof Plate (looking through roof hatch)	5-6

1.1 Site-Specific Geotechnical Information

Limited site-specific geotechnical information was available for the reservoirs. The following geotechnical information was obtained and used for this evaluation:

- Garrison Reservoir: no data were available.
- Sorosis Reservoir: One boring was advanced to a depth of about 20 feet in the vicinity of the reservoir as part of a 2009 design of a new pump station adjacent to the reservoir.¹ The boring log indicates 6.8 feet of sandy fill underlain by 6.0 feet of silty (native topsoil), underlain by the regional bedrock formation denoted as the Chenoweth Formation, The Dalles geologic group, a weakly cemented volcanoclastic sandstone.
- **Columbia View Reservoir:** Four test holes (borings) were included on the 1978 design drawings. They indicate 1.5 feet of topsoil, underlain by 3.5 to 9.5 feet or more of sandy clay, underlain by sand. The three test holes had a maximum explored depth of 11.0 feet. No engineering data were included on the logs.
- Intermediate Reservoir: no data were available.

Only the recent 2009 boring at the Sorosis Reservoir provided subsurface information for the bedrock formation in the area. However, at all the reservoir sites there was indication that the Chenoweth Formation is relatively shallow given the presence of a weakly cemented sandstone in the cut slopes. Figure 1 shows two examples of the sandstone from the October 2014 site visit.



FIGURE 1 Examples of the Sandstone from the October 2014 Site Visit

Shannon & Wilson (2009) reported in their evaluation of the new Sorosis Pump Station that given the weak sandstone encountered in the boring, the site would classify as Site Class C per the 2006 International Building Code (IBC) for seismic site classification.

¹ Shannon & Wilson. 2009. Geotechnical Data and Design Report, New Terminal Reservoir, The Dalles, Oregon. Submitted to Kennedy/Jenkins Consultants. June 12, 2009.

1.2 Seismic Ground Motions

Seismic ground motions are dependent on the motions at bedrock (or "firm ground") beneath as well as the site-specific soil properties. The bedrock motions are based on regional tectonic features, with the ground motions largely dependent on the magnitude and distance of probable earthquake sources (e.g., from active seismic faults, volcanic activity, or tectonic plate boundaries). The bedrock motions can be determined from site-specific hazard studies or the results or the nationwide seismic hazard mapping performed by the United States Geological Survey (USGS). For this preliminary evaluation, the 2008 USGS² data were used, which is the input for the current revision of the International Building Code (2012 IBC)³ used by the Oregon Structural Specialty Code (2014 OSSC).⁴ The bedrock ground motion parameters for short-period motions (S₅) and long-period motions (S₁) were estimated for each reservoir site and are included in Table 1.

bedrock Ground Motions Parameters (per 2010 0303)						
Parameter	Garrison	Sorosis	Intermediate	Columbia View		
Ss	0.49	0.49	0.48	0.48		
S ₁	0.22	0.22	0.22	0.22		

TABLE 1 Bedrock Ground Motions Parameters (per 2010 USGS)

To determine the ground surface motions for the structural evaluation and assessment of geotechnical seismic hazards, the effect of the soil column needs to be considered. This involves using either site-specific site-response analyses or simplified coefficient-based methods. For structures governed by the IBC, the simplified site-response can be determined using Site Class coefficients that are based on simplified site properties. The IBC Site Classes A through F are defined as follows:

- Site Class A: Hard rock (shear wave velocity measurement of 5,000 feet per second or larger)
- Site Class B: Rock (shear wave velocity measurement of 2,500 to 5,000 feet per second)
- Site Class C: Very dense soil and soft rock (foundation classified as bedrock, or measured shear wave velocity of 1,200 to 2,500 feet per second)
- Site Class D: Stiff soil (default class without site-specific information; shear wave velocity of 600 to 1,200 feet per second)
- Site Class E: Soft clay soil (shear wave velocity of less than 600 feet per second)
- Site Class F: Soils requiring site response analysis

Based on the 2009 Shannon & Wilson report and site observations, it is anticipated that all four reservoirs would likely classify as Site Class C, although they may alternatively classify as Site Class D (poorer soil conditions than Site Class C) or B (better soil conditions than Site Class C) depending on the depth to the bedrock formation, and the site-specific stiffness of the sandstone bedrock and overlying soil. Note that where soil properties are not known in sufficient detail to determine site class, the IBC/OSSC states that Site Class D shall be used unless the Building Official or available geotechnical data determines Site Class E or F soils are present at the site.

Given the uncertainty about whether the foundations are founded on bedrock or not, Site Class D was used for the evaluation of all reservoirs. Using Site Class D is relatively conservative because it is likely that the

² Peterson et al. 2008. *Documentation for the 2008 Update of the United States National Seismic Hazard Maps.* United States Geological Survey (USGS). Open File Report 2008-1128.

³ International Code Council. 2012. 2012 International Building Code.

⁴ State of Oregon. 2014. Oregon Structural Specialty Code (OSSC).

reservoirs would classify as Site Class C if the foundations are confirmed to be founded on the sandstone bedrock, or possibly Site Class B if the shear wave velocity is measured to be 2,500 feet per second or higher (e.g., the sandstone is very dense or the reservoir is founded on basalt, which may be the case for the Intermediate Reservoir). Note that Site Class B can only be used if shear wave velocity measurements are collected. Site Class C can be used if it is determined that the foundation is on bedrock (either sandstone or basalt).

Test pits could be excavated with a backhoe or trackhoe from the City, with observations by a geotechnical engineer to log the test pits and confirm the conditions. Shear wave velocity measurements would be collected by a specialty firm, with costs typically around \$5,000 per reservoir location, and should include observation and direction by a geotechnical engineer.

The ground surface design seismic values for the structural evaluation are summarized in Table 2 for Site Classes B, C, and D. Note that given the relatively close proximity of the reservoirs to one another, the values are very similar for the four reservoirs.

Site Class	Parameter	Garrison	Sorosis	Intermediate	Columbia View
В	Fa	1.00	1.00	1.00	1.00
	Fv	1.00	1.00	1.00	1.00
	S _{MS}	0.49	0.49	0.48	0.48
	S _{M1}	0.22	0.22	0.22	0.22
	S _{DS}	0.33	0.32	0.32	0.32
	S _{D1}	0.15	0.15	0.15	0.15
С	Fa	1.20	1.20	1.20	1.20
	Fv	1.58	1.58	1.58	1.58
	S _{MS}	0.59	0.58	0.57	0.57
	S _{M1}	0.35	0.35	0.34	0.34
	S _{DS}	0.39	0.39	0.38	0.38
	S _{D1}	0.23	0.23	0.23	0.23
D	Fa	1.41	1.41	1.42	1.42
	Fv	1.96	1.96	1.97	1.97
	S _{MS}	0.69	0.69	0.68	0.68
	S _{M1}	0.44	0.43	0.43	0.43
	S _{DS}	0.46	0.46	0.45	0.45
	S _{D1}	0.29	0.29	0.29	0.28

TABLE 2 Ground Surface Ground Motions Parameters (per 2012 IBC)

For the purpose of this analysis it was assumed the sites would be classified as Site Class D. However, additional geotechnical investigation may determine that Site Class B or C is more applicable.

1.3 Other Geotechnical Seismic Hazards

In addition to the ground shaking, other geotechnical seismic hazards are to be considered in a seismic hazard evaluation, including fault rupture, liquefaction, and seismic slope instability. There are no known faults that cross within the vicinity of the reservoir sites. The probability of an unknown fault rupturing at a reservoir is considered minimal. The potential for liquefaction is considered minimal for all four reservoir sites, given that liquefaction only occurs in saturated soils and the groundwater table for all four reservoirs is noted to be relatively deep. The potential for slope instability is based on the steepness of adjacent slopes, as well as the strength of the slope material. The potential for slope instability is discussed for each reservoir.

1.4 Structural Design Codes and Assumptions

The nationally accepted design standard for the design and construction of welded steel water storage tanks is American Water Works Association (AWWA) D100-11 Welded Carbon Steel Tanks for Water Storage. The seismic evaluation of the tanks was performed in accordance with the AWWA D100-11 standard, the OSSC, and the 2012 IBC, with the following assumptions:

- As noted previously, the site class is intended to account for the effect of local soil conditions on the ground motion. Since the soil properties are not known in sufficient detail, the analysis was performed assuming Site Class D.
- The IBC requires that buildings and other structures be classified based on risk to human life, health, and welfare associated with their damage or failure by nature of their occupancy or use. For this analysis, the tanks were classified as Risk Category IV and Seismic Use Group III since the tanks provide direct services to facilities that are deemed essential for post-earthquake recovery and are essential to the life, health, and safety of the public, including post-earthquake fire suppression.

SECTION 2 Garrison Reservoir



2.1 Tank Information

Year Constructed:	1983
Volume:	6 million gallons
Diameter:	140 feet
Height:	53 feet
Water Depth:	52 feet
Tank Anchorage:	Self-anchored (no anchors from tank shell to the foundation)

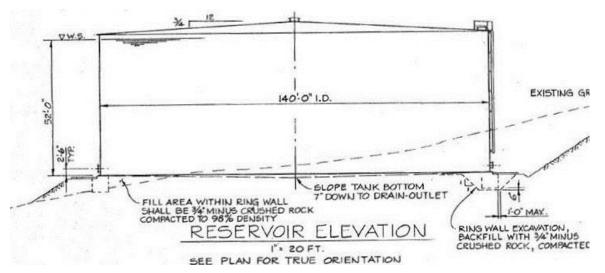


FIGURE 2 Garrison Reservoir Cross Section

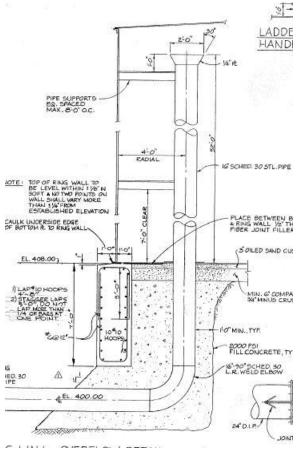


FIGURE 3

Garrison Reservoir Overflow and Ringwall Footing

2.2 Results of Analysis Based on Seismic Risk

2.2.1 General

The following information was available and was used in the analysis:

- Original design drawings which included
 - Tank geometry
 - Foundation design
- Original tank fabrication (shop) drawings which included
 - Tank shell, roof plate and floor plate thickness
 - General fabrication details

Based on the information shown in the shop drawings, the bottom two courses of the tank are undersized for hydrostatic loads by 0.05 inches thickness, per the requirements of AWWA D100-11. This is not significant enough to require modifications. The slight deficiency is eliminated if the water depth is lowered to address the seismic slosh requirements noted later in this report. However, even if the operating level is not lowered, the slight deficiency in wall thickness does not warrant mitigation.

2.2.2 Foundation Conditions

The native soil visible in the cut-slope adjacent to the tank indicated sandy soils with intact weakly cemented sandstone, possibly the Chenoweth Formation. Based on the deep ring-wall footings for the reservoir, it is likely that the reservoir foundation is on, or close to, the sandstone bedrock formation. However, none of the current documents indicate that the foundations are on bedrock, and therefore Site Class D was assumed. Given the presence of the sandstone in the uphill cut slope, and no evidence of current slope instability, seismic slope instability is considered a minimal hazard for this reservoir.

2.2.3 Overturning

Tank stability was checked using AWWA D100-11 equation 13-36 which calculates the overturning ratio J. The value of the overturning ratio was then compared against the following AWWA criteria for tank stability:

- J < 0.785, No shell uplift because of overturning, tank is adequate as self-anchored
- 0.785 < J < 1.54, Shell uplift occurs, but the tank is stable provided shell compression requirements are satisfied
- J > 1.54, Tank is not stable as self-anchored, anchor bolts are required

Assuming the site is classified as Site Class D, the overturning ratio J for Garrison Reservoir is 1.108. Based on the criteria noted above, in a design seismic event the tank will experience some uplift, however the tank is stable under seismic loads and does not require anchor bolts. Since shell uplift occurs, there is an additional check required to confirm shell compression does not exceed the allowable compression. For Site Class D, the maximum shell compression stress under the design seismic event is 926 psi which is less than the allowable shell compression stress of 2,301 psi.

It is possible that a site specific geotechnical analysis would determine the site could be classified as Site Class B or C. The overturning ratios for Site Classes B, C and D are presented in Table 3.

Garrison Reservoir Tank Stability			
Seismic Site Class	Overturning Ratio J	Tank Stability	Shell Compression Requirements Satisfied
В	0.758	No shell uplift because of overturning, tank is self-anchored	N/A
С	0.935	Shell uplift, but the tank is stable provided shell compression requirements are satisfied	Yes
D	1.108	Shell uplift, but the tank is stable provided shell compression requirements are satisfied.	Yes

TABLE 3 Garrison Reservoir Tank Stability

2.2.4 Slosh Height

There is currently 1.5 feet of freeboard from the top of the tank overflow to the underside of the roof structure. Assuming Site Class D, the design slosh wave height is 4.2 feet. It would be necessary to reduce the water depth by approximately 3 feet to protect against possible slosh damage to the roof. However, it is possible that a site specific geotechnical analysis would determine the site could be classified as Site Class B or C thereby lowering the expected slosh wave height. The slosh wave height for each seismic site class is presented in Table 4.

TABLE 4 Garrison Reservoir Slosh Wave Height

Seismic Site Class	Slosh Wave Height (feet)	Reduction Required to Water Depth (feet)	Corresponding Decrease in Volume (gallons)
В	2.1	1.1	127,000
С	3.4	2.4	276,000
D	4.2	3.2	368,000

2.2.5 Pipe Connections

AWWA D100 requires the design of piping connected to the tank take into consideration the potential movement of the connection points during earthquakes and requires the connections to provide sufficient flexibility to avoid the release of the tank contents because of failure of the piping system. The requirements for self-anchored tanks are presented in Table 5. Based on the information available in the design drawings, none of the piping connections at Garrison Reservoir allow the movement required by these provisions.

TABLE 5

Garrison Reservoir Minimum Design Displacements for Piping Attachments (AWWA D100-11 Table 30)			
Condition	Design Displacement (inches)		
Upward vertical displacement relative to support or foundation when J > 0.785	4.0		
Downward vertical displacement relative to support or foundation when the tank is supported by a ringwall or mat foundation	0.5		
Horizontal displacement (radial and tangential) relative to support or foundation	2.0		

The design drawings show overflow pipe supports located at a maximum 8 feet on center. However, the overflow pipe supports are not detailed in the steel shop drawings so it was not possible to determine if the existing overflow pipe supports are adequate for the design seismic sloshing loads.

2.3 Recommendations to Mitigate Seismic Risks

CH2M HILL recommends the following actions to reduce seismic risks for the Garrison Reservoir:

- Reduce maximum depth of water storage (either by lowering overflow rim level or adjusting SCADA to limit maximum water surface to a lower level).
- Do not leave the reservoir empty during high wind events (when wind gusts over 60 miles per hour are anticipated).
- Improve the supports for the overflow pipe to the tank wall.
- Install movement joints on buried pipe connections located just outside of the ringwall.

It may be possible to reduce the seismic loading for design if site-specific information is collected that indicates Site Class C or B may be used. Site Class C could be confirmed if the foundation is founded on bedrock; Site Class B would require shear wave velocity measurements of 2,500 feet per second or larger.

2.4 General Observations

This scope of this study did not include a comprehensive condition assessment of the reservoirs. However, during the site visit, various items were observed that should be further investigated and repaired. The following is a brief summary of those items which were observed.

2.4.1 Base of Tank Shell at the Concrete Foundation

The grout at the base of the tank has eroded in some locations (see Figure 4). It appeared the original cementitious grout that was installed was repaired with flexible sealant at various locations. It is recommended that the flexible sealant be removed and the base ring grout be repaired to prevent water from migrating under the tank floor. Water under the floor could result in corrosion or freeze thaw damage from ice.



FIGURE 4
Garrison Reservoir Base of Tank Shell at Foundation

2.4.2 Interior Paint

The interior of the reservoir was only observed through the roof hatch. From this limited view it was evident that the interior paint is failing and leading to corrosion (see Figures 5 and 6).



FIGURE 5 Garrison Reservoir Overflow



FIGURE 6 Garrison Reservoir Underside of Roof Plate (looking through roof hatch)

Sorosis Reservoir



3.1 Tank Information

Year Constructed:	1954
Volume:	3 million gallons
Diameter:	133 feet
Height:	28.75 feet
Water Depth:	28.00 feet
Tank Anchorage:	Self-anchored (no anchors from tank shell to the foundation)

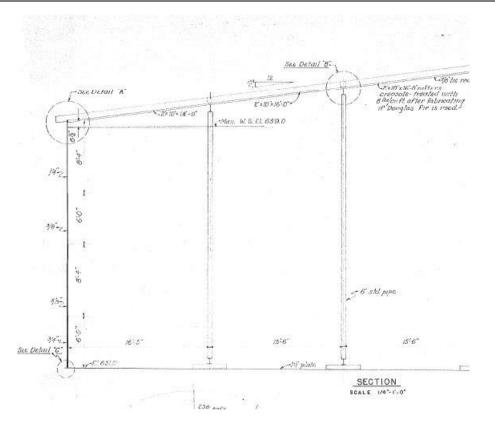


FIGURE 7 Sorosis Reservoir Cross Section

3.2 Results of Analysis Based on Seismic Risk

3.2.1 General

The following information was available and used in the analysis:

- Original design drawings which included the following
 - Tank geometry
 - Shell and floor plate thickness
 - Foundation design

Based on the information shown in the original design drawings, the original roof was constructed from wood rafters and 1-inch shiplap roof decking, which was covered by composition roofing. It is unknown if the tank was constructed as shown in the design drawings and the wood roof was later replaced with a steel roof or if the roof shown on the drawings was replaced by a steel roof in the original construction.

The perimeter foundation shown in the original design drawings is a 5 foot wide by 6 inch thick ringwall footing. This is an unconventional foundation as tanks of this size are typically constructed on deeper ring walls; however no foundation distress was observed during the site visit.

3.2.2 Foundation Conditions

The native soil visible in the cut-slope adjacent to the tank indicated sandy soils with intact weakly cemented sandstone, possibly the Chenoweth Formation. This is confirmed with the single boring obtained in 2009 by Shannon & Wilson for the new pump station on the opposite side of the reservoir from the visible cut slope. It is unclear if the relatively shallow tank foundation is founded on the sandstone or fill soil; therefore, Site Class D was assumed for these analyses.

Given the presence of the sandstone in the uphill cut slope, and no evidence of current slope instability, seismic slope instability is considered a minimal hazard for this reservoir. There may be some localized rock-fall and/or slope instability because of the very steep cut slope (almost vertical) on the uphill side of the reservoir. However, it is unlikely that instability of this cut slope would damage the reservoir; it is likely to only hinder access around the reservoir until the debris is removed.

3.2.3 Overturning

Tank stability was checked using AWWA D100-11 equation 13-36 which calculates the overturning ratio J. The value of the overturning ratio was then compared against the following AWWA criteria for tank stability:

- J < 0.785, No shell uplift because of overturning, tank is adequate as self-anchored
- 0.785 < J < 1.54, Shell uplift occurs, but the tank is stable provided shell compression requirements are satisfied
- J > 1.54, Tank is not stable as self-anchored, anchor bolts are required

Assuming the site is classified as Site Class D, the overturning ratio J for Sorosis Reservoir is 0.370. Based on the criteria noted above, in a design seismic event the tank will not experience uplift, is stable under seismic loads and does not require anchor bolts.

It is possible that a site specific geotechnical analysis would determine the site could be classified as Site Class B or C. The overturning ratios for Site Classes B, C, and D are presented in Table 6.

TABLE 0					
Sorosis Reservoir Tank Stability					
Seismic Site Overturning Tank Class Ratio J		Tank Stability	Shell Compression Requirements Satisfied		
В	0.243	No shell uplift because of overturning, tank is self-anchored	N/A		
С	0.310	No shell uplift because of overturning, tank is self-anchored	N/A		
D	0.370	No shell uplift because of overturning, tank is self-anchored	N/A		

3.2.4 Slosh Height

TABLES

There is currently 8.5 inches of freeboard from the top of the tank overflow to the underside of the roof structure. Assuming Site Class D, the design slosh wave height is 3.5 feet. It would be necessary to reduce the water depth by 2.8 feet to protect against damage to the roof from a slosh wave. It is possible that a site specific geotechnical analysis would determine the site could be classified as Site Class B or C thereby lowering the expected slosh wave height. The slosh wave height for each seismic site class is presented in Table 7.

TABLE 7 Sorosis Reservoir Slosh Wave Height					
Seismic Site Class	Slosh Wave Height (feet)	Reduction Required to Overflow (feet)	Corresponding Decrease in Volume (gallons)		
В	1.8	1.1	113,000		
С	2.8	2.1	222,000		
D	3.5	2.8	292,000		

3.2.5 Pipe Connections

AWWA D100 requires the design of piping connected to the tank take into consideration the potential movement of the connection points during earthquakes and requires the connections to provide sufficient flexibility to avoid the release of the tank contents because of failure of the piping system. The requirements for self-anchored tanks are presented in Table 8. Based on the information available in the design drawings none of the piping connections at Sorosis Reservoir allow the movement required by these provisions.

TABLE 8

Sorosis Reservoir Minimum D	Design Displacements	for Piping Attachments	(AWWA D100-11 Table 30)
-----------------------------	----------------------	------------------------	-------------------------

Condition	Design Displacement (Inches)
Upward vertical displacement relative to support or foundation when J< 0.785	1.0
Downward vertical displacement relative to support or foundation when the tank is supported by a ringwall or mat foundation	0.5
Horizontal displacement (radial and tangential) relative to support or foundation	2.0

The overflow pipe supports are not detailed in the design drawings so it was not possible to determine if the existing overflow pipe supports are adequate for the design seismic sloshing loads.

3.3 Recommendations to Mitigate Seismic Risks

CH2M HILL recommends the following actions to reduce seismic risks for the Sorosis Reservoir:

- Reduce maximum depth of water storage (either by lowering overflow rim level or adjusting SCADA to limit maximum water surface to a lower level)
- Do not leave the reservoir empty during high wind events (when wind gusts over 60 miles per hour are anticipated).
- Improve the supports for the overflow pipe to the tank wall
- Install movement joints on buried pipe connections located just outside of ringwall

It may be possible to reduce the seismic loading for design if site-specific information is collected that indicates Site Class C or B may be used. Site Class C could be confirmed if the foundation is founded on bedrock; Site Class B would require shear wave velocity measurements of 2,500 feet per second or larger.

3.4 General Observations

This scope of this study did not include a comprehensive condition assessment of the reservoirs. However, during the site visit, various items were observed that should be further investigated and repaired. The following is a brief summary of those items which were observed.

3.4.1 Base of Tank Shell at the Concrete Foundation

In some places the grout at the base of the tank has eroded (see Figure 8 below). In some places it appeared the original cementitious grout that was installed was repaired with flexible sealant. It is recommended that the flexible sealant be removed and the base ring grout be repaired to prevent water from migrating under the tank floor. Water under the floor could result in corrosion or freeze thaw damage from ice.



FIGURE 8 Sorosis Reservoir Base of Tank Shell at Foundation

3.4.2 Interior Paint

The interior of the reservoir was only observed through the roof hatch. However, from this limited view it is evident that the interior paint is failing and leading to corrosion (See Figures 9 and 10).



FIGURE 9 Sorosis Reservoir Roof Beam and Roof Plate (looking through roof hatch)



FIGURE 10 Sorosis Reservoir Roof Beam and Roof Plate (looking through roof hatch)

WBG121814152615CVO

Page 439 of 664

SECTION 4 Columbia View Reservoir



4.1 Tank Information

Year Constructed:	1980
Volume:	3 million gallons
Diameter:	128 feet
Height:	31 feet
Tank Anchorage:	Self-anchored (no structural anchors from tank shell to the foundation)*

* The existing straps (located at approximately 20 feet on center around the circumference of the tank) that are welded to the tank and embedded into the concrete ringwall are not adequate for the tank to be designated as a mechanically anchored tank.

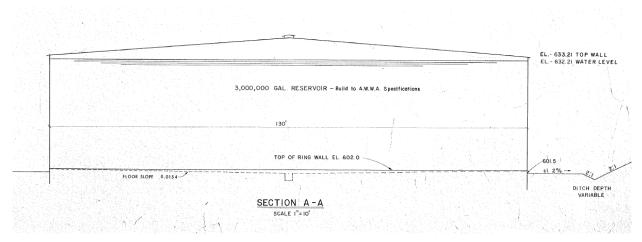


FIGURE 11 Columbia Reservoir Cross Section

4.2 Results of Analysis Based on Seismic Risk

4.2.1 General

The following information was available and used in the analysis:

- Original design drawings which included the following
 - Tank geometry
 - Schematic details for piping and other tank appurtenances
 - Schematic ringwall foundation design

The information in the design drawings does not provide any information on the thickness of the wall, floor or roof plates. The following assumptions were used for the purpose of this analysis:

- Shell wall thickness
 - Top two courses are ¼ inch thick
 - The bottom two courses are the thickness required to resist hydrostatic loads
- Floor plate thickness
 - ¼ inch

Although the original drawings do not show any details for a connection between the tank and the foundation, anchor straps are located at approximately 20 feet on center around the circumference of the tank. The straps are 4-inch wide steel plates that are welded to the tank shell and are embedded into the concrete foundation. Since no details were available for this connection it is unknown how deep the straps are embedded in the concrete. The concrete around the straps has spalled in multiple locations (see Figure 13). As noted in the following section, the tank meets the current code requirements for a self-anchored tank so the purpose of these straps is not known. Further investigation would be necessary to determine if the spalling is because of thermal expansion of an empty tank, or if the spalling is because of movement of an empty tank because of wind loads. It is likely that simply repairing the spalled concrete around the straps would eventually result in the repairs spalling in the same manner.

4.2.2 Foundation Conditions

The native soil visible in the cut-slope adjacent to the tank indicated sandy soils with intact weakly cemented sandstone, possibly the Chenoweth Formation. However, four test holes (borings) were included on the 1978 design drawings that indicate 1.5 feet of topsoil, underlain by 3.5 to 9.5 feet or more of sandy clay, underlain by sand. Given this information and the fact that the reservoir is located on the top of the plateau,

it is uncertain if the reservoir is founded on the sandstone or the predominant sandy soils observed at the surface surrounding the reservoir; therefore the analyses assumed Site Class D.

The seismic slope instability is considered a minimal hazard for this reservoir because of the presence of the sandstone in the uphill cut slope, no evidence of current slope instability, and the very flat adjacent slopes.

4.2.3 Overturning

Tank stability was calculated using AWWA D100-11 equation 13-36 which calculates the overturning ratio J. The value of the overturning ratio was then compared against the following AWWA criteria for tank stability:

- J < 0.785, No shell uplift because of overturning, tank is adequate as self-anchored
- 0.785 < J < 1.54, Shell uplift occurs, but the tank is stable provided shell compression requirements are satisfied
- J > 1.54, Tank is not stable as self-anchored, anchor bolts are required

Assuming Site Class D, the overturning ratio J for Columbia View Reservoir is 0.459. Based on the criteria noted above, in a design seismic event the tank will not experience uplift, is stable under seismic loads, and does not require anchor bolts.

It is possible that a site specific geotechnical analysis would determine the site could be classified as Site Class B or C. The overturning ratios for Site Classes B, C, and D are presented in Table 9.

Seismic Site	Reservoir Tank St Overturning	ability	Shell Compression
Class	Ratio J	Tank Stability	Requirements Satisfied
В	0.302	No shell uplift because of overturning, tank is self-anchored	N/A
С	0.383	No shell uplift because of overturning, tank is self-anchored	N/A
D	0.459	No shell uplift because of overturning, tank is self-anchored	N/A

4.2.4 Slosh Height

There is currently 1 foot of freeboard from the top of the tank overflow to the underside of the roof structure. Assuming Site Class D, the design slosh wave height is 3.5 feet. It would be necessary to reduce the water depth by 2.5 feet to protect against damage to the roof from a slosh wave. However, as discussed previously it is possible that a site specific geotechnical analysis would determine the site could be classified as Site Class B or C thereby lowering the expected slosh wave height. The slosh wave height for each seismic site class is presented in Table 10.

ABLE 10 olumbia View Reservoir Slosh Wave Height					
Seismic Site Class	Slosh Wave Height (feet)	Reduction Required to Overflow (feet)	Corresponding Decrease in Volume (gallons)		
В	1.8	0.8	79,000		
С	2.9	1.9	184,000		
D	3.5	2.5	252,000		

site class is presented in Table 10.

4.2.5 Pipe Connections

AWWA D100 requires the design of piping connected to the tank take into consideration the potential movement of the connection points during earthquakes and requires the connections to provide sufficient flexibility to avoid the release of the tank contents because of failure of the piping system. The requirements for self-anchored tanks are presented in Table 11. Based on the information available in the design drawings none of the piping connections at Columbia View Reservoir allow the movement required by these provisions.

TABLE 11

Columbia View Reservoir Minimum Desig	n Displacements	for Pining Attachments	(A)W/W/A D100-11 Table 30)
Columbia view Reservoir Minimulti Desig	si Displacements	ior Fiping Attachments	(AWWA DIOU-II Table 50)

Condition	Design Displacement (Inches)
Upward vertical displacement relative to support or foundation when J< 0.785	1.0
Downward vertical displacement relative to support or foundation when the tank is supported by a ringwall or mat foundation	0.5
Horizontal displacement (radial and tangential) relative to support or foundation	2.0

The original drawings include a detail for bracing the overflow pipe from the tank shell; however the drawings do not provide the spacing of the pipe support so it was not possible to determine if the existing overflow pipe supports are adequate for the design seismic sloshing loads.

4.3 Recommendations to Mitigate Seismic Risks

CH2M HILL recommends the following actions to reduce seismic risks for the Columbia View Reservoir:

- Reduce maximum depth of water storage (either by lowering overflow rim level or adjusting SCADA to limit maximum water surface to a lower level).
- Do not leave the reservoir empty during high wind events (when wind gusts over 60 miles per hour are anticipated).
- Improve the supports for the overflow pipe to the tank wall.
- Install movement joints on buried pipe connections located just outside of ringwall.
- Remove the existing straps (located at approximately 20 feet on center around the circumference of the tank) that are welded to the tank and embedded into the concrete ringwall and repair the existing foundation.

It may be possible to reduce the seismic loading for design if site-specific information is collected that indicates Site Class C or B may be used. Site Class C could be confirmed if the foundation is founded on bedrock; Site Class B would require shear wave velocity measurements of 2,500 feet per second or larger.

4.4 General Observations

This scope of this study did not include a comprehensive condition assessment of the reservoirs. However, during the site visit various items were observed that should be further investigated and repaired. The following is a brief summary of those items which were observed.

4.4.1 Base of Tank Shell at the Concrete Foundation

In some places the grout at the base of the tank has eroded (see Figure 12). It is recommended that the base ring grout be repaired to prevent water from migrating under the tank floor. Water under the floor could result in corrosion or freeze thaw damage from ice.



FIGURE 12 Columbia View Reservoir Base of Tank Shell at Foundation

At multiple locations the concrete around the existing anchors has spalled. In some cases the spalling has exposed the concrete reinforcing. It is recommended that the spalled concrete be repaired to prevent corrosion of the reinforcing and further damage to the concrete foundation. In additon, to prevent future spalling it is recommended that the tank not be left empty.



FIGURE 13 Columbia View Reservoir Base of Tank Anchors

4.4.2 Interior Paint

The interior of the reservoir was only observed through the roof hatch. From this limited view it is evident that the interior paint is beginning to fail leading to some corrosion (See Figures 14 and 15).



FIGURE 14 Columbia View Reservoir Roof Beam and Roof Plate (looking through roof hatch)



FIGURE 15 Columbia View Reservoir Roof Beam and Roof Plate (looking through roof hatch)

section 5 Intermediate Reservoir



5.1 Tank Information

Year Constructed:	1982
Volume:	1 million gallons
Diameter:	78 feet
Height:	28 feet
Tank Anchorage:	Self-anchored (no structural anchors from steel shell to the foundation)*

* The existing straps (located at approximately 12 feet on center around the circumference of the tank) that are welded to the tank and embedded into the concrete ringwall are not adequate for the tank to be designated as a mechanically anchored tank.

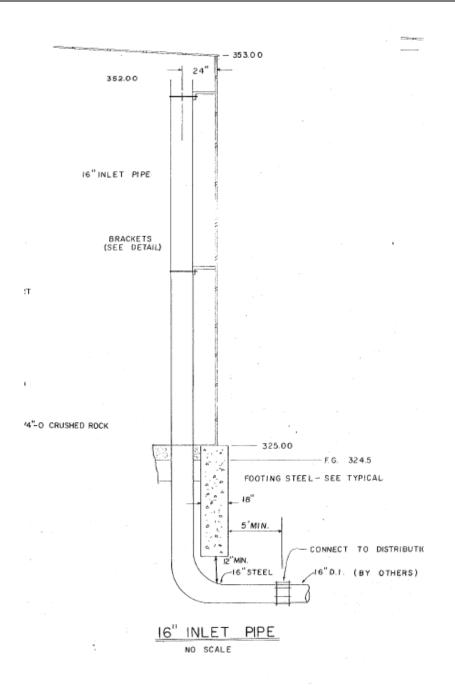


FIGURE 16 Intermediate Reservoir Cross Section

5.2 Results of Analysis Based on Seismic Risk

5.2.1 General

The following information was available and used in the analysis:

- Original design drawings which included the following
 - Tank geometry
 - Schematic details for piping and other tank appurtenances
 - Schematic ringwall foundation design

The information in the design drawings does not provide any information on the thickness of the wall, floor or roof plates. The following assumptions were used for the purpose of this analysis:

- Shell wall thickness
 - Top two courses are ¼ inch thick
 - The bottom two courses are the thickness required to resist hydrostatic loads
- Floor plate thickness
 - ¼ inch

The original drawings do not show any details for a connection between the tank and the foundation. However, anchor straps are located at approximately 12 feet on center around the circumference of the tank. The straps are 4" wide steel plates that are welded to the tank shell and are embedded into the concrete foundation. Since no details are available for this connection it is unknown how deep the straps are embedded in the concrete. As noted in the following section, the tank meets the current code requirements for a self-anchored tank so the purpose of these straps is not known.

5.2.2 Foundation Conditions

The native soil visible in the cut-slope adjacent to the tank indicated sandy soils with intact weakly cemented sandstone, possibly the Chenoweth Formation. However, the reservoir is located in between basalt flow formations, and it is uncertain if the reservoir is founded on soil, sandstone, or basalt. Given the uncertainty with the foundation, Site Class D was assumed for these analyses.

Given the presence of the sandstone in the uphill cut slope and no evidence of current slope instability, seismic slope instability is considered a minimal hazard for this reservoir. There may be some localized rock-fall and/or slope instability because of the very steep slope (almost vertical) on the uphill and downhill sides of the reservoir. Given the height of the uphill slope, and the site of the basalt boulders that could be generated, it is possible that a rock fall could damage the reservoir.

5.2.3 Overturning

Tank stability was calculated using AWWA D100-11 equation 13-36 which calculates the overturning ratio J. The value of the overturning ratio was then compared against the following AWWA criteria for tank stability:

- J < 0.785, No shell uplift because of overturning, tank is adequate as self-anchored
- 0.785 < J < 1.54, Shell uplift occurs, but the tank is stable provided shell compression requirements are satisfied
- J > 1.54, Tank is not stable as self-anchored, anchor bolts are required

Assuming Site Class D, the overturning ratio J for Intermediate Reservoir is 0.536. Based on the criteria noted above, in a design seismic event the tank will not experience uplift, is stable under seismic loads, and does not require anchor bolts

It is possible that a site specific geotechnical analysis would determine the site could be classified as Site Class B or C. The overturning ratios for Site Classes B, C, and D are presented in Table 12.

Seismic Site Class	Overturning Ratio J	Tank Stability	Shell Compression Requirements Satisfied
В	0.355	No shell uplift because of overturning, tank is self-anchored	N/A
С	0.448	No shell uplift because of overturning, tank is self-anchored	N/A
D	0.536	No shell uplift because of overturning, tank is self-anchored	N/A

TABLE 12 Intermediate Reservoir Tank Stability

5.2.4 Slosh Height

There is currently 1 foot of freeboard from the top of the tank overflow to the underside of the roof structure. Assuming Site Class D, the design slosh wave height is 3 feet. It would be necessary to reduce the water depth by 2 feet to protect against damage to the roof from a slosh wave. It is possible that a site specific geotechnical analysis would determine the site could be classified as Site Class B or C thereby lowering the expected slosh wave height, thereby reducing the slosh wave height. The slosh wave height for each seismic site class is presented in Table 13.

TABLE 13

Intermediate Reservoir Slosh Wave Height

Seismic Site Class	Slosh Wave Height (feet)	Reduction Required to Overflow (feet)	Corresponding Decrease in Volume (gallons)
В	1.55	0.6	21,000
С	2.5	1.5	55,000
D	3.0	2.0	77,000

5.2.5 Piping Connections

AWWA D100 requires the design of piping connected to the tank take into consideration the potential movement of the connection points during earthquakes and requires the connections to provide sufficient flexibility to avoid the release of the tank contents because of failure of the piping system. The requirements for self-anchored tanks are presented in Table 14. Based on the information available in the design drawings none of the piping connections at Intermediate Reservoir allow the movement required by these provisions.

TABLE 14 Intermediate Reservoir Minimum Design Displacements for Piping Attachments (AWWA D100-11 Table 30)

Condition	Design Displacement (inches)
Upward vertical displacement relative to support or foundation when J< 0.785	1.0
Downward vertical displacement relative to support or foundation when the tank is supported by a ringwall or mat foundation	0.5
Horizontal displacement (radial and tangential) relative to support or foundation	2.0

The original drawings include a detail for bracing the overflow pipe from the tank shell; however the drawings do not provide the spacing of the pipe support so it was not possible to determine if the existing overflow pipe supports are adequate for the design seismic sloshing loads.

5.3 Recommendations to Mitigate Seismic Risks

CH2M HILL recommends the following actions to reduce seismic risks for the Intermediate Reservoir:

- Reduce maximum depth of water storage (either by lowering overflow rim level or adjusting SCADA to limit maximum water surface to a lower level).
- Do not leave the reservoir empty during high wind events (when wind gusts over 60 miles per hour are anticipated).
- Improve the supports for the overflow pipe to the tank wall.
- Install movement joints on buried pipe connections located just outside of ringwall.
- Remove the existing straps (located at approximately 12 feet on center around the circumference of the tank) that are welded to the tank and embedded into the concrete ringwall and repair the existing foundation.

It may be possible to reduce the seismic loading for design if site-specific information is collected that indicates Site Class C or B may be used. Site Class C could be confirmed if the foundation is founded on bedrock; Site Class B would require shear wave velocity measurements of 2,500 feet per second or larger.

5.4 General Observations

This scope of this study did not include a comprehensive condition assessment of the reservoirs. However, during the site visit various items were observed that should be further investigated and repaired. The following is a brief summary of those items which were observed.

5.4.1 Interior Paint

The interior of the reservoir was only observed through the roof hatch. However, from this limited view it is evident that the interior paint is beginning to fail leading to some corrosion (See Figures 17 and 18).







FIGURE 18 Intermediate Reservoir Roof Beam and Roof Plate (looking through roof hatch)

WBG121814152615CVO

Page 451 of 664

Jacobs

Technical Memorandum

2020 SW Fourth Avenue, 3rd Floor Portland, OR 97201 503.235.5000 www.jacobs.com

Subject	Task 5.6 SCADA/Telemetry Evaluation
Project Name	City of The Dalles Water Master Plan
City Project Number	2022-005
Jacobs Project Number	D3718900
То	Dave Anderson/City of the Dalles
From	Jeff Kanyuch/Jacobs
Reviewed by	Brady Fuller/Jacobs
Date	July 19, 2024

1. Introduction

The City of The Dalles operates its municipal water system using automated systems to perform essential monitoring and control functions. The system includes a Supervisory Control and Data Acquisition (SCADA) system that has reached end of useful life and requires upgrades to current technology and incorporation of certain security features which have become recommended in the industry since the last generation of upgrades were performed over 20 years ago.

This memorandum provides a brief description of work currently underway and work required to provide an upgraded and secure SCADA system.

This memo generally describes SCADA improvements into categories:

- 1) Wicks Water Treatment Plant (Phase 1)
- 2) Distribution System (Phase 2)

1.1 Wick Water Treatment Plant (WTP) SCADA Facilities

Wicks WTP treats surface water from South Fork Mill Creek and is the only surface water supply used by the City. Groundwater wells supplement the surface water supply. The City has prioritized SCADA system improvements at Wicks WTP, and the following improvements are recommended and underway. It should be noted that SCADA improvements at Wicks WTP have been deferred by the City for several years beyond the normal useful life of these systems, with interest in avoiding stranded investments when new or upgraded WTP facilities are constructed. However need for continued, reliable, and resilient control system equipment remains and the system replacement should not be further deferred. It is essential to implement these recommended improvements even if they will eventually be demolished or abandoned as the proposed WTP improvements will take several years to implement. Further delays in implementation substantially increase the risk of failures, and replacement equipment is no longer commercially available from suppliers, and instead only available as used equipment on the secondary market.

Phase 1 – Wicks WTP SCADA System Improvements.

1) **PLC Hardware replacement**. The driver for this project element is due to the existing PLCs platform becoming obsolete. Allen Bradley PLC 5 and Allen Bradley SLC hardware is currently in use. These platforms and related

1

spare parts are no longer manufactured and have been replaced by Allen Bradley. The PLC5 model has been replaced with ControlLogix, and the SLC model has been replaced with CompactLogix. PLC code that runs on the PLC hardware must be migrated to more modern programming language.

- 2) PLC human machine interface (HMI) software upgrade and replacement. Currently the Wicks WTP PLCs are using Wonderware Intouch HMI software. The HMI software is custom programmed to prepare visible control "screens" which depict processes and equipment, and operating conditions. Within the water industry, many owners are migrating to Inductive Automation Ignition HMI software due to lower license costs and lower long term support costs.
- 3) **Development of High Performance HMI graphics.** Within the water industry, simple graphics have been demonstrated to be very effective and easier to understand than the historical "cartoon" style process graphics with color and movement and visual detail that doesn't support current process understanding.
- 4) SCADA historian and automated reporting tool. Process operating data is typically recorded and saved to support compliance record keeping and good practice for operation. The software tool that saves data and from which historical reports can be prepared, is no longer functional. The existing Wonderware historian tool will be replaced with Inductive Automation Ignition Historian and XLReporter will be implemented to generate automatic reports.

5) Operational Technology (OT) System Improvements:

- a) The existing communications connection from the Wicks WTP to City Shops uses a T1 phone line that has been unreliable for SCADA communications. A satellite-based high speed internet connection will be evaluated as part of Phase 1 and will be implemented to provide more reliable SCADA communications between the Wicks WTP and City Shops and provide remote access capabilities for offsite SCADA support.
- b) Network and computer hardware replacement. Currently Wicks WTP network and computer hardware equipment, required to operate the SCADA system, is over 20 years old and requires replacement based on condition and software versions. New SCADA Servers and workstations will be provided to host the Inductive Automation Ignition software. A demilitarized zone (DMZ) server will be provided to facilitate secure remote access for offsite SCADA system access. Security risks and system resilience will benefit from improvements.
- c) **Network and hardware component physical configuration**. The configuration for replacement will be per current industry standards and in support of appropriate redundancy, access, maintenance requirements and operational efficiency. High availability (HA) firewalls will be installed to provide secure remote access and secure network connections between different SCADA and business networks.
- 6) The following existing PLC's and related hardware are included in the proposed upgrade
 - a) Wicks WTP Main PLC: The existing PLC system uses a pair of Allen Bradley PLC5 with multiple remote I/O racks using "bluehose" connections to the chemical building and clearwell vault. The Allen Bradley PLC5s and remote I/O racks will be replaced with a ControlLogix PLC and remote I/O connected via single mode fiber.
 - b) Wick WTP raw water intake fish screen PLC: Allen Bradley MicroLogix. Replace with CompactLogix and connect to plant SCADA either with radio or new fiberoptic network extension.
 - c) Crow Creek Dam Allen Bradley PLC: Existing Allen Bradley SLC was replaced with a CompactLogix PLC by City Staff. The CompactLogix PLC will be replaced with a new series of CompactLogix PLC in order to meet the updated City PLC standards. Both the historic and recent replacement have been powered by solar panel at this remote site. The system is used to monitor reservoir level and outflow flow. The CompactLogix unit panel needs to be configured to conform to standardized configuration. The existing 900 MHz radio link back to Wicks WTP will be retained. The existing panel uses serial connection from the 900 MHz radio which is old technology and the new system will be configured with ethernet connection.
 - d) **City Public Works Shops PLC:** This facility is physically near the geographic center of the distribution system. The existing PLC is Allen Bradley PLC5 and will remain online during Phase 1. Redundant firewalls

and a managed network switch are being added and modified with ongoing development project for the Riverview sewer pump station and Riverside Water Facility in the port area.

- 7) City Shops Network and Computer Hardware:
 - a) The existing computers have remaining useful life and will not be replaced as part of the Wicks WTP SCADA Improvement project.
 - b) A new SCADA server will be installed at City Shops as part of Phase1 to provide redundancy for the SCADA server at the Wicks WTP. A local thin client workstation will be provided to allow operators the ability to monitor and control, based on user access level control, process equipment located at the Wicks WTP.
 - c) Distribution system operators have operational needs to monitor conditions at Wick WTP, and so a new, separate HMI at City Shops will be stood up on an interim basis until further distribution system PLC replacements are completed.
- 8) Design, Construction and Startup Approach
 - a) Planning and engineering are underway in early 2024.
 - b) Programming of new PLCs and HMI software will then be performed. "Factory demonstration testing" will be performed by the Engineer in presence of City representatives to confirm that the software provides and demonstrates intended functions.
 - c) Material and equipment procurement will be performed, either by City or on behalf of City by City's consultant.
 - d) Certain electrical and controls work requires work by a licensed electrician. The City will hire an electrician to install the equipment per the design. The City's consultant performing programming and startup services will implement a startup and testing protocol to record and demonstrate proper function and performance.
- 9) Schedule
 - a) All new facilities are intended to be operational by late 2025.
- 10) Capital Costs
 - a) See Table 1 at end of memorandum.

1.2 Distribution System SCADA Facilities

The City of The Dalles Distribution System SCADA facilities includes about 30 different sites with SCADA and control system elements and includes facilities for drinking water, sewer collection, and dewatering wells for slope stabilization and landslide risk mitigation on steep slopes south of downtown. This system is separate from SCADA systems at the Wastewater Treatment Plant (WWTP).

Phase 2 – Distribution System SCADA System Improvements.

- PLC Hardware replacement. The driver for this project element is due to the existing PLCs platform becoming obsolete. At drinking water reservoirs, wells, and booster pump stations, the Allen Bradley Micrologix PLC hardware is currently in use, and the system dates from the 2000's. The Micrologix platform and related equipment are near end of useful life and not supported by the manufacturer. At the City shops, a pair of Allen Bradley PLC5 processors control polling of the radio system. The Allen Bradley PLC5 hardware is obsolete. For both platforms, the PLC code that runs on the PLC hardware must be migrated to more modern programming language.
- 2) **Panel Replacement.** The existing PLC panels for each of the sites will be evaluated to determine if an entire new panel will be required based on site evaluation as part of the Phase 2 scope definition effort.
- 3) **PLC human machine interface (HMI) software upgrade and replacement**. Similar to the Wicks WTP, the HMI software is proposed to be upgraded from Wonderware Intouch to Inductive Automation Ignition.

2

- 4) **Development of High Performance HMI graphics.** Similar to Wicks WTP, HMI graphics will be updated to confirm to modern high performance graphics standards.
- 5) **SCADA historian and automated reporting tool.** The Inductive Automation Ignition Historian and XLReporter that will be provided in Phase 1 will be configured to provide additional historical data and automated reporting for the distribution facilities.
- 6) Alarm Notification. The existing alarm notification system for the distribution facilities uses a WIN911 system for alarm notification based on alarms generated by the SCADA system. The Inductive Automation Ignition Alarming system will provided as part of the Phase 2 scope for primary alarm notification. The existing WIN911 system can be retained and recommended to be used in the event of the Ignition alarm system failure.

7) Operational Technology (OT) System Improvements:

a) Radio communications upgrades. Due to the distributed nature of the distribution system facilities (and other public works facilities like collection system and dewatering well equipment) supported by this SCADA system, radio communication has historically been used to provide monitoring and control of remote facilities. The radio communication equipment is current FCC licensed 900 MHz frequency with serial connections to PLC hardware. This project will upgrade to Ethernet based radio technology. Some of the existing radio equipment is obsolete (including master radio at City Shops) and spare parts are only available on the second hand market.

The PLC at City Shops communicate with each remote station 1 at a time, in series. A 100 ft radio repeater tower at the Airport across the Columbia River in Dallesport, Washington is integral to maintaining system wide communications. One important challenge during the Phase 2 work will be to identify alternatives and recommend a best approach to upgrade and replace the existing system (for example, using line of sight radio, or mesh network system). For basis of planning and cost estimating, the replacement is proposed to be in-kind but with update of PLC, and radio communications hardware. Security upgrades are also required to reduce risk of malevolent threats.

Finally, the existing radio network has been identified to have reached, or nearly reached, its limit in station addressing. The project will determine how additional stations may be brought into the network to prevent capacity limits based on station address count.

- b) Network and hardware component physical configuration. Similar to Wicks WTP system, the distribution system network and hardware will be per current industry standards and in support of appropriate redundancy, access, maintenance requirements and operational efficiency.
- c) Network and computer hardware replacement. The only computer network and hardware for the distribution system is located at the City Shops. As noted above, the Phase 1 project will include a new SCADA server and thin client workstation. Phase 2 will use the new SCADA server and thin client workstation to integrate the distribution system facilities. The existing Wonderware workstations will then be replaced with modern and current technology. Security risks and system resilience will benefit from improvements.
- 8) Design, Construction and Startup Approach
 - a) Planning and engineering are proposed to be performed in early 2025.
 - b) Programming of new PLCs and HMI software will then be performed. "Factory demonstration testing" will be performed by Engineer in presence of City representatives to confirm that the software provides and demonstrates intended functions.
 - c) Material and equipment procurement will be performed, either by City or on behalf of City by City's consultant.
 - d) Certain electrical and controls work requires work by a licensed electrician. The City will hire an electrician to install the equipment per the design. The City's consultant performing programming and

startup services will implement a startup and testing protocol to record and demonstrate proper function and performance.

- 9) Schedule
 - a) All new facilities are intended to be operational by late 2027.
- 10) Capital Costs
 - a) See Table 1 at end of memorandum.

Item	Description of Additional Study or Improvements	Construction Cost*
Phase 1 – Wicks Water Treatment Plant		
	Planning and Design, Programming, Testing and Design	\$1,370,000
	Materials, Construction	\$630,000
	Subtotal	\$2,000,000
Phase 2 – Distribution System		
	Planning and Design, Programming, Testing	\$2,000,000
	Materials, Construction	\$1,129,000
	Subtotal	\$3,290000

Table 1. Recommended Improvements Cost Estimates

*Association for the Advancement of Cost Estimating Class 5 planning level estimates with an accuracy range of +100%/-50%.

Attachment 1 Cost Backup

The Dalles

Wicks WTP SCADA Upgrade - Phase 1 Order of Magnitude Budgetary Estimate (AACE Class 5 Estimate) 6/18/2024

		Additional Items	
eering - Per Contract Scope of Work and LOE	\$1,035,691	\$40,000	Comments
Project Management (2 years)	\$76,440		Per Orignal Contract LOE
Project Definition			Per Orignal Contract LOE
Project KOF Meeting and Site Evaluation	\$16,909		
Existing PLC Panel Evaluation	\$13,506		
Feasibility Assessment for Connecting the Fish Screen PLC to the Plant SCADA System	\$2,713		
Project Planning Workshops	\$11,502		
Project Definition Report	\$20,980		
Engineering Design			
Tehnical Design Package	\$109,200		Per Orignal Contract LOE
Existing Operator Room Upgrades		\$4,000	Additional Drawings Required
Existing Computer Enclosure Demo/Removal		\$4,000	Additional Drawings Required
Existing Microfloc Control Panel Demo/Removal		\$4,000	Additional Drawings Required
Filter Builiding Conduit and Wiring		\$5,000	Additional Drawings Required
Chemical Builiding Conduit and Wiring		\$5,000	Additional Drawings Required
Wicks Well PLC Drawings		\$5,000	Additional Drawings Required
Supplements to Support City's Selection of Electrical Contractor	\$2,713		Per Orignal Contract LOE
Price Quotations for Major Materials	\$4,358		Per Orignal Contract LOE
SCADA Software			Per Orignal Contract LOE
SW Planning (Loop Descriptions / Workshops)	\$75,910		
SW Programming	\$223,176		
Configure Historian and Reporting	\$83,626		
SW Field Testing	\$121,107		
OT Systems			Per Orignal Contract LOE
Configuration	\$91,116		
Additional Configuration		\$8,000	Additional Server and Network Equiment
Deployment	\$21,947		
Additional Deployment		\$5,000	Additional Server and Network Equiment
OT Record Documentation	\$8,632		
Post Development Support	\$12,373		
Engineering Construction Support	\$79,887		Per Orignal Contract LOE
Material Procurement Support	\$11,482		Per Orignal Contract LOE
Owner Managed Contingency	\$10,253		Per Orignal Contract LOE
Expenses	\$37,865		Per Orignal Contract LOE

struction Allowance	\$82,400	\$36,660	
Panel Work	\$31,200		2 ppl, 40 hrs per panel @ \$130 / hour for each of 3 panels
Existing Operator Room Upgrades		\$10,400	2 ppl, 40 hrs @ \$130 / hour
Existing Computer Enclosure Demo/Removal		\$2,100	2 ppl, 8 hrs per panel @ \$130 / hour
Existing Microfloc Control Panel Demo/Removal		\$4,160	2 ppl, 16 hrs per panel @ \$130 / hour
Other Misc Electrical (OT, cabling, etc)	\$31,200		Allowance, same amount as Panel Work
Miscellaneous EE Materials Allowance	\$20,000		Allowance
EE Materials for Conduit Runs to connect Chemical Pumps		\$20,000	Allowance

ials	\$264,323	\$119,116	
PLC HW			
Wicks PLCs	\$95,614		
Fish Screen PLC	\$9,586		
Crow Dam PLC	\$9,735		
Raw Water Well PLC		\$35,000	Not included in orginal LOE
Wicks PLC 24VDC Power Supplies	\$4,249		
Remote PLC 24VDC Power Supplies	\$4,249		
PLC UPS		\$8,100	Three 1.5kVA UPS
HMI SW			
Ignition HMI Platform	\$26,490		
Ignition HMI Platform - Redundancy		\$13,300	Not included in orginal LOE
FactoryTalk AssetCentre		\$15,000	Not included in orginal LOE
OT Hardware - Wicks			
Server Enclosure		\$1,600	42U Freestanding Server/Network Enclosure
Rack Mounted Fiber Patch Panel		\$1,316	Rack Mount, 2U Patch Panel with Fiber Inserts
Server	\$16,000		1 Dell Server
Thin Clients	\$3,000		Two Thin Client Dell Workstation
Panel Mounted Industrial Computer		\$7,500	Panel PC mounted within Wall Mount Stainless Steel Enclosure
Firewalls	\$5,874		
Managed Network Switches	\$2,400		(1 ISP Switch, 2 SCADA Switches)
Managed DIN Rail Mounted Network Switches	\$7,228		(3 SCADA Switches)
Radios			
Rackmount Server Enclosure UPS		\$4,500	One 3KVA UPS
Starlink Connection		\$800	
OT Software - Wicks	\$20,000		Allowance
OT Hardware - Shops	\$5,000		1 Dell server, 2 HMI workstations, 1 firewall, 1 NAS, 2 core switches
Server		\$16,000	Not included in orginal LOE
DMZ Server		\$16,000	Not included in orginal LOE
Managed Network Switches	\$2,400		(1 ISP Switch, 2 SCADA Switches)
OT Software - Shops	\$20,000		Allowance
PLC Spares	\$32,497		

\$1,728,017	\$269,192	10%
	\$24,472	
\$276,483	\$39,155	20%
\$69,121	\$9,789	5%
\$1,382,414	\$195,776	
	\$69,121 \$276,483	\$69,121 \$9,789 \$276,483 \$39,155

TOTAL: \$1,997,209

The Dalles

Distribution SCADA Upgrade

Order of Magnitude Budgetary Estimate (AACE Class 5 Estimate)

eering	\$1,433,672	
Project Management (5 years)	\$123,000	6 hrs / month for 60 months
Design / SDC		
Concept Design Allowance	\$91,520	16 hrs, 26 sites @ \$220/hr
Final Design Allowance	\$91,520	16 hrs, 26 sites @ \$220/hr
Engineering SDC		
SDC / Construction Support	\$68,640	12 hrs, 26 sites @ \$220/hr
Electrical Contractor Procurement Support	\$8,800	40 hrs @ \$220/hr
Material Procurement Labor	\$13,200	60 hrs @ \$220/hr
SCADA Software		
SW Planning (Loop Descriptions / Workshops)	\$112,000	80% of LOE on Wicks SCADA Upgrade
SW Programming for Remote Stations	\$481,712	476 I/O @ 4.6 hrs/point, \$220/hour
SW Field Testing for Remote Stations	\$101,520	16 hours per station, 26 stations + \$10k expenses
SW Programming for Radio Master	\$66,000	Allowance - 200 hours PLC, 100 hours HMI @ \$220/hour
Radio Comm's Configuration and Field Testing	\$47,760	8 hours per station, 26 stations + \$2k expenses
Configure Historian, Reporting, Alarm Dialer	\$23,000	Allowance
OT Systems		
Configuration	\$45,000	Based on 50% of LOE on Wicks SCADA Upgrade
Deployment	\$45,000	Based on 50% of LOE on Wicks SCADA Upgrade
Record Drawings	\$20,000	Allowance
Travel Expenses - SCADA Field Testing	\$84,000	Allowance - \$2,000 per station x 26 stations * 1.5 people
Travel Expenses - OT	\$6,000	Allowance - \$6,000
Travel Expenses - Radio System Testing	\$5,000	Allowance - \$5,000

Const	truction Allowance	\$154,160	
	Panel Work	\$108,160 2 ppl, 16 hrs per panel @ \$130 / hour for	each of 26 panels
	Other Misc Electrical (OT, cabling, etc)	\$26,000 10% of Panel Work	
	Miscellaneous EE Materials Allowance	\$20,000 Allowance, same amount as line above	

erials	\$746,450	
SCADA Hardware (PLC) - Remote Stations & Shops	\$308,200	Northcoast 2/7/24 budgetary quote + 15% markup
SCADA Software (HMI) - Shops	\$25,000	Ciaran 6/1/23 ballpark
New Panel Material Alowance	\$104,000	26 Stations @ \$4000 each
New Radios	\$55,050	26 Stations @ \$2000/radio + \$50 programming cable
OT Hardware - 5 Year Server Replacement at Shops	\$100,000	Replacement of servers installed in Phase 1 due to server lifespan (5 yrs
UPS Replacement Allowance	\$31,200	26 Stations @ \$1200 per panel
OT Hardware - Remote Stations	\$91,000	\$3,500 allowance per site, 26 sites
OT Hardware - Shops	\$7,000	2 HMI workstations, 2 core switches
OT Software - Shops	\$25,000	Allowance

	JJJJJ,J/I	
CONTINGENCY:	\$583,571	25
ESCALATION (to 2028 midpoint):	\$344,360	15
SUBTOTAL:	\$2,334,282	
GENERAL CONDITIONS:	\$90,061	10
MATERIAL SHIPPING ALLOWANCE:	\$22,394	3%

Jacobs

Technical Memorandum

2020 SW Fourth Avenue, 3rd Floor Portland, OR 97201 503.235.5000 www.jacobs.com

Subject	Task 5.8 Renewable Energy Evaluation
Project Name	City of The Dalles Water Master Plan
City Project Number	2022-005
Jacobs Project Number	D3718900
То	Dave Anderson/City of the Dalles
From	Yunji Choi/Jacobs
Reviewed by	Brady Fuller/Jacobs
Date	July 19, 2024 Updated November 20, 2024

1. Introduction

This memorandum examines potential renewable energy generation (in-conduit hydropower) within The Dalles municipal water system. In-conduit hydropower has a very low environmental impact and therefore permitting for these facilities is very straightforward with limited permitting requirements, compared to conventional hydropower facilities (like dams on rivers) with which the public may be more familiar. The evaluation presented in this memo should be considered a screening-level evaluation, and more detailed analyses are warranted to confirm financial feasibility. The water master plan scope intended that energy recovery would be evaluated for both a new finished water transmission pipeline from Wicks Water Treatment Plant into town, and down-hole aquifer storage and recover (ASR) wells. The scope also assumed that other hydropower feasibility would be studied under a future feasibility study, and that potential opportunities to integrate hydropower into planned CIP projects will be identified.

The feasibility and cost effectiveness of hydropower generation at Garrison Reservoir at the downstream end of the new finished water transmission main is evaluated herein. The finished water transmission main also branches to Sorosis Reservoir but the available net head is much smaller on the Sorosis Branch (the "High Line") than the pipeline to Garrison, so only the Garrison site was evaluated.

The initial ASR well is already in construction and limited information was available regarding system configuration. A cursory evaluation of down-hole hydropower is provided.

2. Energy Potential and Economic Analysis

From experience, it is understood that the most economic opportunities for energy recovery from in-conduit hydropower occur where steady flow can be sustained for most of the calendar year, and where this steady flow exists with similar differential head conditions. Further, in-conduit hydropower can often be most economic at a site that already has existing electrical load that can be offset by energy recovery. Two potential applications of in-conduit hydropower are evaluated herein.

• Garrison Reservoir site

• Aquifer Storage and Recovery Well sites

2.1 Garrison Reservoir

In the case of Garrison Reservoir site, the pump station exerts significant annual power demand, as well be described below.

Applications for in-conduit hydropower often occur at the location of existing pressure reducing valves, and any inconduit hydropower facility must provide for one or more such bypass valves to sustain water operations when the turbine/generator goes offline (either for planned outages, or during unplanned grid disruptions). For sites like Garrison where potentially summer seasonal water demands could be higher than winter seasonal demands, the installation of two parallel turbines could make sense with the single turbine operating during lower flow periods. The City's plans for implementing ASR are expected to increase wintertime water demand so projections of flow conditions will continue to be an important aspect of planning for any in-conduit hydropower facility.

The available flow and head at Garrison Reservoir inlet were provided by Consor on June 4, 2024, based on the updated hydraulic model of the water system. The available Flow verses Head curve is shown in Figure 1.

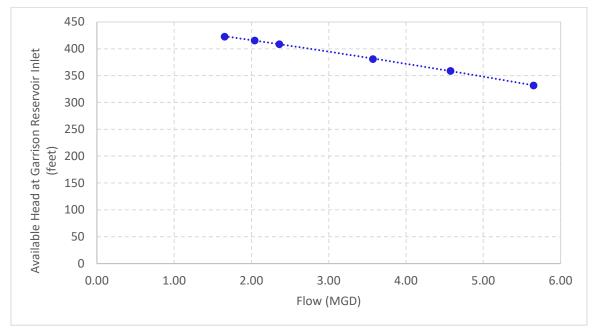


Figure 1. Available Flow vs. Head at Garrison Reservoir Inlet

Power output from an in-conduit hydropower turbine, regardless of size or type, is proportional to flow through the turbine and the headloss (or differential pressure) across the turbine. In principle, low-head/high-flow and high-head/low-flow conditions offer the same power and energy potential. The power formula for a hydraulic turbine generator is as follows:

$$THP = \frac{Q \times H}{8.8}$$

$$THP = Theoretical Horse Power (Horse Power, HP)$$

$$Q = Flow rate (cubic foot per second, cfs)$$

$$H = Available head (ft)$$
(US Bureau of Reclamation, 2005)

For the evaluation purposes, the following list of assumptions were made:

- Combined efficiency of the turbine and generator is 85%.
- 3 million gallons per day (MGD) in October to April and 6 MGD in May to September is available continuously for hydropower generation.

- Hydropower generation is continuous throughout the year.
- Rate of power is assumed to be \$0.08/kilowatt-hour for power generation benefits calculation.
- Net Energy Metering (NEM) agreement with local electric utility will offset the total energy use across 16meter locations in 2022 listed in "WD Power Usage 2022.xlsx" shared on May 17, 2024, as an email attachment. The total annual energy use was 1,022,716 kwh.
- Excess power generation (that is, power generated that exceeds annual demand at the site) is not sold back to the electric utility. This assumption was made because NEM interconnection agreements often require the generator to forfeit any excess annual production. This is not the only interconnection and payment arrangement but it is conservative for financial projections.
- A previous feasibility study for another Oregon water utility completed by Jacobs in 2023 was referenced to estimate the Capital cost at Garrison Reservoir. The estimate was scaled based on power production capacity (i.e. generator size). The estimated opinion of probable construction cost is \$2,120,000 and an additional 30% markup engineering, legal, and administration costs.
- Previous feasibility study carried out by Jacobs in 2023 was referenced to estimate the Operation and Maintenance cost (O&M).
- All benefit calculations and cost calculations use simple present value and depreciation is not included.
- The proposed system assumes that the grid must be operational to allow power generation. Specific electrical equipment is required to operate generation systems in "island mode" while disconnected from the grid. This can be an important resilience feature which should be evaluated in the In-Conduit Hydropower Feasibility Study recommended in this memo.
- The planned facility would be subject to a facility charge of \$105/month according to the Northern Wasco County Tariff Rate Schedule 803 (Northern Wasco County People's Utility District, 2024).

The estimated total power generation is 1,383,642 kwh over a one-year period which is 135% of recorded power use in 2022. The energy potential at Garrison Reservoir is estimated to exceed the total power use in 2022. Table 1 presents the cost-benefit ratio of hydropower generation potential at Garrison Reservoir based on the estimated hydropower generation benefit, capital cost, and O&M cost under 20- and 50-year operation periods.

	20 Year		50 Year	
Hydropower Generation Benefit				
The Dalles Total Energy Use in 2022 (kwh)		1,022,716		1,022,716
Energy production estimate over continuous 1 year (kwh)		1,383,642		1,383,642
Annual benefit rate (per kwh)	\$	0.08	\$	0.08
Annual benefit	\$	81,817	\$	81,817
Capital cost				
Opinion of Probable Construction Costs	\$	2,120,000	\$	2,120,000
Engineering, Legal, and Admin (30%)	\$	636,000	\$	636,000
O&M cost				
O&M Daily operation, staff, \$70/hr, 1hr/day/year, 365 days	\$	25,550	\$	25,550
O&M Yearly maintenance, manager, \$90/hr, 80hr/year	\$	7,200	\$	7,200
O&M Consulting, third party (per yr)	\$	2,000	\$	2,000
Schedule 803 Facilities charge \$105/month (per yr)	\$	1,260	\$	1,260
O&M Inhouse, one-time, off-site education, 3 people (one time)	\$	7,500	\$	7,500
O&M Startup, commissioning, and training by Manufacturer	\$	20,000	\$	20,000

Table 1. Capital Cost Estimates

Operational period (yrs)	20	50
Cost-Benefit Analysis		
Total Cost (present value, rounded)	\$ 3,500,000	\$ 4,580,000
Total benefit over operation period (use off set, no excess sale)	\$ 1,640,000	\$ 4,090,000
Net benefit	\$ (1,860,000)	\$ (490,000)
Simple payback period (yrs)	43	56
Sum of benefits at present value/cost	0.47	0.89

2.2 Aquifer Storage and Recovery Well sites

ASR down-hole in-conduit hydropower is created by essentially running the production well pump in reverse, generating energy from the differential head and flow between the pressure zone and the groundwater level in the well.

Consideration of down-hole in-conduit hydropower at one or more of the City's proposed aquifer storage and recovery wells was evaluated based on available cursory information that could be more fully evaluated in a future feasibility study.

The assumptions used for the power production estimate and potential benefit calculations are listed below:

- The available net head for hydropower generation is 220 ft.
- The available incoming flowrate.
- A Net Energy Metering (NEM) agreement with the local electric utility will be established and all power generated will result in benefit.
- The planned facility would be subject to a facility charge of \$105/month according to the Northern Wasco County Tariff Rate Schedule 803 (Northern Wasco County Peoples Utility District, 2024).
- All benefit calculations and cost calculations use simple present value and depreciation is not included.

The estimated power production and energy sale at present value are presented in Table 2.

Table 2. Down-hole In-Conduit hydropower production estimate

	Min	Мах		
Available head (ft)	220	220		
Average flow during operation (gpm)	1350	1350		
Recharge season (months)	3	6		
Average annual flow, max (gpm)	330	660		
Average annual volume (MG)	175	350		
Power Production Calculation				
Average flow, min (cfs)	3.0	3.0		
Efficiency	0.75	0.75		
Power production estimate (HP)	56.4	56.4		
Power production estimate (kw)	42.1	42.1		
Energy Production Calculation				
Recharge season (days/year)	90	180		
Energy production estimate (kwh/year)	90,838	181,677		
Energy Sale Calculation				

Net metering rate (\$/kwh)	\$ 0.08	\$ 0.08
Energy sale estimate (\$/year)	\$ 7,267	\$ 14,534
Energy sale estimate after facilities charge (\$/year)	\$ 6,952	\$ 13,904

The City has constructed one ASR well site, and is considering others. At the time of this evaluation, detailed layouts of the existing site and proposed sites were not available to the project team. In addition to electrical and mechanical infrastructure required for ASR well operation, the following additional analyses, agreements, and infrastructure would be required to realize effective energy recovery:

- Well pump/motor must be designed for full operation in both directions (bearings, couplings)
- Instrumentation and controls integrated for monitoring and control.
- Hydraulic transient analysis performed and any mitigating measures provided.
- Net metering arrangements made with power utility. The utility will provide an appropriate bi-directional meter.
- Additional electrical equipment including inverters, switches, regenerative variable frequency drive equipment, and regulator.

3. Conclusion

3.1 Garrison Reservoir Site

The Garrison Reservoir has the hydropower generation potential to offset the city's power use at the Garrison site. The estimated benefit-cost ratio of a 20-year operation is 0.47 and a 50-year operation is 0.89. These show that assuming Net Energy Metering, and without incentives, construction of in-conduit hydropower requires long pay back periods.

The development of energy recovery at the Garrison site is closely linked to the design and operating conditions of the proposed new finished water transmission main(s) from Wicks WTP into town. The additional conceptual and preliminary design of such energy recovery facilities should be performed as part of early planning for the new finished water transmission mains.

3.2 Aquifer Storage and Recovery Well sites

ASR sites have hydropower generation potential to offset a portion of the city's power use at each ASR site. Capital cost estimates of infrastructure required to accommodate in-conduit hydropower at these sites were not prepared due to the cursory information available at the time of this analysis. Similar to the Garrison Site, it is likely that long pay back periods would be expected, especially because the system would only operate seasonally.

3.3 General

Federal government tax benefits (which can be sold by the City to third parties with tax liability) and various economic incentive opportunities are available to supplement the planning, design, construction costs and maximize the hydropower generation benefit. Certification of in-conduit hydropower under certain industry programs (such as the Low Impact Hydropower Institute – LIHI) can increase the value of power generated if it is sold to third parties that are willing to pay for such credentialed generation. Other renewable energy "credits" can be accrued by the City and sold on the market to gain additional revenue. Incentives for both capital and generation sales exist, and State and Federal programs are nearly always bringing new potential incentives to the market.

An in-conduit hydropower feasibility study that further evaluates the hydropower potential at finished water transmission pipelines and down-hole hydropower a ASR wells is recommended. The estimated consulting cost of such effort is highly variable based on actual project needs, but for an evaluation as described herein a consulting budget of \$100,000 is a reasonable plan, with some of that cost potentially paid by a third party such as the power

utility. Evaluation of potential recovery at ASR wells can efficiently be performed during early planning efforts on the finished water transmission mains, if other in-conduit hydropower evaluations are performed.

4. References

Consor, "WD Power usage 2022.xlsx", email attachment, 5/17/2024

Consor, "HGL_Profile-Head_Available_at_Garrison.xlsx", email attachment, 6/4/2024

Northern Wasco County Peoples Utility District, "Tariff-Rate-Schedule-effective-July-2-2024", July 2024

US Bureau of Reclamation, "Reclamation Managing Water in the West – Hydroelectric Power", July 2005

Page 467 of 664



APPENDIX D WICKS WTP EXPANSION ALTERNATIVES ANALYSIS

The Dalles Wicks Water Treatment Plant (WTP) Expansion Alternatives Analysis

Date:	September 20, 2024	
Project name:	The Dalles Water System Master Plan	
Project no:	D3718900	
Prepared by:	Tyler Kurtz, P.E.	
Reviewed by:	Enoch Nicholson, P.E.	
	Brady Fuller, P.E.	

1. Introduction

The Wicks Water Treatment Plant (WTP) has served the City of The Dalles for nearly 75 years since its construction in 1950. Currently, the facility provides water to over 13,000 people with a rated capacity of 5.6 MGD. The original construction included flash mix, flocculation, sedimentation, filtration, and chlorination treatment processes. The facility has been expanded and improved over the years, with significant additions including the following:

- 1967: Construction of the alum room, a second washwater tank, and the intake screen
- 1973: Tube settlers installed in basins
- 1982: Clearwell 1 constructed
- 1985: Polymer room constructed
- 1990: Carbon building constructed
- 1991: Solids drying beds constructed
- 2003: Fish screen and fish ladder constructed
- 2008: Clearwell 2 constructed

Despite the facility being well maintained, much of the concrete and equipment on site are nearing the end of their useful lives. Coupled with a growing population and increased water demand from the community, the City is faced with either upgrading and expanding the existing facility or constructing a new, larger facility on the same property where the existing Wicks WTP is currently located.

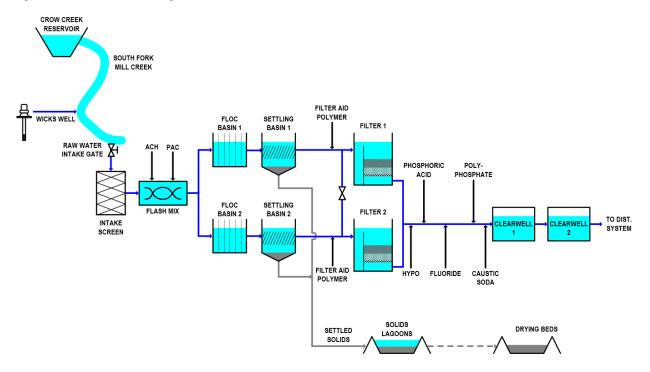
1.1 Existing Treatment Process

Wicks WTP is fed by watersheds that extend from Hood River County into Wasco County. The main tributaries are Crow Creek, Alder Creek, and South Fork Mill Creek (which receives water diverted from Dog River) which combine in Crow Creek Reservoir. Wicks WTP draws water from South Fork Mill Creek, approximately nine miles below the Crow Creek Reservoir. On average, the facility produces about 80% of the City's annual water supply, with the remainder coming from multiple groundwater wells that the City operates in town.

The intake at Wicks WTP diverts water by gravity at a low head dam structure with flashboards; the water then passes through a fish screen before being conveyed to the flash mix basin at the head of the facility. The flash mix basin utilizes a jet injector to disperse the aluminum chlorohydrate (ACH) that is used for coagulation upstream of the hydraulically mixed flocculation basins. The sedimentation basins utilize tube settlers and are covered with hollow-core prestressed concrete slabs to prevent icing of open basins and UV degradation of the plastic tube settlers. Two trains of flocculation and sedimentation are located

upstream of the filters, and two dual-media filters are located ahead of the two clearwells. A process flow diagram of the existing WTP is presented in Figure 1.

Figure 1. Process Flow Diagram of Wicks WTP



1.2 Raw Water Quality

Raw water data dating back to 2019 was reviewed. Total organic carbon (TOC) data was pulled from Oregon Health Authority's (OHA's) Drinking Water Data Online Portal, dating back to 2007. Raw water entering the facility generally has low turbidity, TOC, and alkalinity, with higher turbidity regularly recorded from January through April due to increased precipitation during these months. In the winter, groundwater is occasionally pumped from Wicks Well into South Fork Mill Creek to supplement flows and raise the stream temperature slightly and prevent freezing issues at the intake screens. Raw water quality by season is presented in Table 1. Plots of raw water temperature, turbidity, pH, and alkalinity measured at the headworks of the facility are provided in Figure 2 through Figure 5.

Parameter	Spring (Mar-May)	Summer (Jun-Aug)	Fall (Sep-Nov)	Winter (Dec-Feb)	Full Year
Temperature (°C) ¹	7.4	15.2	9.8	4.3	9.4
Turbidity (NTU) ¹	5.41	1.74	1.12	4.44	3.02
pH ¹	7.40	7.49	7.58	7.46	7.47
TOC (mg/L) ²	2.6	1.6	1.5	2.4	2.1
Alkalinity (mg/L) ¹	32.8	38.2	44.7	46.0	40.3

¹ Data is from 2019-2023, includes 455-460 data points per season.

² Data is from 2007-2023, includes 41-49 data points per season.

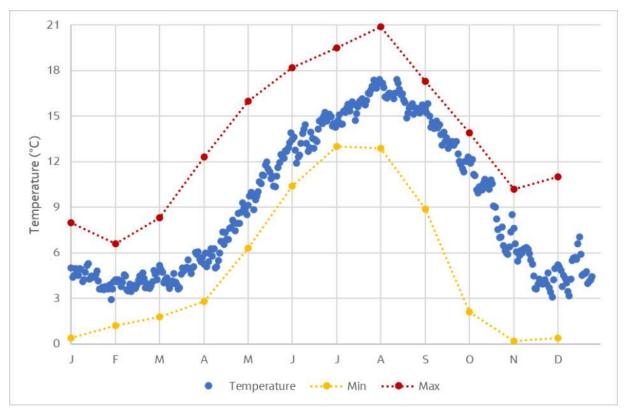
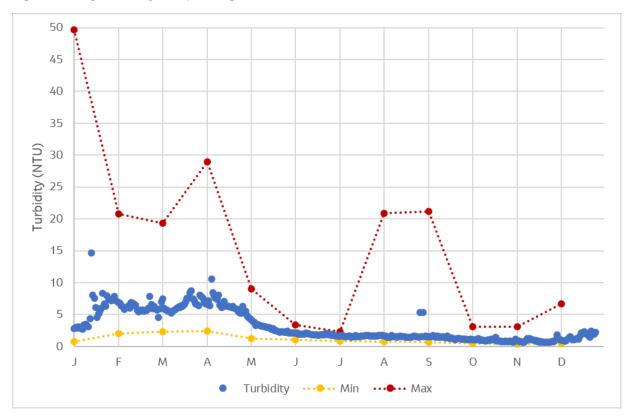


Figure 2. Daily Temperature Data, Averaged from 2019-2023

Figure 3. Daily Turbidity Data, Averaged from 2019-2023



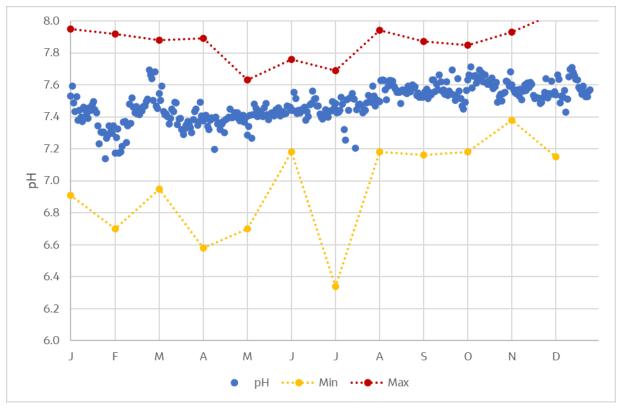
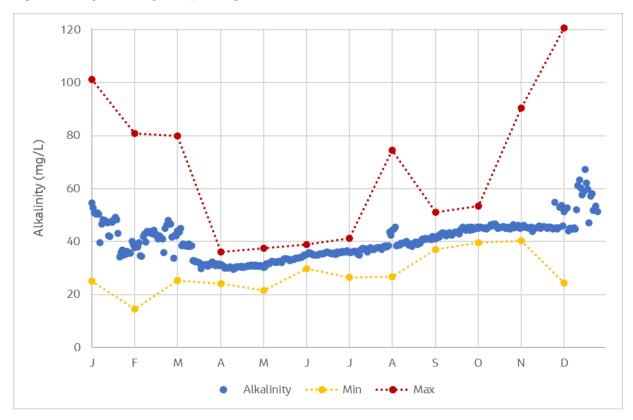


Figure 4. Daily pH Data, Averaged from 2019-2023

Figure 5. Daily Alkalinity Data, Averaged from 2019-2023



1.3 Regulatory Requirements

The Environmental Protection Agency (EPA) and OHA are the governing regulatory bodies for Wicks WTP. South Fork Mill Creek is a surface water supply and therefore must meet the provisions of the Surface Water Treatment Rule (SWTR) and its successors: the Interim Enhanced Surface Water Treatment Rule (IESWTR), Filter Backwash Rule, Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR), and Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). In addition to meeting federal and state water quality regulations, the City is part of the AWWA Partnership for Safe Water, which establishes stricter performance goals for sedimentation and filtration. Regulatory requirements and AWWA Partnership goals are outlined in Table 2.

Water Quality Requirement/Goal	Regulatory Requirement	AWWA Partnership Performance Goal				
Turbidity Criteria	Turbidity Criteria					
Clarified Water	Oregon Health Authority optimization goal only	95th percentile < 1.0 NTU for raw waters averaging 10 NTU or less.				
Filtration – Combined Filter Effluent	< 0.3 NTU 95% of the time, monthly < 1.0 NTU 100% of the time	95th percentile CFE turbidity < 0.10 NTU, maximum CFE turbidity ≤ 0.30 NTU.				
Filtration – Individual Filter Effluent	Optimization goal only	95th percentile IFE turbidity < 0.10 NTU, maximum IFE turbidity ≤ 0.30 NTU.				
Filtration Backwash Recovery	None	With filter to waste (FTW): return to service when turbidity <0.10 NTU. Without FTW: maximum backwash recovery period of 15 min to return filter effluent turbidity to <0.10 NTU.				
Virus and Protozoa Control						
Giardia Removal/Inactivation	Minimum 3.0-log total, minimum 0.5-log via disinfection	CT values to achieve required inactivation of Giardia and viruses				
Cryptosporidium Removal	Minimum 2.0-log total	None				
Virus Removal/Inactivation	Minimum 4.0-log total	CT values to achieve required inactivation of Giardia and viruses				
Disinfectant Residual						
Total chlorine residual entering distribution system	Minimum 0.2 mg/L	None				
Disinfection Byproducts						
Haloacetic Acids (HAA5)	< 60 µg/L annual average	None				
Trihalomethanes (TTHM)	< 80 µg/L annual average	None				
Corrosion Control						
рН	7.0-8.5	None				

Table 2. Regulatory Requirements and AWWA Partnership for Safe Water Performance Goals

1.3.1 Emerging Regulatory Requirements

A review of the status of several potential future regulations was conducted to identify impacts to the WTP if these regulations are finalized. The following discussion highlights the current state of the most critical and relevant regulatory developments for drinking water treatment. The regulatory development that is most likely to impact Wicks WTP is the potential rule regarding cyanotoxins, which is likely to require increased monitoring of the source and finished water when it is implemented. However, it is not expected that this or other rules that are in progress will require modifications to the treatment process.

1.3.1.1 Fifth Unregulated Contaminant Monitoring Rule (UCMR5)

The 1996 Safe Drinking Water Act (SDWA) amendments require that once every five years the EPA issue a new list of no more than 30 unregulated contaminants to be monitored by public water systems (PWSs). The EPA collects data for contaminants that are suspected to be present in drinking water and do not have health-based standards set under the Safe Drinking Water Act (SDWA); it is another iteration of the rulemaking to fill the occurrence data gaps in the Contaminant Candidate List (CCL).

The fifth Unregulated Contaminant Monitoring Rule (UCMR 5) was published in the Federal Register on December 27, 2021. UCMR 5 requires monitoring contaminants between 2023 and 2025 using analytical methods developed by EPA and consensus organizations. This monitoring provides a basis for future regulatory actions to protect public health. The monitoring requirements include 30 compounds including 29 per- and polyfluoroalkyl substances (PFAS) and lithium. Since UCMR 5 monitoring began in 2023, Wicks WTP staff are already familiar with these regulatory requirements. In 2023, no PFAS were detected in any City water sources. Low levels of naturally occurring lithium were found in three well sources, but not South Fork Mill Creek.

On April 10, 2024, the EPA announced the final National Primary Drinking Water Regulation (NPDWR) for six PFAS included in UCMR 5 monitoring. It is possible that more of these compounds become regulated contaminants in the future.

1.3.1.2 Cyanotoxins

The EPA has 10-day health advisories for microcystins and cylindrospermopsin in drinking water, which are non-regulatory values that serve as technical guidance for others. OHA requires specified drinking water systems that use surface water sources susceptible to harmful algae blooms (HABs) to routinely test for cyanotoxins and notify the public about the test results, adopting the health advisory levels put forth by the EPA, as shown in Table 3. The City is currently not on the list of systems required to test for cyanotoxins, though testing is recommended. Per OHA rules, water suppliers will issue a "do not drink" advisory if routine and confirmation samples are over any health advisory level. There are no advisory levels for anatoxin-a or saxitoxins, but OHA should be contacted if they are found in raw or finished water over the course of sampling.

Cyanotoxin	EPA 10-Day Health Advisory / OHA Advisory Levels
Microcystins (Total)	0.3 μ g/L for children under 6 years old and vulnerable groups 1.6 μ g/L for all age groups
Cylindrospermopsin	0.7 μ g/L for children under 6 years old and vulnerable groups 3.0 μ g/L for all age groups

Table 3. Cyanotoxin Advisory Levels

Cyanotoxins were included on CCL 3 and CCL 4, and ten different cyanotoxins were sampled for in the monitoring efforts of Fourth Unregulated Contaminant Monitoring Rule (UCMR 4), which was completed in 2020. It is possible that more cyanotoxins receive health advisories or that more stringent regulations are created in the future. Given the historical occurrence of algal blooms on Crow Creek Reservoir and the predicted increase in HAB frequency and magnitude with the impacts of climate change, cyanotoxins could become a concern for the City in the future. Treatment alternatives vary, depending on the cyanotoxin(s) present, but primarily involve oxidation (ozone, chlorine, permanganate, hydroxyl radical, etc.) or physical removal through adsorption (GAC or PAC).

1.3.1.3 Perfluorinated Compounds

On April 10, 2024, the EPA announced the final National Primary Drinking Water Regulation (NPDWR), establishing legally enforceable maximum contaminant levels (MCLs) and non-enforceable maximum contaminant level goals (MCLGs) for six PFAS (Table 4). The rule requires that PWSs must monitor for these PFAS and complete initial monitoring by 2027, followed by ongoing compliance monitoring. Water systems must also provide the public with information on the levels of these PFAS in their drinking water beginning in 2027. If monitoring shows that the MCLs are exceeded in a system's drinking water, then solutions must be implemented by 2029 to reduce PFAS levels. After 2029, PWSs that are in violation of one or more of the MCLs must take action to reduce PFAS levels in their drinking water and notify the public of the violation.

Compound	Final MCLG	Final MCL
PFOA	Zero	4.0 ppt
PFOS	Zero	4.0 ppt
PFHxS	10 ppt	10 ppt
PFNA	10 ppt	10 ppt
HFPO-DA (GenX)	10 ppt	10 ppt
Mixtures containing two or more of PFHxS, PFNA, HFPO-DA, and PFBS	1 (unitless) hazard index	1 (unitless) hazard index

Table 4. MCLGs and MCLs Required by the EPA's PFAS NPDWR

Given the nature of the watershed that feeds Wicks WTP and the past sampling showing no PFAS contamination, it is unlikely that Wicks WTP will need to treat for PFAS.

1.3.1.4 Lead and Copper Rule

The original Lead and Copper Rule (LCR) was published by the EPA in 1991, though it has been revised in 2000, 2004, 2007, and most recently in 2021. Additionally, the EPA published the proposed Lead and Copper Rule Improvements (LCRI) in December 2023, building upon the Lead and Copper Rule Revisions (LCRR) promulgated in 2021, which includes the following improvements:

- Locating legacy lead pipes and achieving 100% lead pipe replacement within 10 years
- Improving tap sampling
- Lowering the lead action level
- Strengthening protections to reduce exposure

The City has no known lead service lines and has reduced sampling requirements due to previous sampling results. Furthermore, the addition of phosphates and pH control at Wicks WTP means the City is

well positioned to avoid any lead and copper concerns, as the impacts of this regulatory development are primarily in the operation and maintenance of the distribution system.

1.4 Future Demand Assumptions

Future water demands were provided to Jacobs by Consor and are summarized in Chapters 2 and 4 of the Water System Master Plan Update. The proposed WTP expansion will be designed to maximize the beneficial use of the City's surface water sources through 2074. WTP expansion capacity should be refined as part of predesign and informed by any additional supply analysis and testing completed at that time.

2. Treatment Assessment

The existing treatment process was evaluated during three different assessments: the filter assessment, condition assessment, and capacity assessment. These were performed to provide WTP staff with operational recommendations, as well as to gather information that would be relevant for comparing expansion alternatives to complete replacement alternatives.

2.1 Filter Assessment

An assessment of the existing filters was conducted in April 2023 (Attachment A). The filters were analyzed in multiple ways, following guidance provided in *Filter Evaluation Procedures for Granular Media, Second Edition* (Nix and Taylor 2018). First, filter run data was collected before the filters were drained and the media depth was measured. Filter media samples were collected before and after backwashing to conduct sieve and floc retention analyses. A backwash was performed to monitor bed expansion, backwash flow, and profile backwash turbidity.

Through this assessment, it was determined that the anthracite depth in both filters was 6" to 8" less than the design depth of 26". Additionally, a layer of fines was resting on top of the media, up to 2" in depth, which was collecting a large portion of solids and contributing to premature headloss increases. Following the filter assessment, all of the anthracite within the filters was replaced. The backwash sequence was effectively cleaning the media, but was potentially "overcleaning" the filters, leading to extended filter maturation and the production of fines through excessive surface washing.

2.2 Condition Assessment

A limited condition assessment was performed in April 2023 to evaluate the current condition of the treatment plant. This assessment included preparing an inventory of facilities, unit processes, and equipment at the WTP. All observed items were evaluated to determine their condition and identify any defects. The primary goal of this assessment was gathering information to determine which facilities and equipment will need to be either repaired or replaced in future capital improvements should the existing WTP be left in operation for the coming decades. The following facilities were evaluated during the assessment:

- Wicks Well
- Intake Structure
- Headworks
- Flocculation and Sedimentation
- Filters
- Sludge Lagoons and Drying Beds
- Clearwells
- Chemical Facilities

Offices and Ancillary Buildings

The condition assessment identified a multitude of defects throughout the facility. However, whether the facility is expanded or replaced, many of these would no longer be necessary as they are associated with infrastructure that would be replaced in either alternative (i.e., admin spaces, chemical buildings, etc.). Other defects, such as the replacement of the existing sodium hypochlorite tanks and some finished water sensors, would be addressed during expansion but present immediate concerns to the continued operation of the facility while WTP construction is underway. Those items were included as early projects in the phasing of the proposed alternative. Of primary concern were safety deficiencies throughout the facility, lack of SCADA connectivity with the facility's intake and chemical systems, exposed supports and paste loss in the concrete basins, the structural integrity of the hollow core sed basin covers, the age of filter gallery piping, and the condition of the wash water tanks.

Whether the facility is expanded or fully replaced also factors into which defects are addressed. With a full replacement, many improvements to the existing treatment process are not worth pursuing, as they were not identified as posing immediate risks to health and safety. With expansion and continued use of the existing facility, many costly improvements to the existing treatment process would be recommended, including secure and remote SCADA integration, full replacement of the tube settlers, and replacement of all filter gallery piping. Existing infrastructure that was assumed to have continued use with a new facility are the Wicks Well, raw water intake, washwater tanks (after replacement), and clearwells.

The total costs associated with the expansion and replacement alternatives are summarized in Table 5. A full list of deficiencies is included in Attachment B.

Facility/Area	Wicks WTP Expansion Alternative	Wicks WTP Replacement Alternative
Wicks Well	\$215,000	\$215,000
Intake	\$489,000	\$489,000
Headworks/Flash Mix	\$1,094,000	-
Flocculation/Sedimentation	\$1,652,000	\$1,621,000
Filter Facility	\$590,000	-
Washwater Tanks	\$1,131,000	\$1,131,000
Clearwells	\$2,159,000	\$2,159,000
Chemical and Ancillary Buildings	\$60,000	\$60,000
Total	\$7,390,000	\$5,675,000

Table 5. Total Costs to Address Identified Defects in Expansion and Replacement Scenarios

2.3 Capacity Assessment

As part of the overall Water Master Plan in which the WTP evaluation was performed, a potential option to meet future water system demand is to treat water at Wicks WTP during the winter at flow rates higher than consumptive demand and store it via aquifer storage and recovery (ASR). The City is currently constructing its first ASR well. Currently, the winter water demand is well below the treatment capacity of the existing Wicks WTP, but given the projections for additional winter demand, the winter capacity of Wicks needed to be determined.

To determine the winter capacity of the existing facility, two capacity assessments were performed during the winter of 2023-2024. The capacity assessments captured raw water conditions that were somewhat typical for winter in The Dalles, with a few caveats. During both capacity assessments, water temperatures were slightly above average for the month of the test. These warmer temperatures may have yielded better performance than what could be typically expected during winter, as colder temperatures will suppress sedimentation and filter performance, leading to shorter filter run times. Turbidity was also above average during both assessments, particularly in the second capacity assessment.

Based on the observations from the first capacity assessment, the Wicks WTP was physically capable of an instantaneous capacity of at least 4.4 MGD during the conditions assessed in December 2023. However, flows between 4.4 and 5.0 MGD were not tested due to time constraints. The results of the second capacity assessment suggested that an instantaneous capacity of 4.8 MGD was feasible during winter conditions with above average temperatures and turbidities. When the flow was set to 2.4 MGD through one flocculation-sedimentation-filter train, no particle breakthrough was observed and a unit filter run volume (UFRV) of 5,000 gal/sf was nearly achieved, almost meeting the UFRV goal of the facility.

Based on both capacity tests, the net filtration capacity during average winter conditions could reach 4.8 MGD (excluding storm events with greater suspended solids and turbidity in the raw water, which would significantly reduce capacity). Assuming a UFRV of 4,000 gal/sf, a net production capacity of 4.1 MGD would be achieved with both filters online (Attachment C).

3. Treatment Alternatives

Treatment alternatives for the future of Wicks WTP were evaluated using a multi-step process that included an alternative prescreening workshop with City staff, multi-objective decision analysis (MODA), and an alternatives assessment workshop with City staff. During the prescreening workshop, the target treatment capacity was established (Section 3.1), undesirable alternatives were removed during prescreening (Section 3.2), and two alternatives were selected to move forward to a full alternatives analysis under expansion and replacement scenarios (Section 3.3). During the alternatives assessment workshop, Jacobs presented proposed ancillary facilities to the new WTP (Section 3.4), siting and phasing assumptions which apply to all alternatives (Sections 3.5 and 3.6), as well as preliminary layouts and costs for the two selected alternatives (Sections 3.7 and 3.8). A greater discussion of the full evaluation of alternatives is presented in Section 6.

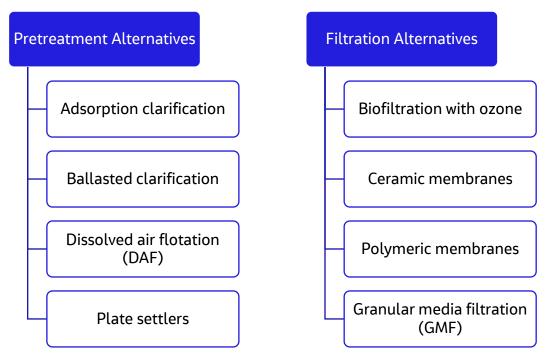
3.1 Target Treatment Capacity

Based on the future water demands provided to Jacobs by Consor (summarized in Chapters 2 and 4 of the Water System Master Plan Update), a target production capacity of 9 MGD was proposed. Conservative water production losses of 5% were assumed to cover potential deviations from the norm, bringing the required treatment capacity of the facility up to 9.5 MGD. This number should be refined during predesign.

3.2 Prescreening

Jacobs, Consor, and City staff met on February 8, 2024, to conduct a screening workshop and review possible alternatives to expanding the Wicks WTP. The alternatives shown in Figure 6 were considered.





The alternatives listed in Table 6 were removed from consideration due to the reasons provided in the table. The remaining alternatives were assigned scores for various criteria (Table 7) before two combinations were selected to move forward with a full alternatives analysis: DAF with GMF and plate settlers with GMF. These were selected as they were viewed as cost effective solutions that could effectively treat the low-turbidity raw water that is typically seen at Wicks WTP. While polymeric membranes scored well overall, they were not selected due to operator concerns about the disposal of membrane cleaning waste streams, since there is no sewer connection on site.

Alternative	Primary Reason(s) for Exclusion	
Adsorption clarification	Unlikely to meet AWWA Partnership for Safe Water Goals.	
Ballasted clarification	Not ideal for low turbidity (<20 NTU) water which occurs 99.7% percent of the time.	
Clarification with membranes	Unnecessary, given the low turbidity water. Concern over handling of membrane cleaning waste streams, given no existing connection to municipal sewer at the remote WTP site.	
Ceramic membranes	More costly than polymeric membranes. More complex operation could lead to staffing concerns. Concern over handling of membrane cleaning waste streams, given no existing connection to municipal sewer.	
Biological filtration with ozone	Significant increase to operation and maintenance costs for minimal return, as there is no obvious ozone driver (such as taste and odor concerns or cyanotoxins). Future ozone treatment should be considered in site layout and hydraulic planning.	

Table 6. Prescreened Ti	reatment Process Alternatives
-------------------------	-------------------------------

Performance Criteria	Expansion with GMF	Expansion with Membranes	Plate Settlers with GMF	DAF with GMF	Polymeric Membranes
Microbial Removal and Turbidity Reduction	3	4	4	4	5
DBP Precursor Removal	4	3	4	4	3
Ability to Mitigate Future Taste, Odor, and Cyanotoxin Concerns	3	2	3	4	2
Winter Capacity	3	3	3	4	3
Footprint	2	4	2	3	4
Solids Production	3	4	3	4	5
Solids Disposal	3	1	3	4	1
Chemical Use	3	1	3	4	2
Level of Automation	2	3	3	4	5
Ease of Operation	3	2	3	4	5
Maintenance Requirements	2	1	4	3	2
Capital Cost	\$\$	\$\$\$	\$\$\$\$	\$\$\$\$	\$\$\$\$
Operating Cost	\$\$	\$\$\$	\$\$	\$\$\$	\$\$\$\$

Table 7. Scores Assigned to the Remaining Alternatives After Prescreening

3.3 Expansion vs Replacement

With the two alternatives selected in the prescreening workshop, the decision was also made to evaluate both alternatives under two different scenarios: 1) expansion of Wicks WTP and 2) full replacement of Wicks WTP. Given the results of the condition assessment and structural evaluation, it is estimated that the existing facility could continue to be used for an additional 15-25 years with the identified improvements.

The primary concern with expanding the facility develops when this useful period expires and the existing WTP needs to be replaced. With the existing Wicks WTP and the expansion on site, it becomes essentially impossible to construct a replacement facility in the remaining available footprint while maintaining the new increased capacity. As seen in Figure 7, the only remaining space for expansion would be the existing lagoons, unless the land that used to be a Boy Scout Camp (discussed further in Section 3.5) was considered; either option would prove costly. Additionally, the planning, design, and construction of the replacement facility would likely need to begin shortly after the construction of the expansion. For these reasons, the full replacement of Wicks WTP was identified as the only viable alternative.

Figure 7. Layout for a Conceptual 6 MGD DAF Facility Expansion on Site, Demonstrating the Limited Space That Would be Left for Expansion



3.4 Resiliency Considerations

Potential threats to water quality in The Dalles include the presence of MIB, geosmin, and cyanotoxins in Crow Creek Reservoir, as well as fires within the watershed. The City has had occasional instances of taste and order concerns due to the presence of MIB and geosmin, but cyanotoxins have not been detected in Crow Creek Reservoir. Fires impacted the watershed in 1967, 2003, and 2013, with raw water turbidity exceeding 1,000 NTU during these events, though the spike in turbidity was reportedly brief.

Post wildfire, the ability of the proposed alternatives to provide adequate treatment would vary. Ash can become a concern shortly after a fire occurs, though both treatment alternatives could remove ash from water. Increases in sediment loads, DOC, nitrate, and manganese have been reported after wildfires (Murphy et al. 2015) and could prove more difficult. The plate settlers would handle greater sediment loads (i.e., turbidity) better than DAF would, as at high enough turbidities (>100 NTU) the DAF system may need to be taken offline. Increased DOC concentrations may result in greater coagulant demand but could be addressed by either treatment alternative. The presence of nitrate or manganese would prove difficult to treat for either alternative, as nitrate is most commonly removed by ion exchange or reverse osmosis, and manganese treatment typically consists of chemical oxidation (potassium permanganate or chlorine) or sorption through manganese oxide coatings on filter media.

The current Wicks WTP has a PAC system to address these concerns, though it is rarely used. A PAC system was not included in the expansion alternatives but could be added in during detailed design if the City desired increased resiliency to the aforementioned threats to water quality. PAC could be continued to be used if the plate settler alternative was selected, but if DAF is selected then superfine PAC would be required to allow for removal in the DAF basin.

3.5 Ancillary Facilities

Four ancillary facilities were included in the layouts developed for the alternatives analysis:

Admin Facility

- Backwash Supply Pump Station
- Finished Water Chemical Building
- Treatment Chemical Building

As noted during the condition assessment, many of the ancillary buildings on site require upgrades or replacement to achieve the target lifespan of the facility of at least 15-20 more years. Given their age, condition, and proximity to preferred construction areas, it was assumed that the following facilities would be demolished to provide sufficient room to construct the new WTP:

- Conference Room
- Covered Storage Area
- Generator Building
- Maintenance Shed
- Plumbing Building
- Wicks House

Except for the Wicks House, space to provide the functions of these facilities was included in the sizing of the proposed admin building.

The chemicals needed at the future WTP were divided into two buildings due to space constraints and were separated based on dosing location. The Finished Water Chemical Building contains the equipment associated with the fluoride, caustic soda, polyphosphate, phosphoric acid, and on-site sodium hypochlorite generation systems, while the Treatment Chemical Building contains the equipment associated with the coagulant and filter aid polymer systems.

3.6 Siting Assumptions

Siting assumptions were made for the basis of the WTP evaluation to provide a more accurate cost estimate. Four locations were considered as the most probable areas for the construction of a new WTP (Figure 8):

- Wicks Parking Lot: The asphalt paved area in front of Wicks WTP. It currently includes 11 parking spots, the conference room, and maintenance shed.
- 2. Wicks House: The area where the lead operator's residence currently sits, just north of Wicks WTP.
- Solids Lagoons: The area where the solids lagoons are currently located. The elevation here is approximately 20' lower than the existing WTP and

Figure 8. The Four Siting Alternatives That Were Considered



would result in the need for filter effluent pumping and an additional clearwell.

4. Former Boy Scout Camp: The tree-lined area situated west of South Fork Mill Creek.

The Wicks parking lot was selected as the most preferable alternative out of the four. Similar hydraulics to the existing WTP could likely be achieved through the facility since it sits at roughly the same elevation as the existing facility, allowing for the continued gravity feed into the existing clearwells. Additionally, it avoids the need to move the solids lagoons or have construction directly adjacent to South Fork Mill Creek, which was anticipated to increase permitting complexity.

These assumptions form the basis of the costs presented in this report. A more detailed siting evaluation considering the impacts of the location of the WTP expansion will need to be performed before a preferred WTP location and layout can be finalized. The location of a new septic system will need to be considered during the siting evaluation, as the existing WTP's septic system and leach field sits below the parking lot. Additionally, the logistics of continuing ACH deliveries during and after construction would need to be evaluated.

3.7 Phasing Assumptions

Like the preliminary siting assumptions, phasing assumptions were made to provide a more accurate cost estimate. The phasing assumptions were the same for both alternatives, with construction of the new WTP being divided into three phases. Table 8 details the projects that were assumed to be included in each phase. Figure 9 shows the existing Wicks WTP. Figure 9 through Figure 15 show Phases 1A-3A of proposed WTP construction, which are applicable to all treatment alternatives.

The existing plastic tube settlers are at risk of imminent failure. Costs for replacement stainless steel plate settlers were included in CIP Project 1. These costs could be eliminated if WTP construction was expedited and expected to be completed in 7 years or less, as the City could elect to not remove the sedimentation basin covers and leave the existing tube settlers in operation.

CIP Project	WTP Construction Phase	Description	Notes/Assumptions
1	Short-Term Improvements	Make necessary improvements to the existing WTP	Replacement of existing pH analyzer, sodium hypochlorite tanks, and track vac air compressor. Demolition of sedimentation basin covers, repair of sedimentation basin walls, and replacement of tube settlers with stainless steel plate settlers is also included, but would be optional dependent on timeline.
	Planning Studies	Pilot study	Pilot of water treatment process for one year.
2	Planning Studies	Survey, geotechnical, and siting evaluation studies	Studies to confirm preferred WTP location, establish existing grade, and identify structural/geotechnical needs.
	Planning Studies	Environmental studies	Studies looking at land use, floodplain, wetlands, endangered species, waterway impacts, and/or cultural resources.
	1A	Make necessary improvements to the existing WTP	Replacement of CW1 and improvements to washwater tanks.
	1A	Reroute the electrical feed to the existing facility and install a temporary generator onsite for the existing WTP	New access road will need to be routed through area where the generator building is currently located due to excavation extents of WTP construction. New backup generator will be sized during detailed design.
3	1B	Demolition of the covered storage area, plumbing building, Wicks House, and generator building	Required to clear space for construction of new access road and admin building. Replacement of these facilities will be included in new Admin Building in Phase 3 (except Wicks House).
	1C	Reroute the existing 12" backwash supply (BWS) and 30" filtered water (FW) lines, and construct residuals piping.	BWS and FW rerouted to avoid conflict with future Finished Water Chemical Building, Admin Building, and WTP construction.

Table 8. Projects and associated descriptions for each phase

CIP Project	WTP Construction Phase	Description	Notes/Assumptions
	2A	Construct a new finished water chemical building that stores fluoride, caustic soda, polyphosphate, phosphoric acid, and on-site sodium hypochlorite generation storage and equipment	Constructed in Phase 2 so that the existing hypo and caustic buildings can be demolished in Phase 3 to make space for new Admin Building.
4	2A	Construct a new backwash supply pump station	Constructed in Phase 2 so that the existing hypo and caustic buildings can be demolished in Phase 3 to make space for new Admin Building.
	2A	Demolition of the caustic soda and sodium hypochlorite buildings	Required to clear space for future admin building construction.
	2B	Construct a new admin building	Includes a maintenance area, two water quality labs, breakroom, bathrooms/locker rooms, conference room, plant manager office, and operator cubicles.
	3A	Make necessary improvements to the existing WTP	Improvements to Wicks Well and Intake areas.
	3A	Construct a new 24" raw water pipeline, connecting the existing intake and fish screen to the new WTP	Assumes continued use of the existing intake structure, which has a capacity of 10 MGD.
5	3A	Demolition of the conference room and maintenance shed	Required to clear space for future WTP construction.
	3B	Construct a new treatment chemical building	Contains coagulant and filter aid polymer.
	3B	Construct the new WTP	None.
	3B	Construct residuals handling facilities	Residuals handling alternatives discussed in Section 4.

Figure 9. The Existing Wicks WTP



Figure 10. Phase 1A of Wicks WTP Construction



Figure 11. Phase 1B of Wicks WTP Construction



Figure 12. Phase 1C of Wicks WTP Construction



Figure 13. Phase 2A of Wicks WTP Construction

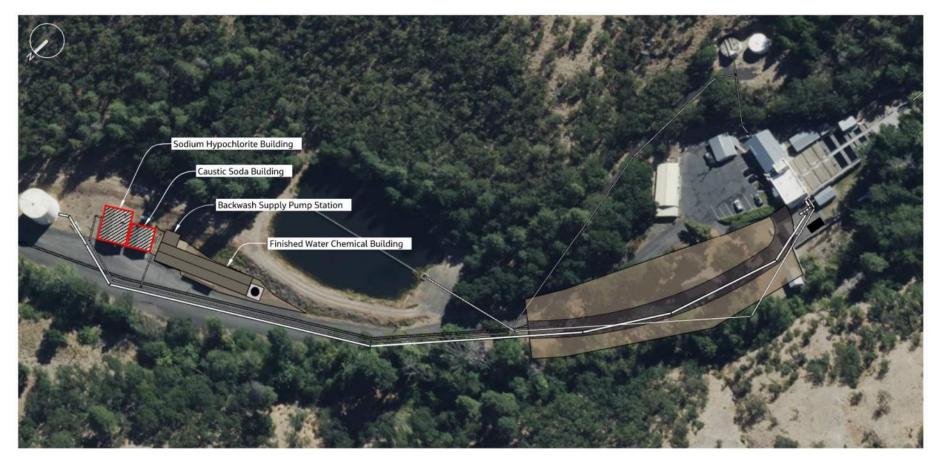


Figure 14. Phase 2B of Wicks WTP Construction



Figure 15. Phase 3A of Wicks WTP Construction



3.8 WTP Alternative A: Dissolved Air Flotation with Granular Media Filtration

Dissolved air flotation is a treatment process that utilizes air saturated, recycled water to produce microbubbles that float flocculated solids to the surface of a basin where they can then be skimmed or hydraulically floated to be removed. DAF is known to be effective at treating low turbidity water and water that is impacted by algal blooms. Ahead of the DAF basin, pin floc formation is ideal. To form this pin floc, an in-line rapid mixer upstream of two-stage flocculation with vertical turbine flocculators is proposed. Additional equipment required to operate DAF basins includes recycle pumps, air compressors, air vessels, air spargers, and skimmers. After DAF, water would be filtered by dual media filters. A process flow diagram for Alternative A is included in Figure 16.

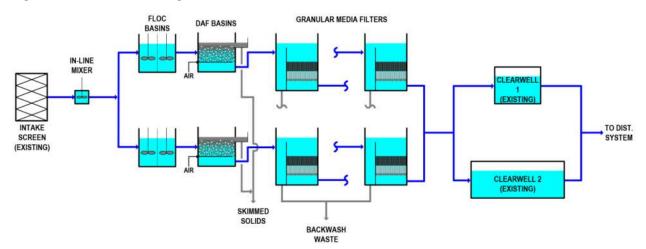


Figure 16. Process Flow Diagram for Alternative A

There are a couple of advantages of using DAF over sedimentation with plate settlers. The footprint for DAF basins is much smaller than that required for sedimentation basins, although this is slightly offset by the equipment room required for the recycle pumps and air saturator systems. Since pin floc is all that is needed (versus the larger floc required for plate settlers to be effective), coagulant demand is lower, subsequently reducing solids production. Similarly, since flocculation requires less optimization with DAF, there is greater potential for automation and ease of operation when compared with plate settlers. Perhaps the most significant difference is the greater winter capacity of DAF, since its performance is not as impacted by lower raw water temperatures and cold-water viscosity.

High-turbidity events (>30 NTU) would prove problematic for DAF treatment, with raw water over 70 NTU potentially requiring the plant be taken offline. Thankfully, these events are rare, with raw turbidity only exceeding 30 NTU on five days between 2018 and 2022, and 70 NTU only being exceeded once in that time. During low-flow conditions, such as those typically seen in winter, a couple of considerations would need to be made for the DAF treatment process. Even with one train offline, there would be increased hydraulic retention time in the floc basins, which could produce floc that settles out of solution ahead of the DAF basin. The flocculation treatment process may require closer monitoring during these months to ensure that floc is remaining suspended and is not growing too large. Additionally, DAF recycle pumps would need to be sized to handle the turndown, otherwise a smaller jockey pump may be needed.

Preliminary design criteria for the DAF treatment train are presented in Table 9. Figure 17 provides a preliminary site plan for the DAF facility.

Table 9. Preliminary Design Criteria for Alternative A

Criterion	Value
Rapid Mix	
Туре	In-Line Rapid Mixer
Number of Trains	2
G Value	2,000 s-1
Detention Time	< 15 s
Flocculation	
Туре	Vertical Turbine
Number of Trains	2
G Value	60 s-1 / 40 s-1
Detention Time	20 min (10 min per stage)
Dissolved Air Flotation	
Туре	High-Rate DAF
Number of Trains	2
Flotation Zone Surface Loading Rate	10 gpm/sf
Filtration	
Туре	Dual Media Filters
Top Media	Anthracite
Top Media Depth	60 in
Bottom Media	Sand
Bottom Media Depth	12 in
Filter Hydraulic Loading Rate	8.0 gpm/sf
Number of Filters	3 duty, 1 redundant

Figure 17. Preliminary Site Plan for a 9.5 MGD DAF WTP (Alternative A)



3.9 WTP Alternative B: Plate Settlers with Granular Media Filtration

A sedimentation basin with plate settlers operates under the same principle as the existing tube settlers – the vertical settling distance required for flocculated solids to travel is reduced by forcing water to flow through a narrow path, just between plates rather than through tubes. The proposed plate settlers are made using stainless steel to provide durability and allow for easier maintenance, compared to the existing plastic tube settlers that are susceptible to degradation through UV exposure and chemical attack. A hoseless sludge collector would be installed beneath the plate settlers to periodically capture settled solids. A process flow diagram for Alternative B is included in Figure 18.

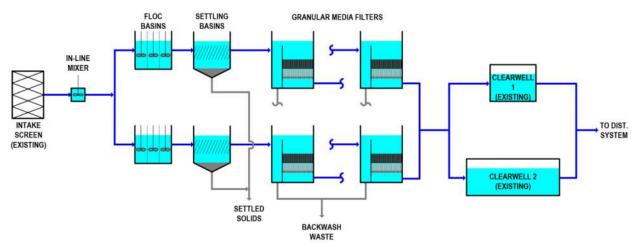


Figure 18. Process Flow Diagram for Alternative B

Like the DAF alternative, an in-line rapid mixer and vertical turbine flocculators are utilized upstream of the sedimentation basin. However, three stages of flocculation would be required to achieve the larger floc formation required for proper settling, compared with the two needed upstream of DAF. A greater coagulant dose is also anticipated to be necessary to achieve larger floc formation. Downstream of the sedimentation basin, the filters are sized the same as the DAF alternative.

The use of plate settlers does not have many advantages over DAF. As discussed in Section 3.7, DAF has superior footprint, winter capacity, chemical use, level of automation, ease of operation, solids production, and algae removal. However, since less equipment is used, maintenance requirements are less with plate settlers. Plate settlers are also better suited to handle high-turbidity events, though those are relatively rare at Wicks WTP. The low turbidity, cold water (<20 NTU & <10° C) that is typically seen at Wicks WTP requires well-optimized coagulation and flocculation to most effectively use plate settlers and meet AWWA Partnership Performance Goals, as the City's WTP staff are aware. Construction costs and O&M costs are also expected to be lower, as will be discussed in Section 6.1.

Preliminary design criteria for the plate settler treatment train are presented in Table 10. Figure 19 provides a preliminary site plan for the plate settler facility.

Table 10. Preliminary Design Criteria for Alternative B

Criterion	Value
Rapid Mix	
Туре	In-Line Rapid Mixer
Number of Trains	2
G Value	2,000 s ⁻¹
Detention Time	< 15 s
Flocculation	
Туре	Vertical Turbine
Number of Trains	2
G Value	60 s ⁻¹ / 40 s ⁻¹ / 20 s ⁻¹
Detention Time	30 min (10 min per stage)
Sedimentation	
Туре	Plate Settlers
Number of Trains	2
Plate Loading Rate	0.30 gpm/sf
Filtration	
Туре	Dual Media Filters
Top Media	Anthracite
Top Media Depth	60 in
Bottom Media	Sand
Bottom Media Depth	12 in
Filter Hydraulic Loading Rate	8.0 gpm/sf
Number of Filters	3 duty, 1 redundant

Figure 19. Preliminary Site Plan for a 9.5 MGD Plate Settler WTP (Alternative B)



4. Residuals Handling Alternatives

Wicks WTP's current residuals handling consists of two solids lagoons where all process drains, settled solids, backwash waste (BWW), and FTW flows are sent. Each pond has a footprint of approximately 13,300 sf and can hold approximately 400,000 gallons at a maximum depth of 4.5 feet. Decant from the ponds is discharged to South Fork Mill Creek, which leads to the total maximum daily load (TMDL) excess thermal load exceedances that the City currently faces, as the temperature in the lagoons is greater than that seen in the creek.

Residuals concentrations and quantities produced by DAF would depend on how the floated solids are removed. The two options for floated solids removal are mechanical skimming and hydraulic float removal. Mechanical skimming creates residuals with higher solids content (1-3%) at the expense of additional mechanical equipment to maintain. Alternatively, hydraulic float removal would produce solids at 0.2-0.5% at the expense of additional wastewater produced.

Residuals concentrations produced by a new plate settler facility would be similar to those seen in the existing facility. Solids content in the settled solids would likely range from 0.25-0.50% but could be greater during high solids loading conditions.

Only one alternative was removed from consideration during prescreening – sending residuals flows to the municipal sewer system. This alternative was eliminated since the WTP is on a septic system and approximately seven miles of sewer main would need to be installed to connect to the City's sewer system. For the remaining alternatives considered, it was assumed that a recycle pump station would be present, sending flows up to 10% of the incoming raw water flow back to the front of the WTP and eliminating the discharge back to South Fork Mill Creek. Three residuals handling improvement alternatives were considered:

- 1. Backwash equalization (EQ) basin with no backwash clarification upstream of engineered drying beds (EDBs)
- 2. Backwash EQ basin with a separate clarification basin utilizing lamella plate clarifiers upstream of EDBs
- 3. Backwash EQ basin with a separate clarification basin utilizing lamella plate clarifiers upstream of gravity thickeners and mechanical dewatering

4.1 Residuals Alternative A: Engineered Drying Beds with No Backwash Clarification

In this alternative, backwash flows would be directed to a backwash EQ basin, before being sent to the EDBs. Float from the DAF basins would be sent directly to the EDBs in a separate pipe for operational flexibility. The engineered drying beds would include an underdrain system beneath a sand layer to allow for solids retention during draining, as well as a decant weir. Decant and/or filtrate from the EDBs would be sent to a recycle pump station where it would be recycled to the head of the facility or another drying bed. Regulations allow for this to be up to 10% of total plant flow. Dried solids would be hauled away and disposed of offsite (Figure 20). The design criteria are summarized in Table 15.

While this alternative avoids construction costs associated with BW clarifiers and a second recycle pump station, these savings are mostly offset by the need to run two pipes down to the EDBs (BWW/FTW and clarification solids) rather than just one. Additionally, the performance of the EDBs would be worsened since the solids content of the BWW and FTW streams would be lower with no upstream clarification of these flows.

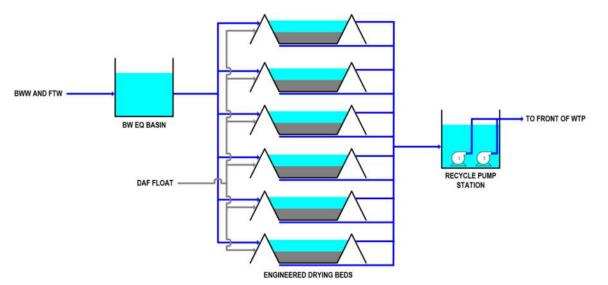


Figure 20. Process Flow Diagram for Residuals Handling Alternative A

Table 11. Preliminary Design Criteria for Residuals Alternative A

Criterion	Value
Backwash Equalization Basin	
Number of Backwashes Stored	2
Backwash Volume	82,500 gal
Basin Volume	165,000 gal
Basin Dimensions (L x W x H)	54 ft x 27 ft x 17 ft
Engineered Drying Beds	
Number	6
Dry Solids Loading Rate	14 lb/sf/yr
Wet Tons of Sludge per Year	426 tons/yr
Daily Sludge Flow to Beds	7,500 gpd
Total Drying Bed Area	24,300 sf (0.56 ac)
Recycle Pump Station	
Number of Pumps	2 (1+1)
Туре	Submersible
Pump Capacity, Each	110 gpm

4.2 Residuals Alternative B: Engineered Drying Beds with Backwash Clarification

In this alternative, backwash flows would be directed to a backwash EQ basin, before being sent to a packaged backwash clarifier. Settled solids would be collected and combined with float from the DAF basins before being sent to the EDBs. The engineered drying beds would include an underdrain system

beneath a sand layer to allow for solids retention during draining, as well as a decant weir. Clarified backwash water would be recycled to the front of the facility, along with decant and/or filtrate from the EDBs, up to 10% of total plant flow. Dried solids would be hauled away and disposed of offsite (Figure 21).

The addition of a backwash clarifier has the benefit of allowing for one pipe to be run to the EDBs, where both DAF float and BW clarifier solids can be sent. EDB performance would also be optimized since the solids content of the flows that they would accept would be greater.

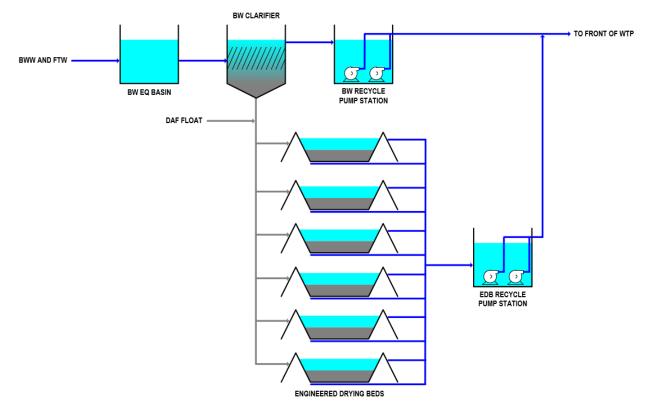


Figure 21. Process Flow Diagram for Residuals Handling Alternative B

Table 12. Preliminary Design Criteria for Residuals Alternative B

Criterion	Value
Backwash Equalization Basin	
Number of Backwashes Stored	2
Backwash Volume	82,500 gal
Basin Volume	165,000 gal
Basin Dimensions (L x W x H)	54 ft x 27 ft x 17 ft
Backwash Clarifier	
Туре	Packaged Tank – Lamella Plates
Flow	230 gpm
Tank Dimensions (L x W x H)	20 ft x 8 ft x 10 ft
Plate Loading Rate	0.35 gpm/sf @ 90% efficiency factor

Criterion	Value
Backwash Recycle Pump Station	
Number of Pumps	2 (1+1)
Туре	Submersible
Pump Capacity, Each	115 gpm
Engineered Drying Beds	
Number	6
Dry Solids Loading Rate	14 lb/sf/yr
Wet Tons of Sludge per Year	426 tons/yr
Daily Sludge Flow to Beds	7,500 gpd
Total Drying Bed Area	24,300 sf (0.56 ac)
Recycle Pump Station	
Number of Pumps	2 (1+1)
Туре	Submersible
Pump Capacity, Each	20 gpm

4.3 Residuals Alternative C: Mechanical Dewatering

In this alternative, backwash flows would be directed to a backwash EQ basin, before being sent to a packaged backwash clarifier. Settled solids would be collected and combined with float from the DAF basins before being sent to a gravity thickener. The solids would thicken in this basin through additional settling time and the addition of polymer. Thickened solids would be fed to mechanical dewatering equipment (e.g., centrifuges or screw presses), where the solids would be dewatered and collected in a roll-off dumpster before being hauled offsite. Centrate/pressate from the mechanical dewatering equipment and decant from the gravity thickener would be collected in a pump station and recycled to the front of the facility (Figure 22).

The use of mechanical dewatering would require much more operator attention than EDBs. It is anticipated that the centrifuges or screw presses would need to be operated twice a week for 8 hours, with some supervision required at times during their operation. One or two polymers would need to be dosed in the gravity thickeners, leading to increased chemical costs. Finally, there would be additional equipment to maintain, including gravity thickener drives, thickened sludge pumps, centrifuges/screw presses, chemical pumps, and more, increasing maintenance needs and O&M costs.

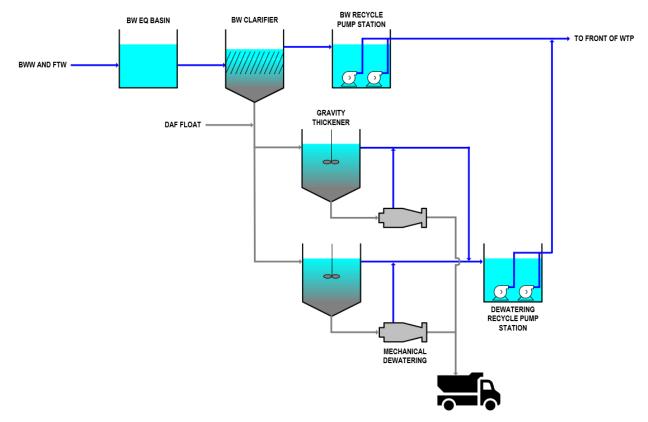


Figure 22. Process Flow Diagram for Residuals Handling Alternative C

Table 13. Preliminary Design Criteria for Residuals Alternative C

Criterion	Value
Backwash Equalization Basin	
Number of Backwashes Stored	2
Backwash Volume	82,500 gal
Basin Volume	165,000 gal
Basin Dimensions (L x W x H)	54 ft x 27 ft x 17 ft
Backwash Clarifier	
Туре	Packaged Tank – Lamella Plates
Flow	230 gpm
Tank Dimensions (L x W x H)	20 ft x 8 ft x 10 ft
Plate Loading Rate	0.35 gpm/sf
Backwash Recycle Pump Station	
Number of Pumps	2 (1+1)
Туре	Submersible
Pump Capacity, Each	115 gpm

Criterion	Value
Gravity Thickener	
Number of Basins	2
Basin Dimensions (D x H)	23 ft x 27 ft
Hydraulic Loading Rate	300 gpd/sf
Solids Loading Rate	10 lb/d/sf
Thickened Sludge Pump Station	
Туре	Progressive Cavity
Number of Sludge Pumps	2 (1+1)
Sludge Pump Capacity, Each	20 gpm
Mechanical Dewatering	
Туре	Centrifuge or Screw Press
Number	2
Sludge Flow, Dry Solids	410 lb/hr
Sludge Flow, Wet Solids	40 gpm
Recycle Pump Station	
Number of Pumps	2 (1+1)
Туре	Submersible
Pump Capacity, Each	20 gpm

4.4 Residuals Alternative Evaluation

Cost estimates were prepared to compare the proposed alternatives using Jacobs' Replica[™] Parametric Design and budgetary quotes from equipment manufacturers for centrifuges, screw presses, and packaged plate settler systems. These costs are summarized in Table 14. Mechanical dewatering was subsequently removed from consideration due to its cost and increased O&M demands. Since the addition of backwash clarification adds minimal cost but would significantly improve the performance of the residuals handling system, Alternative B was selected as the preferred residuals handling approach.

Component/ Facility	Alternative A: EDBs, No BW Clarification	Alternative B: EDBs, BW Clarification	Alternative C: Mechanical Dewatering	
BW EQ Basin	\$1,295,000	\$1,295,000	\$1,295,000	
BW Clarifier and Recycle PS	-	\$889,000	\$889,000	
Engineered Drying Beds	\$1,267,000	\$1,267,000	-	
Gravity Thickener -		-	\$1,443,000	
Centrifuge/Screw Press	-	-	\$5,109,000	

Table 14. Total Costs for Each Residuals Handling Alternative

Component/ Facility	Alternative A: EDBs, No BW Clarification	Alternative B: EDBs, BW Clarification	Alternative C: Mechanical Dewatering	
Centrate/Pressate/Decant Recycle PS	\$532,000	\$532,000	\$532,000	
Yard Piping	\$3,182,000	\$2,335,000	\$2,335,000	
Total	\$6,276,000	\$6,318,000	\$11,603,000	

5. TMDL Compliance

The City has seasonal excess thermal loads that put them out of compliance with their waste load allocation established in the Middle Columbia-Hood (Miles Creeks) Subbasin TMDL (2008). This issue is a result of the current Wicks WTP residuals handling process, where settled solids and BWW is sent to two lagoons where solids can settle out before the liquid stream is discharged to South Fork Mill Creek. Since the lagoons are shallow, the water heats up to be warmer than the Creek, and the thermal loads associated with the discharge volume of this warmer water exceed the thermal load allocation for Wicks WTP.

Jacobs' scope included identifying the seasonal excess thermal loads and assessing potential mitigation measures, including riparian restoration, backwash recirculation, cooling tower(s), and hyporheic discharge. This analysis is discussed further in Attachment D. However, over the course of the WTP alternatives analysis, it became clear that backwash recirculation is essential to meet future water demands of the City, since the flows in South Fork Mill Creek are expected to limit the amount of water that can be fed to Wicks WTP in the future. As a result of this, zero liquid discharge (ZLD), or as close to ZLD as possible, will be essential for the City to fully utilize their water rights, which will be achieved with recycle pump stations in the residuals handling system as described in Section 4.

6. Evaluation of Alternatives

6.1 Capital and Operating Costs

Using guidelines provided by The Association for the Advancement of Cost Engineering (AACE), a Class 5 cost estimate was prepared. This level of cost estimate is for a project that is 0-2% complete for the purpose of concept screening. Given this level of cost estimate, the expected accuracy range on the low end is between -20% to -50% and between +30% to +100% on the high end. Costs were escalated to the estimated midpoint of construction, based upon economic data from Global Insight, Inc. and the United States Bureau of Labor Statistics and ENR indices.

The final costs of the project will depend on actual labor and material costs, competitive market conditions, final project scope, implementation schedule, and other variable factors. As a result, the final project costs will vary from the estimate presented herein. Project feasibility and funding needs must be carefully reviewed prior to making specific financial decisions to help ensure proper project evaluation and adequate funding.

Jacobs' estimate is based on material, equipment, and labor pricing as of May 2024 and uses conceptual and stochastic costs and detailed items using separate labor, material, and equipment costs. The estimate uses parametric costs where design information or details are insufficient to allow a detailed item method. At this level of estimate, AACE recommends adding a 30 percent budgeting contingency when considering funding needs. 20-year life cycle costs for each WTP alternative are summarized in Table 15, broken down by project phase and O&M costs. A detailed breakdown of these cost estimates is included in Attachment E.

CIP Project	WTP Construction Phase	/TP Construction Phase DAF		
1	Short-Term Improvements	Short-Term Improvements \$1,675,000*		
2	Planning Studies	\$2,200,000	\$2,200,000	
	1A	\$3,973,000	\$3,973,000	
3	1B	\$1,017,000	\$1,017,000	
	1C	\$5,750,000	\$5,750,000	
4	2A	\$9,272,000	\$9,272,000	
	2B	\$6,557,000	\$6,557,000	
5	3A	\$2,836,000	\$2,836,000	
	3B	\$55,330,000	\$52,506,000	
Subtotal	ototal Capital Costs \$88,610,00		\$85,786,000	
0&M	20-Year O&M Costs	\$23,943,000	\$22,772,000	
Total	20-Year Life Cycle Costs	\$112,553,000	\$108,558,000	

Table 15. Capital, O&M, and 20-Year Life Cycle Costs Associated with Each WTP Alternative

*Includes \$1,607,000 for existing sedimentation basin upgrades described in Section 3.7. May not be required if WTP replacement is expedited.

6.2 Multi-Objective Decision Analysis

To evaluate the alternatives as objectively as possible with the City's priorities in mind, multi-objective decision analysis (MODA) was utilized. MODA is a quantitative technique that aids in the evaluation of alternatives where multiple objectives or evaluation criteria warrant consideration.

6.2.1 Evaluation Criteria

Evaluation criteria between three categories were developed with input from a diverse group of City staff. These criteria are presented in Table 16.

Table 16.	Evaluation	Criteria	Used	in MODA
	Lvataation	Cificilia	oscu	mmodr

Category	Evaluation Criteria
Construction	Footprint
	Constructability
	Expansion complexity
Operation	Winter capacity
	Chemical use
	Level of automation
	Ease of operation
	Maintenance requirements

Category	Evaluation Criteria
	Solids production
Water Quality	Microbial removal and turbidity reduction
	Ability to mitigate future taste and odor (T&O) and cyanotoxin concerns

6.2.2 Measurement Scales

Measurement scales are required to determine how well alternatives perform against the evaluation criteria. Scales may be quantitative or qualitative, depending on the objective and the availability of data. The measurement scales developed for this evaluation are presented in Table 17.

Decision Criteria	Worst Outcome	Best Outcome		
Construction				
Footprint	Final WTP takes up 18,000+ SF	Final WTP takes up less than 10,000 SF.		
Constructability	Approach has many challenging constructability issues exist that have the potential to negatively affect construction cost or schedule (e.g., geotechnical, existing plant infrastructure, open cut construction)	Approach has few challenging issues that could negatively affect construction costs or schedule.		
Expansion complexity	Expansion likely requires building over solids lagoons or the former Boy Scout camp	Expansion can be achieved in footprint of existing WTP.		
Operation				
Winter capacity	Winter capacity as a percentage of max WTP capacity is approximately 60%	Winter capacity as a percentage of max WTP capacity is approximately 80%		
Chemical use	Chemical use and doses are similar to existing	Chemical use and doses are lower than existing		
Level of automation	Treatment process requires large amounts of manual automation and regular jar testing	Treatment process can be fully automated and requires minimal jar testing		
Ease of operation	Approach results in highly complex operational requirements for WTP	Approach results in relatively simple operational requirements for WTP		
Maintenance requirements	System maintenance requirements are complex and challenging requiring new, high levels of skill and training	System maintenance requirements not likely to require skill, challenges, or training beyond that required today		
Solids production	Treatment process increases solids production compared to existing	Treatment process decreases solids production compared to existing		

Table 17. Measurement Scales for the Evaluation Criteria Used in MODA

Decision Criteria	Worst Outcome	Best Outcome	
Production Efficiency	WTP is 90% water efficient	WTP is 97% water efficient	
Water Quality			
Microbial removal and turbidity reduction	Treatment process meets all regulatory criteria but does not meet some Partnership for Safe Water targets	Treatment process meets all regulatory criteria and Partnership for Safe Water goals	
Ability to mitigate future taste and odor and cyanotoxin concerns	Treatment process is not particularly adaptable; future taste and odor and cyanotoxin presence would result in substantial investment need	Treatment process is highly adaptable; future taste and odor and cyanotoxin presence could be addressed with little investment need	

6.2.3 Scoring Alternatives

Scoring alternatives is the process by which the measurement scales are applied to the alternatives. The alternatives were initially scored by Jacobs engineering staff and then reviewed and adjusted by the City and consultant project team. A scoring scale of 1 to 5 was implemented for each evaluation criterion except operating footprint (measured in square footage), winter capacity (measured as a percent of max WTP capacity), and production efficiency (measured as the percent of water not lost through treatment). For the 1-5 scale, the worst outcome is given a score of 1 and the best outcome a score of 5. The scores for each alternative are included in Table F-1 in Attachment F.

6.2.4 Relative Value Weights

Evaluation criteria vary in their importance, which needs to be accounted for when deciding the relative merits of different alternatives. Thus, relative value weights are assigned to each criterion that represent the importance of each criterion for decision making. For this evaluation, weights were assigned by each member of the City's project team and discussed in a workshop. All of the assigned weights provided by City staff resulted in the same alternative being selected as the preferred option. The consensus set of weights for the evaluation criteria are presented in Table F-2 in Attachment F.

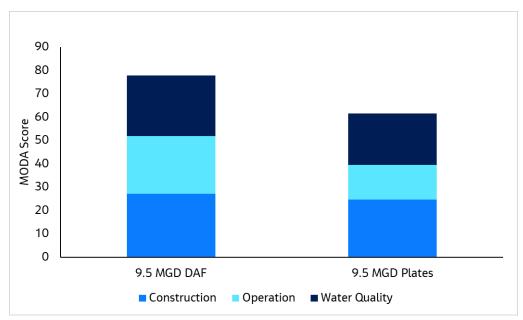
6.2.5 Results

The total value score of each alternative was calculated in a weighted average. In MODA, the raw scores shown in Table 18 are arithmetically transformed, based on the measurement scales presented in Table 17, to allow for an equal comparison between criteria with different measurement scales. The normalized scores were multiplied by the weights presented in Table F-2 and summed for each alternative. Resulting MODA scores for the consensus weights are presented in Table 18 and Figure 23. A greater score denotes the alternative with the best overall outcomes.

Evaluation Criterion	DAF with GMF	Plate Settlers with GMF
Construction	27.1	24.6
Operation	24.7	14.9
Water Quality	26.0	22.0
Total	77.8	61.5

Table 18. MODA Results for Treatment Plant Alternatives (Higher Values Equate to a Better Outcome)





As shown in Figure 23, DAF with GMF scored the highest between the two alternatives. DAF outperformed plate settlers in all three evaluation categories, though construction and water quality scores were similar between both alternatives. Operation is where DAF scored considerably higher than plate settlers, due to its greater winter capacity, lower chemical use, higher degree of automation, less stringent floc formation requirements, and lower solids production. While DAF is the more expensive alternative, the estimated cost is only about 4% greater to achieve a more easily operable facility that is better suited for the raw water typically seen in The Dalles (Figure 24).

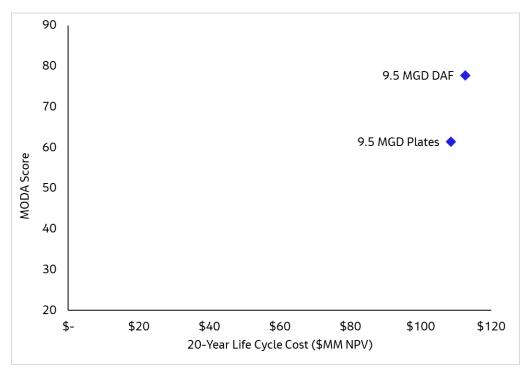


Figure 24. MODA Value to Cost Comparison

7. Conclusions

Due to the age and condition of the existing facility, a full replacement of the WTP with a new 9.5 MGD facility is recommended. While expanding Wicks WTP may have some short-term cost savings, those savings are lost when the old Wicks WTP requires replacement in 15-25 years. The proposed water treatment process includes DAF with GMF to improve automation and ease of operation, while reducing chemical demands and solids production. The proposed residuals handling process includes a backwash EQ basin, BW clarifier, and EDBs, to help the City fully utilize the water that is sent to Wicks WTP and significantly reduce discharges to South Fork Mill Creek, preventing further issues with TMDL compliance. Figure 25 shows a rendering of the proposed WTP replacement configuration, which will be further refined based on the outcome of future evaluations.

Figure 25. Replacement WTP Rendering



7.1 Implementation

Before Wicks WTP can be replaced, extensive permitting, planning, and design work will need to be undertaken. A proposed schedule of these tasks, based on the phasing outlined in Section 3.6, is provided in Figure 26. Crucially, the first step to replacing Wicks WTP will be to secure funding. However, because the funding schedule is highly dependent on the type of funding pursued, a funding study is proposed to occur at the beginning of the Wicks WTP replacement and the exact funding schedule has been left out of the preliminary schedule of WTP improvement projects. The OHA plan review and bidding of CIP Project 5 is shown hatched, as it is proposed that this project be combined with CIP Project 4 and bid simultaneously to reduce overall project cost.

An alternative timeline was investigated which would expedite construction of the new WTP. If the preliminary studies and design were conducted as quickly as possible, and all construction projects consolidated into one project to allow for overlap between phases, it is believed that the overall construction timeline presented in Figure 26 could be shortened by up to 18 months. The proposed changes would likely be the fastest that the proposed WTP alternative could be constructed.

Figure 26. Preliminary Schedule of WTP Improvement Projects

FY25/26	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	FY31/32	FY32/33
CIP Project 1: Short Term Wicks WTP Improvements							
Improve	ements to Wicks W	TP					
CIP Project 2: Pla	anning Studies						
Funding	g study						
Sur	vey, geotechnical	, siting, and enviro	onmental studies				
	Preliminary Desi	gn Report					
Pilot testin	ng Pilot tes	st planning and re	port				
	ОН	A pilot approval					
CIP Project 3: WT	P Replacement, F	Phase 1					
	Des Bid	sign of electrical in OHA plan review Construction	mprovements and	l yard piping			
CIP Project 4: WT	P Replacement, F	Phase 2					
		De	sign of chemical b	uildings, admin b	uilding, WTP, and	residuals handlin	g facilities
			OHA plan review	1			
		Bid	Con	struction	Startup		
CIP Project 5: WT	'P Replacement, F	Phase 3					
					OHA pl	an review	
					Bid	Construction	Startup
Studies and	Studies and Investigations Design Note: Fiscal years run from July 1-June 30.				· · · · · · · · · · · · · · · · · · ·		
Permitting		Construct	ion				

8. References

Murphy, Sheila F, et al. 2015. "The role of precipitation type, intensity, and spatial distribution in source water quality after wildfire." *Environmental Research Letters*. Vol. 10, No. 8. August.

Nix, Daniel and John Taylor. 2018. *Filter Evaluation Procedures for Granular Media*. Denver, CO: American Water Works Association.

Attachment A Filter Surveillance Assessment

Wicks WTP Filter Surveillance Assessment

Date:	September 13, 2023
Project name:	The Dalles Water System Master Plan
Project no:	D3718900
Client:	City of The Dalles, OR
Prepared by:	Talia Assi Enoch Nicholson, P.E.
Reviewed by:	Enoch Nicholson, P.E.

1. Description of Evaluations Performed

A site visit of The Dalles, OR Wicks WTP was conducted on April 6th, 2023, to evaluate the performance of the existing filtration system, as part of the water treatment plant evaluation task for the City's Water Master Plan update project. Enoch Nicholson and Talia Assi from Jacobs worked with Larry McCollum and Tyler Mitchell from the City to complete the filter evaluation. The following details the activities completed while onsite, follow up testing and information needed, and conclusions to date.

1.1 WTP Orientation

Larry and Tyler oriented Enoch and Talia to the filter system which is immediately downstream of flocculation and sedimentation. The facility includes two conventional filters (Filter 1 and Filter 2). Each filter has a filter surface area of 300 sq ft. and is rated for 6.48 gpm/sf or 2.8 MGD. The design filtration media depth is a total of 41" (26" Anthracite, 12" Sand, and 3" Garnet Coarse Gravel). These filters treat water from portions of the Dog River and Crow Creek Reservoir, the Mill Creek watersheds, and various groundwater wells that supplement the surface water flows.

Parameter	2008 Filter Retrofit
Anthracite	
Effective Size (mm)	0.95-1.05
Uniformity Coefficient	<1.4
Depth (in)	26
Sand	
Effective Size (mm)	0.45-0.55
Uniformity Coefficient	<1.4
Depth (in)	12

Table 1. Filter Media Specifications

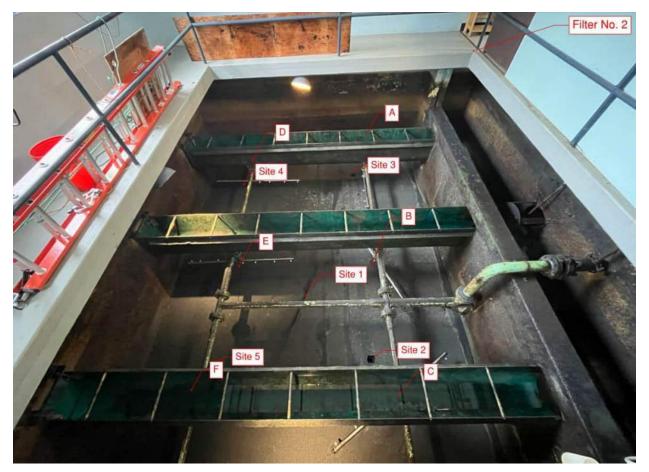
1.2 Preparing for the Filter Evaluation

In preparation for the filter evaluation, each filter was independently taken offline and completely drained while the other remained in operation. The water level was observed across the filter as it was drained, to identify any uneven areas in the media surface. When draining Filters 1 and 2, they both appeared to show a relatively even media surface. Little to no mounding was observed it both filters except for slight build up along the corners of the troughs. In Filter 2, when checking the level of the center trough, a slight bow was observed in the middle. Once the filter was empty, four to five sites were identified in each filter for media cores. The locations of these sites are shown in the drained filters in Figures 1 and 2.



Figure 1. Filter 1 Media Core Sites

Figure 2. Filter 2 Media Core Sites



1.3 Filter Evaluation Tool Making

Three tools were then made to assist during the filter evaluation. A 49"-long ¼ inch threaded rod was used to measure the depth of various layers of media. A media corer was made from a 4-ft piece of 1.25" Sch 40 PVC pipe, with marks at 2", 6", 12", 18", 24", and 30". This was used to collect media samples from the filter while inside the filter and can be seen in Figure 3. The final tool was a backwash bed expansion measurement tool made from PVC pipe. This tool was used to measure the amount of bed expansion accomplished during the backwash process. A picture of this device is shown in Figure 4.

Figure 3. Filter Media Coring Tool



Figure 4. Backwash Bed Expansion Tool



1.4 Pre-Backwash Floc Retention Analysis

Once each filter was drained, media depth was measured as sites A through F in both filters below the troughs, at the sites shown in Figures 1 and 2 using the threaded rod. Table 2 shows the measured depths for each site. These measurements show the slight variations in media depth across the filter before a backwash. Additionally, they show the anthracite depth is closer to 19" on average, much lower than the design depth of 26".

	Filter 1							Filter 2				
Site:	А	A B C D E F A B C D								E	F	
Bottom of Sweep to Top of Media (in)	6.5	6	7	7	6.5	7.5	-	-	-	-	-	-
Anthracite Depth (in)	20.5	21	20	18	17	20	17.5	18	18	19.5	19.5	18.5
Sand Depth (in)	33.5	34	34.5	31	31	32	31.5	31	31	31	31	30.5

Table 2. Pre-Backwash Media Depth Measurements

A floc retention analysis was then performed in accordance with the SOP in chapter 17 of "Filter Evaluation Procedures for Granular Media, Second Edition" by Daniel K. Nix and John Scott Taylor, P.E. Media cores were collected at sites 1 through 4 in Filter 1 and sites 1 through 5 in Filter 2 using the coring tool. The sample sites were selected to represent geographically distinct areas within the filter as shown in Figures 1 and 2. At each site, the core samples were used to sample turbidity in the media at various depths (2", 6", 12", 18", 24", and 30") pre-backwash.

The samples collected for floc retention analyses were combined across the various sites in each filter to create composite samples for 0"-2" and 0"-18". These composite samples were sent for a sieve analysis to determine effective media size and uniformity coefficient.

The findings of the floc retention and the sieve analyses are discussed in the results in Section 2.

1.5 Filter Backwash

After refilling, each filter was backwashed. The normal backwash sequence was conducted by the operators manually to complete a typical backwash cycle. Backwash turbidity profile samples were collected at 30-second intervals to create a Spent Filter Backwash Profile. The water level rose too quickly and started to fill the troughs before a rate of rise could be measured. As a result, the backwash flowrate was not verified for both filters. The backwash bed expansion tool was used to measure the total bed expansion of the anthracite and sand media. This data is provided in the discussion of results in Section 2.

1.6 Post-Backwash Floc Retention Analysis

After the backwash was complete, each filter was drained and floc retention core samples were collected again from the same locations cored during the pre-backwash sampling. Data from this analysis is provided in the discussion of results in Section 2.

2. Results

Floc retention analysis and backwash turbidity provide complementary information to determine the effectiveness of the BW performance. Floc Retention Analysis shows how well the filter is getting cleaned, while BW turbidity profiles shows if the backwash is efficiently removing solids. BW turbidity profiling should be completed at filter plants approximately once per month, but the data is only useful if floc retention analysis has been completed (recommended once every 6 months) to show that the filter is getting cleaned with the current backwash sequence and system. Wicks WTP has online BW turbidity monitors in each filter, so BW turbidity profile data is collected for every filter run/backwash.

Results of the Filter Surveillance are provided in attachment B.

2.1 Pre-Backwash Filter Run Data

The basic operating parameters for the filter runs prior to the filter assessment were collected and are shown in Table 3.

Parameter	Filter 1	Filter 2				
Filter Flow (MGD)	1.5	1.5				
Filtration Rate (gpm/sf)	3.4	3.4				
Filter Run Time (hrs.)	16	16				
Unit Filter Run Volume (gal/sf)	3,265	3,265				
Total Water Produced (gal)	980,000	980,000				
Raw Water Turbidity (NTU)	11.7					
Settled Water Turbidity (NTU)	2	.57				

Table 3. Pre-Assessment Filter Run Data

2.2 Bed Expansion

The backwash bed expansion tool includes "flutes" at heights of 2" that allow for measurement of the bed expansion in 2" intervals. Table 4 shows the bed expansion measured for each filter. Compared to the target bed expansion of 20-30%, it appears that the bed expansion in the Wicks WTP filters was at least 8 inches (filled the 8" flute, with little to no media in the 10" flute), which results in a bed expansion of approximately 25% based on the measured depth of sand and anthracite. This is in the range of what is expected for this filter media configuration, given that the media effective size was measured to be less than the design specification (as discussed below).

Table 4.	Measured	Filter	Backwash	Media	Expansion

Measurement	Filter 1	Filter 2		
Sand and Anthracite Depth (in)	32.5	31		
Measured Bed Expansion (in)	8	8		
Measured Bed Expansion (%)	25%	26%		
High-Rate BW Flow Rate (gpm/sf)	12	2.7		
Water Temperature (°C)	5.	.6		
Theoretical Bed Expansion (%) (Based on Design Media Profile)	18%	18%		
Theoretical Bed Expansion (%) (Based on Actual Media Profile)	26%	26%		

2.3 Backwash Turbidity Profile and BW Flow

The Figures 5 and 6 below show the backwash wastewater turbidities during the backwash as well as the backwash flow rates for Filters 1 and 2, respectively. As shown in Figure 5, the BW turbidity in Filter 1 reached the AWWA recommended target of 10 NTU at approximately 9.5 minutes into the backwash.

Similarly, Figure 6 shows the BW turbidity in Filter 2 reached this target at approximately 10.5 minutes into the backwash. While these data alone would suggest that the filter is being backwashed for too long, it must be evaluated in concert with the floc retention data collected to confirm that the filter is getting clean. If the filter is not getting clean, then the backwash process should be modified, and the backwash turbidity re-evaluated.

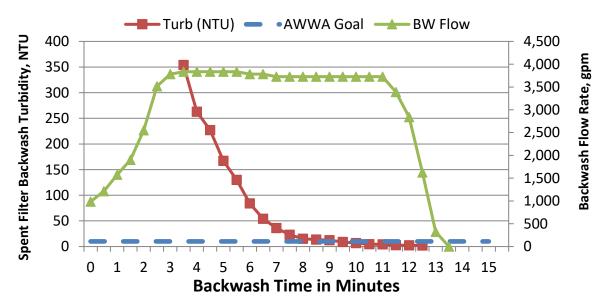
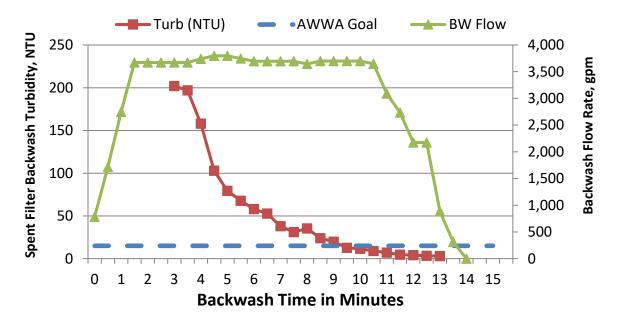


Figure 5. Filter 1 Backwash Turbidity Profile

Figure 6. Filter 2 Backwash Turbidity Profile



2.4 Floc Retention Analysis

Floc retention analysis data shows how effectively the filter media stores particles during a filter run, and how well the filter is being cleaned by the backwash process. The results from Site 1 in both filters are discussed below. Attachment A includes the results for the remaining filter sites. As shown in the Figures 7 and 8 below, there is a notable drop off in floc retention past the first 2 inches of media, suggesting that much of the filtration is happening via the fine media observed on the top of the filter and the full media profile is not being effectively used to store solids during the filter runs. Media size is analyzed in the sieve analyses results in section 2.4.

In an optimized filter, it would be expected that more floc is retained in the anthracite layer and gradually less is retained in the sand layer with almost no floc retained in the garnet. This suggests that the size of the floc and the charge is adequate to allow the floc to travel into the anthracite and be removed via diffusion of particles onto the media. Both filters appear to align with the anticipated floc retention profiles below the top 2" of media.

Also show in Figures 7 and 8 is the turbidity profile following a backwash. These data show the backwash adequality removed the floc from both filters, resulting in turbidities within or slightly below the optimal post backwash range of 30-60 NTU. This suggests the backwash flowrate and duration is working effectively, but that the filter backwash is likely continuing longer than necessary to get the filter clean. The result of overcleaning of a filter is typically longer than expected filter maturation times (resulting in longer than expected filter-to-waste periods in some filters).

The data does suggest that the top media is being more readily cleaned than the lower layers of anthracite, as would be expected for a filter with surface wash sweeps (as compared to air scour backwash systems). However, no mudballs were observed in the filters, suggesting that the operators are effectively managing the filter aid polymer dose and preventing over application that would likely result in mudballs in filters with only surface wash sweeps.

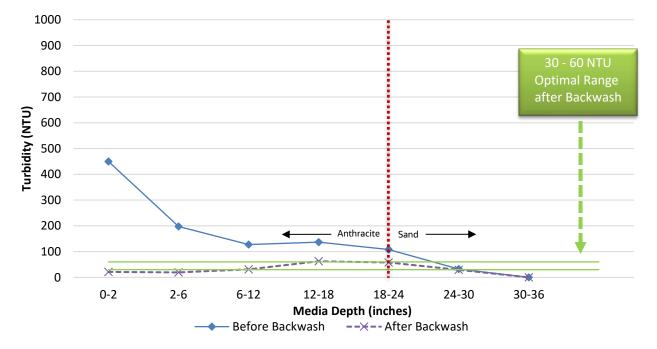


Figure 7. Filter 1 - Site 1 Floc Retention Analysis

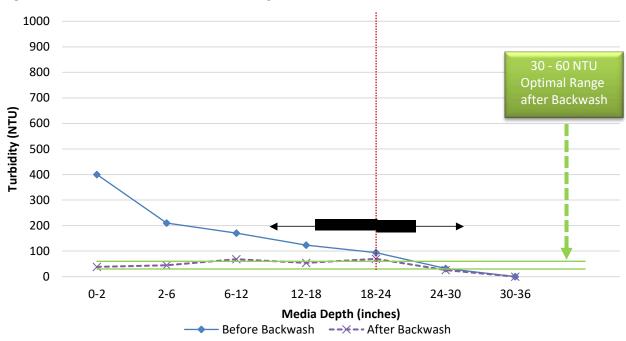


Figure 8. Filter 2 - Site 1 Floc Retention Analysis

2.5 Media Sieve Analysis

The media sieve analysis is used to determine the effective size and the uniformity coefficient of the media at various depths and determine if significant or unexpected wear and tear is present on this filter media. Table 5 summarizes the calculated effective size and uniformity coefficient for 0"-2" and 0"-18" of media depth for Filters 1 and 2 and compares it to the desired design values. The analysis shows the effective media size is less than the target range of 0.95 to 1.05 mm for both filters. Similarly, the uniformity coefficient for the media at 0"-18" is greater than the desired maximum value of 1.4. These values are consistent with the results observed in the floc retention analysis, discussed in section 2.3.

			Fil	ter 1	Filter 2		
Parameter	Units	Design Criteria	0-2"	0-18"	0-2"	0-18"	
Effective Size (ES)	mm	0.95-1.05	0.62	0.75	0.73	0.86	
Uniformity Coefficient (UC)	-	<1.4	1.37	1.63	1.36	1.61	

2.6 Filter Performance and Runtime

Operators noted that the observed filter runtimes are shorter than anticipated and typically terminate based on headloss. Filter runs prior to the test were approximately 16 hours. City staff noted that this is substantially lower than the length of filter runs achieved when the WTP initially switched to ACH from Alum for coagulation. It is assumed that this is likely a result of the top media having a substantial accumulation of fines that have not been removed in some time. The smaller media grabs too many solids, preventing the particles from making their way to the anthracite at lower depths. This results in an ineffective use of available anthracite particle storage capacity and a more rapid increase in headloss during filter runs. If the top layer were replaced with the correct sized media, it is expected that headloss accumulation would be reduced and filter runs could be extended.

2.7 Summary of Conclusions

The following summarizes the conclusions from the analysis performed:

- 1. The filter backwash sequence is effectively cleaning the filter, although it is likely that the current sequence is "over cleaning" the filter which results in longer than necessary filter maturation durations.
- 2. The solids being removed from the filter are primarily being removed in the top of the anthracite.
- 3. The top layer of filter media (0"-2") is substantially smaller than the rest of the filter media, and the filter media as a whole is smaller than spec. The fines at the top of the filter are causing headloss to accumulate more rapidly and preventing effective use of all the particle storage potentially available in the anthracite media.
- 4. The measured anthracite depth in both filters is 6 to 8" less than the design depth of 26".
- 5. The current backwash controls/sequence lacks the flexibility needed to adjust the backwash sequence and optimize filter performance.
- 6. The changes to the backwash sequence will likely be required as soon as the filter media profile is fixed, because fixing the filter media profile is expected to have an adverse impact on particle removal that will need to be mitigated by careful adjustment of coagulant/filter aid chemistry and fine-tuning of the backwash sequence.

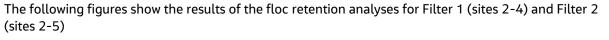
3. Recommendations

Based on the assessment of the Wicks WTP Filters, the following improvements are recommended. These recommendations should be completed before full-scale stress testing is conducted to determine the realistic winter capacity of the WTP to remove any uncertainty regarding the impact the issues identified have on the WTP capacity.

- Correct the deficiencies in the filter media profile to return to the initial design media configuration. While it is possible that this could be accomplished by removing only the top 3-4" of anthracite and then topping up the filter with the 2008 media specification, this may leave some uncertainty regarding whether the filter media is the primary cause of the short filter runs. Based on this, the preferred recommendation is to replace the anthracite in its entirety with media meeting the 2008 filter media spec.
- 2. The backwash sequence should be updated to allow more operator control over backwash setpoints. Modifications should include the ability to:
 - a. Turn off the second surface wash sweep cycle. Typically, surface wash sweeps are only run prior to the start of a backwash and the surface wash sweeps appear to be causing unwanted damage to the filter media.
 - b. Adjust the duration of the high-rate backwash step based on how long it is taking to get the filter clean.
 - c. Control of the backwash rates to allow for more discrete adjustment of BW flow.

- d. Generally, modern filter controls allow operators to adjust the setpoints and durations for each step of the backwash sequence, within a reasonable allowable range.
- 3. Operators should perform floc retention analysis and BW turbidity profiling on Filters 1 and 2 in the late fall/winter months of 2023. This should be completed at three or four representative locations in the filter. Depth to each type of media and total media depth should be noted at each core location. Backwash routine should be left as the current backwash routine normally completed by the system.
- 4. WTP staff should develop a protocol for regular assessment of filter performance. This can be accomplished by conducting 1 filter assessment each spring and fall or winter and summer, alternating which filter is assessed in which season. For example: Spring 2024- Filter 1, Fall 2024, Filter 2, Summer 2025, Filter 2, Winter 2025 Filter 1, Spring 2026 Filter 2, Fall 2026 Filter 1, and continuing in a similar pattern.
- 5. Operator should evaluate the potential for use of a coagulant aid polymer during cold water seasons to enhance the settleability of the floc to reduce loading on the filters. While it is best to test several polymers from different manufacturers, Kemira's N-1986 polymer has shown promising results with other systems using ACH and Alum for coagulation in similar water quality.
- 6. Operators should carefully watch filter aid polymer dose and endeavor to reduce the applied dose as much as possible, as long as it does not degrade filter particle removal and effluent turbidity performance.

Attachment A Floc Retention Analyses Results (Filters 1 and 2)



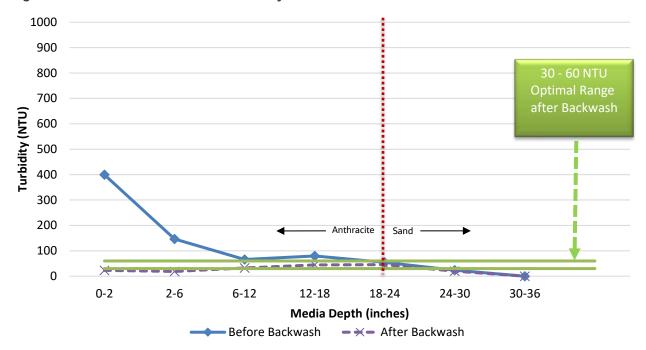
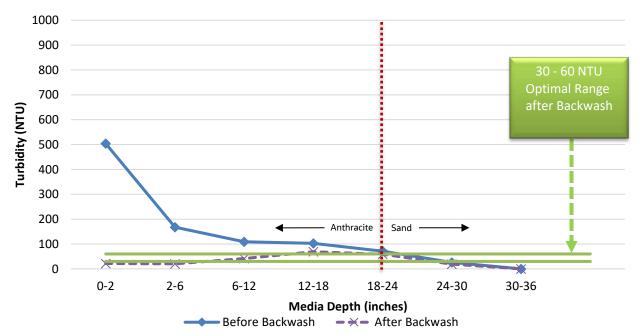


Figure 9. Filter 1 - Site 2 Floc Retention Analysis

Figure 10. Filter 1 - Site 3 Floc Retention Analysis



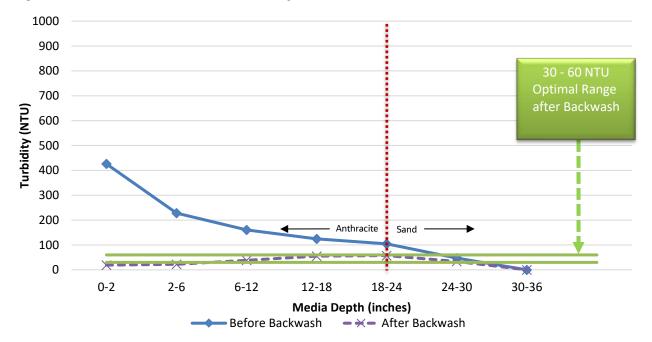
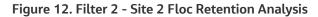
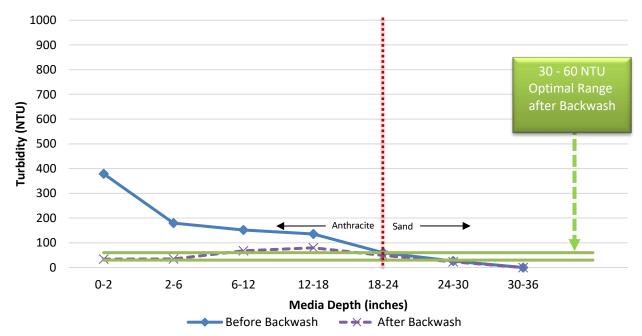


Figure 11. Filter 1 - Site 4 Floc Retention Analysis





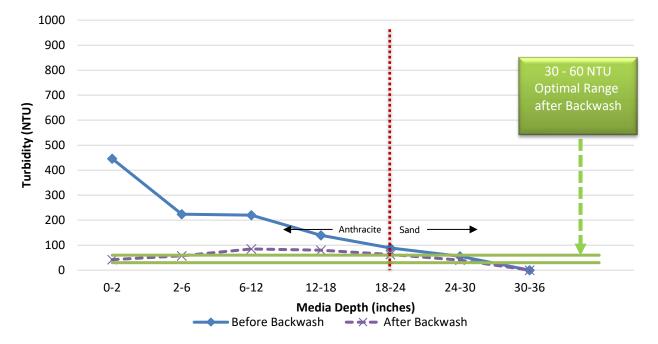
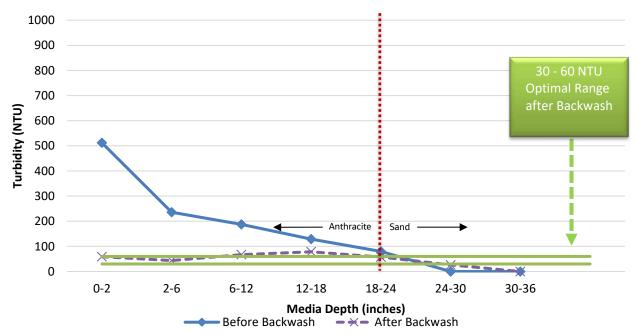


Figure 13. Filter 2 - Site 3 Floc Retention Analysis





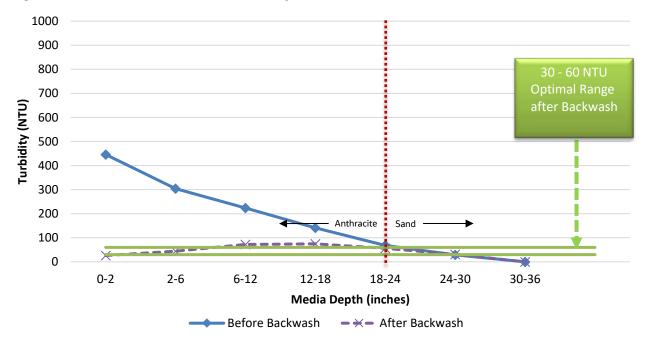
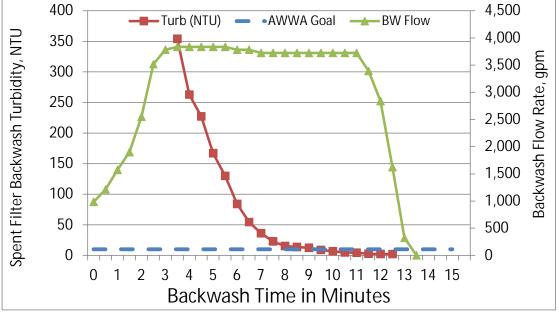


Figure 15. Filter 2 - Site 5 Floc Retention Analysis

Attachment B Filter Run Summary Data Reports

	⁻ Run Data, Bed E	Expansion, and	Backwash Rise Rate Data
Filter Surveilance Report - Page 1			
Treatment Plant:	Wicks WTP - The Dalle	es, OR	NOTE: Gray cells denote data to be filled in. All other cels are
Filter Number:	1		automatically calculated.
Filter Surveillance Date:	4/6/2023		
Filter	Run Data		Notes
Filter Bay Width	20.0	ft.	
Filter Bay Length	15.0	ft.	
Filter Bay Area	300	sq. ft.	
Number of Bays per filter	1		
Total Filter Area	300	sq. ft.	
Clean Bed Headloss	2.8	ft	
Filter Terminal Headloss	10.0	ft	
Filter Run Length	16	hours	
Filter Flow Rate	1.5	mgd	
	1,014	gpm	
Filter Hydraulic Loading Rate	3.4	gpm/sf	
Total Water Produced	979,417	gallons	
UFRV	3,265	gal/sf	
Bed Exp	ansion Data		
Bed Expansion During Backwash	8	in	
Bed Depth at Rest	31.0	in	
Bed Expansion (Expanded/At Rest-1)	26%	Target 20 to 30%	
			-
	se Rate Analysis		
Backwash V - C - V			
Backwash		n	
Time to R		1	
Time to R Unable to complete	backwash rise ra	te ¹	
Time to R analysis to verify ba		er 1	
reading due to in			
Time to R between reaching h			
Rise Rate spilling ove	r trougns.	n/sq. ft.	
Rise Rate		n/sq. ft.	
Rise Rate		n/sq. ft.	
Rise Rate		n/sq. ft.	
Rise Rate		n/sq. ft.	
Backwash Flow		gpm	

er Surveilance Repor atment Plant:	Wicks WTP - 1	The Dalles OR			
er Number:		1	Date:	4/6/2023	
	Time		BW Turb Goal	BW Flow	BW Flow
Sample #	(min)	Turb (NTU)	(NTU)	(gpm)	(gpm/sf)
	0.0		10	0	0.0
	0.5		10	986	3.3
	1.0		10	1212	4.0
	1.5		10	1574	5.2
	2.0		10	1900	6.3
	2.5		10	2550	8.5
	3.0		10	3516	11.7
22	3.5	354.0	10	3784	12.6
23	4.0	263.0	10	3835	12.8
24	4.5	227.0	10	3835	12.8
25	5.0	167.0	10	3835	12.8
26	5.5	130.0	10	3835	12.8
27	6.0	84.0	10	3835	12.8
28	6.5	54.3	10	3784	12.6
29	7.0	36.1	10	3784	12.6
30	7.5	23	10	3725	12.4
31	8.0	15.3	10	3725	12.4
32	8.5	13.7	10	3725	12.4
33	9.0	12.4	10	3725	12.4
34	9.5	8.86	10	3725	12.4
35	10.0	6.72	10	3725	12.4
36	10.5	4.62	10	3725	12.4
37	11.0	4.17	10	3725	12.4
38	11.5	2.82	10	3725	12.4
39	12.0	2.32	10	3389	11.3
40	12.5	2.05	10	2840	9.5
41	13.0		10	1623	5.4
	13.5		10	323	1.1
	14.0		10	0	0.0
	14.5		10		0.0



					Flo	c Retention	Analys	is	
ilter Surveilance Repor reatment Plant:		TP - The Dalles,	OR						Graph Data per 100mL
ilter Number:	1								
ample Location:	1								
Iter Surveillance Date:	4/6/2023	8							
		Before B	Backwash			After Back		-	
	Turb		Sample	Measured			Sample	Measured	Notes
	(NTU) per	Turb (NTU)	Weight	Turb (NTU)		Turb (NTU) per	Weight	Turb (NTU)	
Media Depth	100g	per 100 mL	(g)	(per 50mL)	per 100g	100 mL	(g)	(per 50mL)	
0-2	366	450	61.4	225.0	22	21	48.6	10.6	
2-6	179	198	55.3	98.8	19		50.0	9.6	
6-12 12-18	110 113	127	58.0 60.2	63.6 68.2	34 57	31 63	46.5 55.0	15.6 31.3	
12-18	83	136 108	60.2 64.8	68.2 54.1	48		60.5	28.8	
24-30	21	33	64.8 76.4	16.3	48		76.37	28.8	
30-36	- 21	- 33	/0.4	10.3	- 19		/0.3/	14.7	
800									30 - 60 NTU Optimal Range after Backwash
200					•	Anthra	acite	Sand —	
0 —		*		X-==					*
0-2	2	2-6		6-12		12-18	18-	-24	24-30 30-36

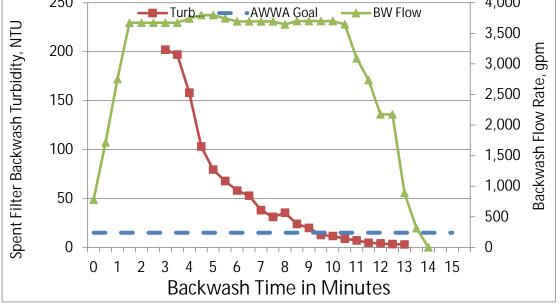
Market Superclaimer Repart - Bage A arginer IP Anites Graph Data per 100ml. Ther Number: if Wisk WP - The Datiles, DR. Graph Data per 100ml. Ther Number: if Wisk WP - The Datiles, DR. Graph Data per 100ml. Ther Number: if Wisk WP - The Datiles, DR. Graph Data per 100ml. Ther Number: if Wisk WP - The Datiles, DR. Graph Data per 100ml. Ther Number: if Wisk WP - The Datiles, DR. Graph Data per 100ml. Ther Number: if Wisk WP - The Datiles, DR. Graph Data per 100ml. Media Depth Ther Number: Wisk WP - The Datiles, DR. Graph Data per 100ml. 6-2 399 548 64.0 274.0 23 22 64.0 11 6-12 66 121 55.2 30.6 23 13 1.0 10.4 10.0 12148 64 63.0 39 34.8 45 50 55.2 25.1 1.0 1.0 303.6 1 10 10 10 10 2.0 30.0 1.0						Flo	c Retention	Analys	is				
	Freatment Plant:	Wicks W	TP - The Dalles,	, OR						G	raph Data per	100mL	
Iter Surveillance Date V 4/2023													
Before Backwash After Backwash Messured Notes Intro turb (TU) per turb (NU) Sample Massured Weight Turb (NU) Notes 0-2 399 548 68.6 274.0 23 22 48 11 0-2 399 548 68.6 274.0 23 22 48 11 6-12 66 77 55.0 80.6 19 19 51.5 9.7 6-12 66 164 49.1 45 51.3 73 25.6 182.41 54 70 63.9 34.8 45 50 55.2 25.1 74.30 74 39 8.8 9.5 7.0 7.6 13.3 3 30.6 60 NTU Optimal Range after Backwash 90 90 90 9.1 12.18 12.4 2.40 30.4 00 TU Optimal Range after Backwash 90 90 90 90 90 90 90 90													
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	liter Surveillance Date:	4/6/2023	3										
Media Depth (TU) per 100 mL Weigh (per 100m) Turb (NTU) (per 50mL) Weigh (per 50mL) Weigh (per 50mL) 0-2 399 548 68.6 274.0 22 48 11 2.6 147 161 550 80.6 19 11 55 9.7 612 66 722 55.2 30.2 32 23 51.0 16.4 12:18 80 98 61.6 49.1 45 50 57.3 25.6 24:30 24 39 82.8 19.5 20 22 67.65 13.3 30:36 - - - - - - - 000000000000000000000000000000000000			Before E	Backwash			After Back	wash					
Wedla Depth Uto (N10) per 1 uto (N10) Wedla Nub (N10) per 100										Notes			
0.2 399 548 666 274.0 23 22 48 11 2.6 147 161 550 80.6 19 19 515 9.7 6.12 66 772 55.2 36.2 32 33 51.0 16.4 12.18 80 98 61.6 49.1 45 51 57.3 25.6 24.30 24 39 82.8 19.5 20 27 67.65 13.3 30.36 - - - - - - - 1000 - - - - - - - 1000 - - - - - - - - 1000 - - - - - - - - - 1000 - - - - - - - - - - -										Notes			
2.6 147 161 55.0 80.6 19 19 515 9.7 6.12 66 72 55.2 36.2 32 33 510 16.4 12.18 80 98 61.6 49.1 45 51 57.3 25.6 18-24 54 70 63.9 34.8 45 50 55.2 25.1 30.36 . 1000 1000 1000 1000 1000 1000 1000								(g)					
6-12 66 72 552 36.2 32 33 51.0 16.4 12.18 80 98 61.6 49.1 45 51.0 57.3 25.6 18.24 54 70 63.9 34.8 45 50 55.2 25.1 24.30 24 39 82.8 19.5 20 27 67.65 13.3 30.36 90 1000 1000 . <td></td>													
12:18 80 98 61.6 49.1 45 51 57.3 25.6 18:24 54 70 63.9 34.8 45 50 55.2 25.1 30:36 - - - - - -													
18-24 54 70 63.9 34.8 45 50 55.2 25.1 24-30 24 39 82.8 19.5 20 27 67.65 13.3 30-36 - - - - - - 1000 - - - - - 1000 - - - - - 1000 - - - - - 1000 - - - - - 1000 - - - - - 1000 - - - - - 1000 - - - - - 1000 - - - - - 1000 - - - - - 1000 - - - - - 1000 - - - - - 1000 - - - - - 1000 - - - - - 1000 - - - 12-18 18-24 24-30 30-36													
24.30 24 39 82.8 19.5 20 27 67.65 13.3 30.36 . </td <td></td>													
30:36 - - - - - 1000 - - - - - 900 - - - - - 900 - - - - - 900 - - - - - 900 - - - - - 900 - - - - - 900 - - - - - 900 - - - - - 900 - - - - - 900 - - - - - 900 - - - - - 900 - - - - - 900 - - - - - 900 - - - - - 900 - - - - - 900 - - - - - 900 - - - - - 900 - - - - -													
1000 30 - 60 NTU 900 30 - 60 NTU 900 after Backwash 600 after Backwash				82.8	19.5			67.65	13.3				
00 0 0 0 0 0 0 0 0 0 0 0 0	30-30	-	-			-	-						
Anthracite 0 0 0 0 0 2 0 2 2 6 12 18 18-24 2 4 30 30 30 30 30 30 30 30 30 30													
$500 \longrightarrow 0.2$													
400 300 200 400 400 200 400 200 200 200 200 200 200 200 200 $2-6$ $6-12$ $12-18$ $18-24$ $24-30$ $30-36$	800												
300 200 0 0 0 0 0 0 2.6 6-12 12-18 18-24 24-30 30-36 20 0 0 0 0 0 0 0 0 0 0 0 0 0	500												
200 Anthracite Sand 100	400												
200 100 0 0-2 2-6 6-12 12-18 18-24 24-30 30-36	300												
0 0-2 2-6 6-12 12-18 18-24 24-30 30-36	200					•	Anthr	racite	Sand	•			
0 0-2 2-6 6-12 12-18 18-24 24-30 30-36	100												_
0-2 2-6 6-12 12-18 18-24 24-30 30-36			*		×		-*			×		*	
\longrightarrow Before Backwash $- \neq -$ After Backwash			2-6		6-12		12-18	18	3-24	24-30			
						Be	fore Backwash 🛛 🗕	★− After Ba	ackwash				

					Flo	c Retention	Analys	is			
ilter Surveilance Report reatment Plant: ilter Number:		TP - The Dalles,	OR						Graph Data per	100mL	
ample Location:	3										
ilter Surveillance Date:	4/6/2023	5									
		Before B	Backwash	-		After Back					
Madia Dapth	Turb (NTU) per 100g	Turb (NTU) per 100 mL	Sample Weight	Measured Turb (NTU) (per 50mL)	Turb (NTU) per 100g	Turb (NTU) per 100 mL	Sample Weight	Measured Turb (NTU) (per 50mL)		Notes	
Media Depth 0-2	376	504	(g) 67.1	252.0	23	22	(g) 47.27	(per 50mL) 10.9			
2-6	155	167	53.9	83.7	20	20	51.6	10.1			
6-12	101	109	54.2	54.5	39	41	53.5	20.7			
12-18	90	102	56.6	51.2	61	69	56.3	34.5			
18-24 24-30	60 18	71 26	58.9 71.6	35.4 12.9	45 13	59 19	65.0 72.86	29.4 9.57			
30-36	- 18	- 20	/1.0	12.9	-	- 19	72.80	9.57			
800										30 - 60 NTU Optimal Range after Backwash	
200						Anth	nracite	Sand —			_
100										↓	-
0		*								*	_
0-:	2	2-6		6-12		12-18	18	-24	24-30	30-36	
					Bef	ore Backwash 🛛 🗕	×− After Ba	ckwash			
L											

					Flo	c Retention	Analys	is			
er Surveilance Repor											
atment Plant:		TP - The Dalles,	OR						Graph D	ata per	100mL
er Number:	1										
nple Location:	4										
er Surveillance Date:	4/6/2023	3									
		Before E	Backwash			After Back					
	Turb		Sample	Measured			Sample	Measured	Notes		
	(NTU) per	Turb (NTU)	Weight	Turb (NTU)	Turb (NTU)	Turb (NTU) per	Weight	Turb (NTU)	Notes		
Media Depth	100g	per 100 mL	(g)	(per 50mL)	per 100g	100 mL	(g)	(per 50mL)			
0-2	343	426	62.1	213.0	21	19	45.77	9.42			
2-6	192	228	59.5	114.0	23	22	48.8	11.1			
6-12	128	160	62.7	80.2	37	38	51.7	19.2			
12-18	113	125	55.0	62.4	51	55	54.1	27.5			
18-24	80	104	64.9	52.2	48		59.9	28.6			
24-30	32	47	73.5	23.6	24	34	70.48	16.9			
30-36	-	-			-	-					
900 800 700											30 - 60 NTU Optimal Range after Backwash
(00											
600											
500											
400											
300											
200					•	Anth	racite	Sand	→		
						-					
100											<u> </u>
100											
0	*									*	
0	×	2-6		6-12		12-18	18-2		24-30	30-36	

	un Data, Bed Ex	pansion, and E	Backwash Rise Rate Data
Filter Surveilance Report - Page 1			
Treatment Plant:	Wicks WTP - The Da	Illes, OR	NOTE: Gray cells denote data to be filled in. All other cels are
Filter Number:	2		automatically calculated.
Filter Surveillance Date:	4/6/2023		
	Run Data		Notes
Filter Bay Width	20.0	ft.	
Filter Bay Length	15.0	ft.	
Filter Bay Area	300	sq. ft.	
Number of Bays per filter	1		
Total Filter Area	300	sq. ft.	
Clean Bed Headloss	0.8	ft	
Filter Terminal Headloss	3.7	ft	
Filter Run Length	16	hours	
	1.5	r ,	Т
Filter Flow Rate	1.5	mgd	
Filter Undroulie Londing Date	1,014	gpm gpm/of	
Filter Hydraulic Loading Rate Total Water Produced	3.4	gpm/sf	
	979,417	gallons	
UFRV	3,265	gal/sf	
UNIX .	0,200	yan si	
	ansion Data		
Bed Expansion During Backwash	8	in	
Bed Depth at Rest	30.0	in	
Bed Expansion (Expanded/At Rest-1)	27%	Target 20 to 30%	
	se Rate Analysis		
Backwash Valve Setting		%	
Backwa		n	
Time to		<u>1</u>	
		;	
Time to	1 I	<u>1</u>	
Time to analysis to verify back	wash flow met	er <u>n</u>	
reading due to ins		}	
between reaching hig		el ;	
Rise Rat Rise Rat Rise Rat	troughs.	m/sq. ft.	
Rise Rat		m/sq. ft. m/sq. ft.	+
Rise Rat		m/sq. ft.	+
Rise Rat		m/sq. ft.	
Backwasn Flow		gpm	

er Surveilance Repoi atment Plant:	Wicks WTP - Th				
er Number:	2		Date:	4/6/2023	
	Time	Turb	BW Turb Goal	BW Flow	BW Flov
Sample #	(min)	(NTU)	(NTU)	(gpm)	(gpm/sf
	0.0		15	0	0.0
	0.5		15	781	2.6
	1.0		15	1716	5.7
	1.5		15	2749	9.2
	2.0		15	3673	12.2
	2.5		15	3673	12.2
1	3.0	202	15	3673	12.2
2	3.5	197	15	3673	12.2
3	4.0	158	15	3673	12.2
4	4.5	103	15	3740	12.5
5	5.0	79	15	3797	12.7
6	5.5	68	15	3797	12.7
7	6.0	58	15	3746	12.5
8	6.5	53	15	3695	12.3
9	7.0	38	15	3695	12.3
10	7.5	31	15	3695	12.3
11	8.0	35	15	3695	12.3
12	8.5	24	15	3645	12.2
13	9.0	20	15	3700	12.3
14	9.5	13	15	3700	12.3
15	10.0	12	15	3700	12.3
16	10.5	9	15	3700	12.3
17	11.0	7	15	3649	12.2
18	11.5	5	15	3090	10.3
19	12.0	4	15	2734	9.1
20	12.5	3	15	2175	7.3
21	13.0	3	15	2175	7.3
	13.5		15	890	3.0
	14.0		15	315	1.1
	14.5		15	0	0.0
	15.0		15	-	0.0



					Flo	c Retention	Analys	sis	
er Surveilance Report			0.0						
atment Plant:		TP - The Dalles,	OR						Graph Data per 100mL
er Number:	2								
nple Location:	1								
er Surveillance Date:	4/6/2023	}							
	1	Before E	Backwash			After Back			
	Turb		Sample	Measured			Sample	Measured	Notes
	(NTU) per	Turb (NTU)	Weight	Turb (NTU)	Turb (NTU)	Turb (NTU) per	Weight	Turb (NTU)	
Media Depth	100g	per 100 mL	(g)	(per 50mL)	per 100g	100 mL	(g)	(per 50mL)	
0-2	317	400	63.0	200.0	38		49.7	19	
2-6	185	210	56.9	105.0	44		51.1	22.4	
6-12	146	171	58.3	85.3	68	68	50.2	34.1	
12-18 18-24	106 70	123 94	58.1 67.2	61.6 47.0	45 44		60.4 79.3	26.9 34.8	
24-30	21	94 32	76.7	47.0	44		79.3	13	
30-36	- 21	- 32	/0./	10.1	-	- 20	/0./	13	
50 50									
800									30 - 60 NTU Optimal Range after Backwash
600									
500									
500									
500 400					•	Anthr	acite	Sand —	
500 400 300 200					•	Anthr	acite	Sand —	
500 400 300 200 100					-	Anthr	acite		
500 400 300 200 100		×			4	Anthr	acite	Sand —	
500 400 300 200 100		2-6		6-12	4	Anthr	acite 18-		24-30 30-36
500 400 300 200 100 0				6-12		12-18		24	*

Filter Surveilance Report - Freatment Plant:	Page 4					c Retention	, interje	15				
Filter Number: Sample Location: Filter Surveillance Date:		TP - The Dalles,	OR							Graph Data per	100mL	
inter surveindrice Date.	4/0/2023											
	Turb	Before B	Backwash Sample	Measured		After Back	wash Sample	Measured	-			
	(NTU) per	Turb (NTU)	Weight	Turb (NTU)	Turb (NTU)	Turb (NTU) per	Weight	Turb (NTU)	Notes			
Media Depth	100g	per 100 mL	(g)	(per 50mL)	per 100g	100 mL	(g)	(per 50mL)				
0-2 2-6	379 180	450 191	59.4 53.2	225.0 95.5	34 35	32 34	46.9 49.2	16 17.1				
6-12	180	191	53.2 59.3	95.5	35 68	34 72	49.2 53.1	36.0				
12-18	136	161	59.3	80.3	80	88	55.0	43.8				
18-24	60	79	65.9	39.6	49	62	63.3	31.0				
24-30	26	41	78.7	20.4	23	33	72.2	16.5				
30-36	-	-			-	-						
800 700 700		×			4	Anthra	cite	Sand -			0	30 - 60 NTU ptimal Range fter Backwash
0-2		2-6		6-12		12-18	18-2	24	24-30	3	0-36	
					Befo	ore Backwash 🛛 🗕 🔶	🗕 After Bac	kwash				

					Flo	c Retention	Analys	is	
ter Surveilance Report eatment Plant:		TP - The Dalles,							Grank Data nor 100ml
		IP - The Dalles,	OR						Graph Data per 100mL
Iter Number:	2								
imple Location:	3								
Iter Surveillance Date:	4/6/2023	5							
		Before B	Backwash			After Back			
	Turb		Sample	Measured			Sample	Measured	Notes
	(NTU) per	Turb (NTU)	Weight	Turb (NTU)	Turb (NTU)	Turb (NTU) per	Weight	Turb (NTU)	
Media Depth	100g	per 100 mL	(g)	(per 50mL)	per 100g	100 mL	(g)	(per 50mL)	
0-2	390	446	57.2	223.0	45	42	47.03	21.2	
2-6	200	224	56.0	112.0	51	58	56.1	28.8	
6-12	198	220	55.5	110.0	76		55.9	42.4	
12-18	120	139	57.9	69.7	74		54.1	40.0	
18-24	67	89	66.8	44.5	52		60.8	31.4	
24-30 30-36	39	56	72.1	27.8	- 28		70.92	20.2	
30-30	-	-			-	-			
800									
700 600 500									30 - 60 NTU Optimal Range after Backwash
700 600									Optimal Range
700					4	Anthr	acite	Sand —	Optimal Range
700 600 500 400 300 200 100						Anthr	acite		Optimal Range after Backwash
700 600 500 400 300 200 100						Anthr	acite		Optimal Range after Backwash
700		× 2-6		6-12	4	Anthr	acite		Optimal Range after Backwash
700 600 500 400 300 200 100 0				6-12		*	18-2	4	Optimal Range after Backwash

					Flo	c Retention	Analys	is				
er Surveilance Report eatment Plant: er Number:		TP - The Dalles,	OR							Graph Data per	100mL	
nple Location: er Surveillance Date:	4 4/6/2023	3										
		Before B	Backwash			After Back	wash					
	Turb (NTU) per	Turb (NTU)	Sample Weight	Measured Turb (NTU)	Turb (NTU)	Turb (NTU) per	Sample Weight	Measured Turb (NTU)	Notes			
Media Depth 0-2	100g 456	per 100 mL 512	(g) 56.1	(per 50mL) 256.0	per 100g 56	100 mL 59	(g) 52.6	(per 50mL) 29.4				
2-6	214	236	55.1	118.0	42	43	52.0	29.4				
6-12	167	187	56.1	93.7	65	67	51.7	33.5				
12-18	130	129	49.6	64.4	68	78	57.9	39.2				
18-24	64	80	62.9	40.1	46		62.6	28.7				
24-30 30-36	-	-	74.0		17	27	78.88	13.3	_			
800						Anthr	acite	Sand -			Op	30 - 60 NTU otimal Range cer Backwash
200												
100						*						
		×				*					*	
×		2-6		6-12		12-18	18-2	4	24-30		*)-36	

					Flo	c Retention	Analys	is	
Iter Surveilance Report - eatment Plant: ter Number: imple Location:	Wicks W 2 5	TP - The Dalles,	OR						Graph Data per 100mL
ter Surveillance Date:	4/6/2023	3							
		Before B	Backwash			After Back			
	Turb (NTU) per	Turb (NTU)	Sample Weight	Measured Turb (NTU)	Turb (NTU)	Turb (NTU) per		Measured Turb (NTU)) Notes
Media Depth 0-2	100g 368	per 100 mL 446	(g) 60.5	(per 50mL) 223.0	per 100g 31	100 mL 26	(g) 42.5	(per 50mL) 13.2)
2-6	267	304	56.9	152.0	45		49.1	22.1	
6-12	185	224	60.4	112.0	71	72	50.8	36.0	
12-18	137	141	51.8	70.7	72		52.2	37.4	
18-24 24-30	51 19	68 29	66.7 76.7	34.0 14.5	50 21	56 31	56.1 71.7	28.1 15.4	
30-36	- 19	- 29	/6./	14.5	- 21	- 31	/1./	15.4	
900									30 - 60 NTU Optimal Range after Backwash
200		×		*		Anth	nracite	Sand	
0 0-2		2-6		6-12		12-18	18-		24-30 30-36
					Bef	ore Backwash 🗕 🗧	¥− After Bao	ckwash	

Attachment B Condition Assessment

Wicks WTP Condition Assessment

Date:	September 13, 2023
Project name:	The Dalles Water System Master Plan
Project no:	D3718900
Client:	City of The Dalles, OR
Prepared by:	Talia Assi Tyler Kurtz, P.E.
Reviewed by:	Enoch Nicholson, P.E.

1. Introduction

A site visit of The Dalles, OR Wicks WTP was conducted on April 6th, 2023, to evaluate the current condition of the treatment plant. This assessment included preparing an inventory of all facilities, unit processes, and the equipment at the WTP. All observed items were evaluated to determine their condition and identify any defects. The primary goal of this assessment was gathering information to determine which facilities and equipment will need to be either repaired or replaced in future capital improvements should the existing WTP be left in operation for the coming decades. These factors will be considered in the treatment technology evaluation when determining the most appropriate treatment approach for the plant going forward. Figure 1 shows a process flow diagram of the current treatment process and the various facilities considered during this assessment.

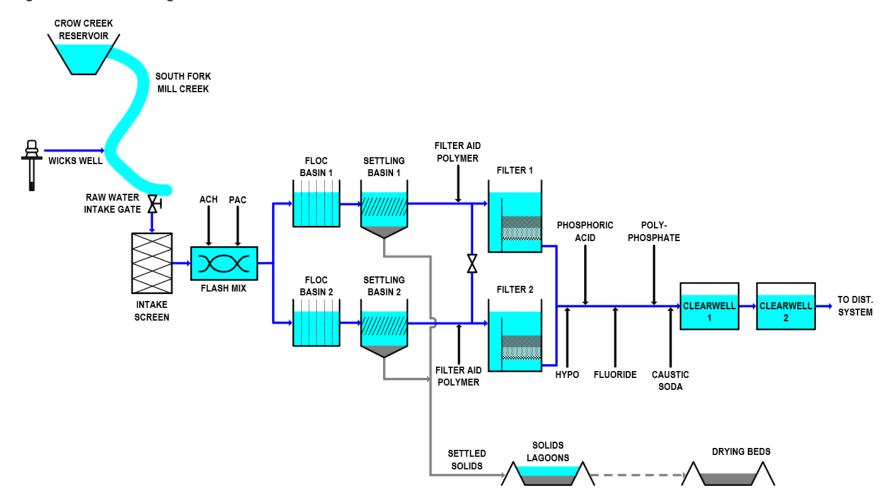


Figure 1. Process flow diagram for Wicks WTP.

2. Facility Evaluation

The following facilities were evaluated during this assessment:

- Wicks well
- Intake structure
- Headworks
- Flocculation and sedimentation

- Sludge lagoons
- Clearwells
- Chemical facilities
- Offices and ancillary buildings

Filters

The mechanical, structural, electrical, and instrumentation and control (I&C) assets in each facility were documented and reviewed for defects. General photos of the facilities and their defects were used to document the state of the WTP. The sections that follow summarize the defects identified at the facilities throughout the plant. The identified defects have been a prioritization rank of 1-3, with lower numbers representing a higher priority.

Higher priority defects (assigned a priority of 1) are those that present immediate challenges to the plant and may impact plant performance if not addressed, as well as safety concerns. Lower priority defects (assigned a priority of 2 or 3) are those that are less urgent but should be considered when evaluating long-term improvements and repairs. These may include opportunities to improve plant operations by adding additional measures for efficiency and automation. This summary is intended to help prioritize improvements over time.

A timeline of construction and improvement projects provided by WTP staff is provided in Attachment A. The addition of major pieces of infrastructure that were noted in this timeline are summarized in Table 2-1. While WTP staff have generally kept the facility in excellent condition, the age of critical pieces of infrastructure is problematic. The EPA estimates the useful life of concrete structures within drinking water treatment plants to be 60-70 years (EPA 2002), placing all concrete in the original Wicks WTP construction at the end of its useful life.

Table 2-1. Construction timeline of Wicks WTP.

Facility/Asset	Year Constructed
Water Treatment Plant	1950
Alum (now ACH) room, washwater tank 2, intake screen	1967
Settling tubes	1973
Clearwell 1	1982
Polymer room	1985
Chemical lab (remodeled), PAC building	1990
Drying lagoon	1991
Caustic soda building, diesel generator	1996
Fish screen/ladder	2003
Log boom, spillway brushing, sodium hypochlorite tanks, flash mixer	2012

Facility/Asset	Year Constructed
Roof on chlorine, generator, PAC, and compressor buildings. Phosphate analyzer, fluoride hopper, and fluoride feed systems are replaced/upgraded.	2014
Fluoride analyzer, plant railing	2016
Filter magnetic flow meter, raw turbidimeter, PLC and level sensor at Crow Creek Dam	2017
Flocculation basin baffles	2018

2.1 Wicks Well

The Wicks Well is a 660-gpm groundwater supply located southwest of the plant. It is used to supplement the South Fork Mill Creek water that feeds the plant. The wellhouse is adjacent to South Fork Mill Creek and is shown in Figures 2 and 3. The wellhouse can be accessed via a road that runs along the east side of the creek. Table 2-2 describes the defects evaluated during the condition assessment at this portion of the facility.

Table 2-2. Wicks Well defects.

Asset	Defect	Priority	Notes
Well Pump	The pump does not have SCADA connectivity or temperature and vibration sensors.	2	A flow meter and on/off controls should be included to integrate this well with SCADA. Will require a data connection from the WTP to the well.
Roadway	There is a lack of fencing to prevent snow and rocks from sloughing onto the roadway and any cars.	3	None.

Figure 2. Wicks Wellhouse.



Figure 3. Wicks Well pump.



2.2 Intake Structure

The intake structure includes a gate, fish screen, and diversion weir that is used to control the flow drawn from South Fork Mill Creek. The gate is just upstream of the fish screen and is controlled manually. Figures 4 and 5 show the intake gate and the fish screen, respectively. A USGS gauging station is located just upstream of the intake structure. This station is used to monitor water levels in the creek. Table 2-3 describes the defects noted during the condition assessment at this portion of the facility.

Figure 4. Intake gate.



Table 2-3. Intake structure defects.

Asset	Defect	Priority	Notes
Gates and Fish Screen	Sufficient lighting and handrails are lacking and boards on walkways are not secure. Access to the creek for removing weir logs, including stairs and a handrail, is needed as well.	1	None.
Diversion Weir Gate	A proper lid is needed on the stop log diversion to the creek.	1	None.
"Big Wheel" Intake Gate	The "big wheel" intake gate requires manual operation - automation for remote operation should be added.	2	Elevations from previous drawing sets were reviewed. A pipeline with a flow control valve, flow meter, and inline rapid mixer could be installed to eliminate the need to operate multiple gates and optimize chemical dispersion.

Figure 5. Fish screen.

Asset	Defect	Priority	Notes
Fish Screens	The fish screens are ~15 years old and may need replacement. Sediment buildup periodically requires digging out the screen to the intake. The fish screens require daily maintenance (wash down and monitoring bearings, motors, PLCs) and could be improved. The fish screen equipment should be integrated into SCADA so that alarms are visible to WTP operators.	2	Replacement of the fish screens is the responsibility of Fish and Wildlife.
USGS Gauging Station	Instrumentation installed in the USGS shed is outdated and should be replaced with a pressure transmitter with SCADA connectivity.	3	Communication wiring to the gauging station could be performed in parallel with Wicks Well, assuming wireless options were not used. There is no electrical to the gauging station currently, but electrical does go to the fish screen and could be run the short distance up to the gauging station.

2.3 Headworks

The plant headworks is a concrete flume with an overflow structure at the upstream end. A manual slide gate is used to control plant flow with excess water overflowing back into South Fork Mill Creek, as shown in Figure 6.

Downstream of the slide gate, aluminum chlorohydrate (ACH) is added at the flash mixer shown in Figure 7. PAC is also added here when it is needed. Table 2-4 summarizes the defects observed at this portion of the facility. Figure 6. Headworks slide gate.



Figure 7. Headworks flash mix.

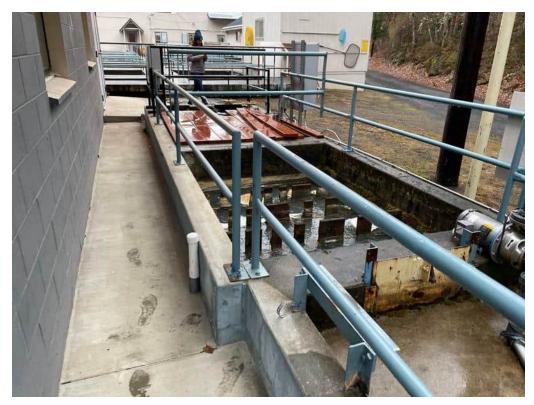


Table	2-4.	Headworks	defects.
-------	------	-----------	----------

Asset	Defect	Priority	Notes
Headworks	The headworks has no SCADA connectivity, gate actuator, or level sensor to allow for automated flow control to the plant.	2	None.
Chemical Addition/Flash Mix	There is no redundancy in the ACH injection/mixing system.	2	The old system could temporarily be relied on for redundancy, but something more efficient would be better long-term, like having a spare pump and mixer on the shelf.
Headworks	The headworks has no cover, presenting issues with leaf fall clogging pipes, gates, screens, and equipment.	3	None.

2.4 Headworks Chemical Facility

The Headworks Chemical Building is located west of the headworks. The powder activated carbon (PAC) and soda ash chemical systems are stored in this building.

2.4.1 Powder Activated Carbon

PAC is available on site for intermittent use when upstream water quality events occur that require additional treatment. Figure 8 shows the PAC storage facility and Table 2-5 summarizes the defects within this facility.

Figure 8. PAC equipment.



Table 2-5. PAC defects.

Asset	Defect	Priority	Notes
PAC Feed Hopper	There is no apparent loader/lift to raise dry PAC up to the platform when being loaded into hopper.	3	WTP staff have noted that this is due to the infrequent use of this system and bags are less than 50 lbs.

2.4.2 Soda Ash

Historically, soda ash was used intermittently during low pH events. The system is no longer in use, and soda ash is not currently stored on site, though the old equipment is still housed in the Headworks Chemical Building. This facility was not evaluated since it is not currently in use.

2.5 Flocculation and Sedimentation

There are two flocculation and sedimentation basin trains located downstream of the headworks. The plant utilizes a hydraulic baffle system to achieve mixing in the flocculation basins. The wooden baffles in

the flocculation basins were replaced in 2018 and are in good condition. Vertical turbine mixers were installed during the construction WWTP in 1949 but were removed in 1967 to poor performance.

The sedimentation basin includes inclined settling tubes and a trac-vac system that is used for sludge removal. The sludge collection system continues to operate well and performs as intended, though Train 1 has an I&C defect and both trains require electrical improvements. Figures 9 and 10 show the flocculation and sedimentation basins, respectively. Figure 11 shows the wooden beams that are used to support the failing tube settler supports. Table 2-6 details the defects observed at these basins. Given the structural defects noted in the flocculation and sedimentation basins, a structural assessment was performed, which is included in Attachment B.

Figure 9. Flocculation basins.



Figure 10. Sedimentation basin covers.

Figure 11. Tube settler supports.



Asset	Defect	Priority	Notes
Track Vac	Panels and switches on the track vac are due for replacement. On Train 1, the high and low speeds are reversed for the track vac system programming.	1	None.
Sedimentation Basin Covers	There is visible cracking in the covers on top of the basins.	1	FRP covers or planks may be preferable to concrete slabs. If the settling tubes are replaced with metal equipment, then the covers are no longer required. See Structural Assessment (Attachment B) for more details.
Structural Walls	External sedimentation basin walls are showing visible signs of degradation and angular cracking. They require repair and potentially long-term replacement.	2	Basins were taken offline and repaired with injection and a new epoxy coating. See Structural Assessment (Attachment B) for more details.
Tube Settlers	Settling tubes are brittle and fall apart when moved. Supports are becoming disconnected from walls.	2	Noticeable algae growth and damage to the tubes overtime led to covering the basins. Ops is interested in UV resistant settling tubes in the future.
Track Vac Compressor	Seals are leaking. There is visible vibration in the bearings and no safety provisions for high temperatures on the bearings.	2	The compressor should either be repaired or replaced. Replacement is currently budgeted by the City.

Table 2-6	Flocculation	and sedimentation	າ defects.

2.6 Filter Facility

The plant has two conventional dual-media filters downstream of sedimentation. These filters are enclosed in the filter building just north of the flocculation and sedimentation basins, with filter aid polymer dosed upstream of the filters. The anthracite filter media was replaced in 2023.

Contained within the same building as the filters are plant controls, a lab, offices, and ACH storage. In the Polymer Room, built adjacent to the filter building in 1985, the following chemicals are stored: filter aid polymer, polyphosphate, and phosphoric acid. Figures 12 and 13 show the filter facility. Table 2-7 details the defects observed at this portion of the facility.



Figure 12. Both filters and plant controls.

Figure 13. The exterior of the filter facility.



Table	2-7.	Filter	facility	defects.
Tuble	~	i ittei	ruciticy	acreed.

Asset	Defect	Priority	Notes
Filter Building	Exterior walls of the filters showing signs of deterioration.	1	Cracks and weeping are occurring near the underdrain/sand layer on the outside of Filter 1. See Structural Assessment (Attachment B) for more details.
Filtration Piping	Piping is nearing the end of its life and will have to be replaced within 5-10 years.	2	None.
Surface Wash and Filter Influent Valves	Some valves are too high to access from the floor and there are no chain wheels in place.	2	None.

2.6.1 Aluminum Chlorohydrate

ACH is a coagulant added at the plant headworks upstream of flash mixer. ACH is stored in an FRP tank in the east side of the filter building. Figure 14 shows the current ACH storage area and Table 2-8 notes the defects observed with the ACH facility.

Figure 14. ACH storage tank.



Table 2-8. ACH facility defects.

Asset	Defect	Priority	Notes
ACH Pumps	Pumps/chemical feed system are not connected to SCADA.	1	None.
ACH Feed System	Chemical piping is lacking calibration columns and redundancy.	3	None.

2.6.2 Filter Aid Polymer

The filter aid polymer is stored in the Polymer Room and is added between the sedimentation basin and filters to enhance filter performance. It is purchased in 5-gallon carboys and a dilute polymer solution is blended in the filter aid polymer tank (Figure 15) before being stored in the day tank (Figure 16) where it is supplied to peristaltic pumps. Table 2-9 summarizes the defects noted in the filter aid polymer equipment.

Figure 15. Filter aid polymer tank.



Figure 16. Filter aid polymer day tank.



Table 2-9. Filter aid polymer d	lefects.
---------------------------------	----------

Asset	Defect	Priority	Notes
Filter Aid Polymer Storage	No chemical containment is present.	1	None.
Filter Aid Polymer Pumps	Pumps/chemical feed system are not connected to SCADA.	1	None.
Filter Aid Polymer Feed System	Chemical piping is lacking calibration columns and redundancy.	3	None.

2.6.3 Polyphosphate

Polyphosphate is used for corrosion control and iron and manganese sequestration. It is currently stored in barrels in the Polymer Room, as seen in Figure 17. Polyphosphate is dosed in between the filters and the clearwell. Table 2-10 describes the defects noted for this facility.

Figure 17. Polyphosphate storage.



Table 2-10. Polyphosphate storage defects.

Asset	Defect	Priority	Notes
Polyphosphate Storage	No chemical containment is present.	1	None.
Polyphosphate Pumps	Pumps/chemical feed system are not connected to SCADA.	1	None.
Polyphosphate Feed System	Chemical piping is lacking calibration columns and redundancy.	3	None.

2.6.4 Phosphoric Acid

Phosphoric acid is used on site for corrosion control. It is currently stored in barrels in the filter building, as seen in Figure 18. Phosphoric acid is dosed in between the filters and the clearwell. Table 2-11 lists the defects noted for this facility.

Figure 18. Phosphoric acid storage.



Table 2-11. Phosphoric acid storage defects.

Asset	Defect	Priority	Notes
Phosphoric Acid Storage	No chemical containment is present.	1	None.
Phosphoric Acid Pumps	Pumps/chemical feed system are not connected to SCADA.	1	None.
Phosphoric Acid Feed System	Chemical piping is lacking calibration columns and redundancy.	3	None.

2.7 Washwater Tanks

Two washwater tanks store water for filter backwashing and are located above the facility on a hill to the east of the building. Washwater Tank 1 is concrete, can store about 47,000 gallons of water, and was constructed with the original facility in 1949. Washwater Tank 2 is steel, can store about 52,000 gallons of water, and was constructed in 1967. Both are pictured in Figure 19, with defects noted in Table 2-12.

Figure 19. Washwater tanks.



Table 2-12. Washwater tank defects.

Asset	Defect	Priority	Notes
Washwater Tank 1	Washwater Tank 1 shows signs of wear and degradation in its exterior paint.	1	While the exterior paint may show signs of degradation, Washwater Tank 1 is concrete and is in decent shape, structurally.
Washwater Tank 2	Washwater Tank 2 has structural issues with its roof.	1	None.
Washwater Tanks	A cover is missing on the manhole/vault (~3 ft deep, safety concern).	1	The vault contains the pressure sensor for the nearby tank.
Washwater Tanks	Both washwater tanks are a located below a rocky hill, presenting concerns that falling rocks could damage the tanks and take them out of service.	2	None.

2.8 Caustic Soda Facility

The caustic soda facility was initially constructed in 1996 and includes a fiberglass reinforced plastic (FRP) tank for the storage of caustic soda which is no longer in use (Figure 20). The plant now uses tote deliveries of caustic which are stored outside (Figure 21). The system was added at the plant for pH adjustment of finished water but now sees reduced use following the conversion from gaseous chlorine to sodium hypochlorite. Table 2-13 summarizes the defects noted in this facility.

Figure 20. Old caustic storage tank.



Table 2-13. Caustic storage facility defects.

Asset	Defect	Priority	Notes
Caustic Pumps	Pumps/chemical feed system are not connected to SCADA.	1	None.
pH Analyzer	pH analyzer is not functioning and needs to be repaired or replaced.	2	None.
Caustic Tank	Caustic system and tank are no longer in use.	3	Consider removing tank and using this room for a different purpose (i.e., analyzer room).
Sample Points and Analyzers	Sample points and analyzers in the facility are spread out around various locations.	3	The sample points and analyzers located in this building are associated with multiple systems. Ideally, they could be reconfigured so all sample points are in one location and all analyzers are in the same place.
Caustic Feed System	Chemical piping is lacking calibration columns and redundancy.	3	None.

Figure 21. Exterior caustic storage

2.9 Chlorine Facility

The Chlorine Facility located northeast of the lagoons houses the sodium hypochlorite and fluoride systems. The structure was built in 1982 and originally housed a gaseous chlorine system. In 2011, the WTP's disinfection system was converted to sodium hypochlorite.

2.9.1 Sodium Hypochlorite

Sodium hypochlorite is used downstream of filtration for disinfection of finished water. It is currently stored in two high-density polyethylene (HDPE) tanks within HDPE secondary containment tubs. Figure 22 shows one of the sodium hypochlorite storage tanks and Table 2-14 summarizes the defects noted in this facility.

Figure 22. Old caustic storage tank.



Table 2-14. Sodium hypochlorite defects.

Asset	Defect	Priority	Notes
Sodium Hypochlorite Storage Tanks	Chemical tanks do not vent to atmosphere.	1	None.
Sodium Hypochlorite Storage Tanks	Tanks are not properly anchored.	1	None.
Sodium Hypochlorite Storage Tanks	Hypo tank walls are deteriorating and quite soft.	1	Hypo tanks are due for replacement.

Asset	Defect	Priority	Notes
Sodium Hypochlorite Pumps	Pumps/chemical feed system are not connected to SCADA.	1	None.
Sodium Hypochlorite Storage Tanks	There is no level measurement instrumentation on the tanks.	2	None.
Sodium Hypochlorite Storage Tanks	Exterior filling connection for both tanks does not exist.	3	None.
Sodium Hypochlorite Feed System	Chemical piping is lacking calibration columns and redundancy.	3	None.

2.9.2 Fluoride

Fluoride is stored in the Chlorine Facility, in a separate room from the sodium hypochlorite system. Fluoride is stored dry onsite in bags and is used on site for fluoridation of the filtered water upstream of the clearwells. Figure 23 shows the fluoride storage facility and hopper on site. Table 2-15 summarizes the defects noted with the fluoride facility.

Figure 23. Fluoride feed hopper.



Asset	Defect	Priority	Notes	
Fluoride Pumps	Pumps/chemical feed system are not connected to SCADA.	1	None.	
Fluoride Injection System	The existing fluoride pump (10 hp) is oversized.	3	None.	
Fluoride Feed System	Chemical piping is lacking calibration columns and redundancy.	3	None.	

Table 2-15. Fluoride system defects.

2.10 Clearwells

Two clearwells are used for disinfection and finished water storage downstream of the filters. Figures 24 and 25 show Clearwells 1 and 2, respectively. Table 2-16 summarizes the defects observed in these clearwells.

Figure 24. Clearwell 1.

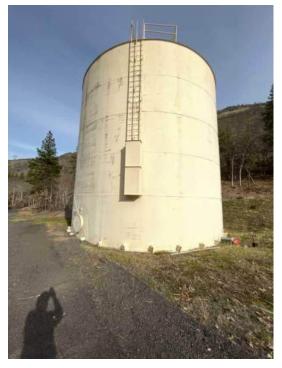


Figure 25. Clearwell 2.



Table 2-16. Clearwell defects.

Asset	Defect	Priority	Notes
Clearwell 1 Vault	The exposed concrete is crumbling and needs to be replaced. Access hatches are not secured to the concrete and do not seal properly. Drainage around the vault is poor, causing water to accumulate in the vault.	1	Replacing the hatch and seal should be considered.

Asset	Defect	Priority	Notes
Clearwell 1 Vault	The vault is a confined space, making it difficult to access the flow meters, level sensor, pressure sensors, valves, fluoride injection point, and chlorine injection point within.	1	None.
Clearwell 1 Vault Sump Pump	The sump pump does not work. A rope is currently being used as a float and the vault does not actually drain as it should.	1	None.
Clearwell 1 Vault	Minor defects in flow element and transmitter. No visible corrosion on grounding wire or terminal blocks.	2	None.
Clearwell 1	Light staining and small chips/holes in the coatings on metal surfaces was observed.	2	None.
Clearwell 1	Significant corrosion was found in the roof upon inspection in July 2023.	3	Inspection of the clearwell is scheduled for late 2023/early 2024. The clearwell may need to be taken offline until it can be repaired pending the outcome of the inspection.

2.11 Solids Handling Facilities

North of the main plant facilities, two sludge lagoons receive the collected solids from the sedimentation basins and the backwash waste from the filters. The sludge lagoons are dredged annually, and the solids are sent to the drying beds prior to final disposal. Figure 26 shows the sludge lagoons. Table 2-17 details the defects observed for these facilities.

Asset	Defect	Priority	Notes
East Sludge Lagoon Effluent Weir	The effluent weir is difficult to operate and ineffective.	2	None.
Sludge Lagoons	The sludge lagoons require manual dredging to send solids to the drying beds.	2	None.
Drying Beds	There are issues with solids dispersion within the drying beds.	2	Creating more entry points and addressing short circuiting issues could help address this.

Figure 26. Both sludge lagoons.



2.12 Offices and Ancillary Buildings

Various additional offices and ancillary buildings were evaluated throughout the treatment plant including the water quality lab, plant generators, offices, mechanical shop, technical buildings, the conference room, etc. Table 2-18 details the defects that were noted at these locations.

Asset	Defect	Priority	Notes
Access Road	A sink hole (approximately 5'x3') formed adjacent to the filter/lab building and floc/sed basin walls. While the sink hole was filled in with flow fill, the cause has not been determined or addressed.	1	The cause of the sink hole should be investigated and determined. A crack in the nearby sed basin wall was patched by maintenance staff.
Shop Building	The shop building has no heat or insulation.	2	None.
Office Building	The office building adjacent to floc/sed basins is exhibiting structural degradation. It appears to be falling off the foundation	3	None.
Shop Building	The shop building is showing signs of structural degradation. The roof leaks severely.	3	None.
Plumbing Building	The plumbing building is in poor shape.	3	The building should be replaced with a new structure.

Table 2-18. Offices and ancillary building defects.

3. Conclusions

The highest priority capital improvements that were identified pose immediate concerns to the continued operation and efficiency of the WTP or the health and safety of plant staff. Some of these improvements include structural concerns associated with pretreatment and filtration facilities, chemical containment improvements, and the replacement of the sodium hypochlorite tank. Out of the 63 items found in the condition assessment, 24 were identified as high priority. The remaining 39 items identified were assigned lower priorities, with 19 being secondary priority and 20 being lowest priority.

Using guidelines provided by The Association for the Advancement of Cost Engineering (AACE), a Class 5 cost estimate was prepared. This level of cost estimate is for a project that is 0-2% complete for the purpose of concept screening. Given this level of cost estimate, the expected accuracy range on the low end is between -20% to -50% and between +30% to +100% on the high end. Jacobs' estimate is based on material, equipment, and labor pricing as of May 2024 and uses conceptual and stochastic costs and detailed items using separate labor, material, and equipment costs. The estimate uses parametric costs where design information or details are insufficient to allow a detailed item method. At this level of estimate, AACE recommends adding a 30 percent budgeting contingency when considering funding needs. The costs to address noted defects are summarized in Attachment C.

After the alternatives analysis was performed, it became clear that many of the identified defects would be addressed during expansion through the construction of new facilities. These defects are noted as such in the cost estimate provided in Attachment C. Some defects, such as the replacement of the existing sodium hypochlorite tanks and some finished water sensors, will be addressed during expansion but present immediate concerns to the continued operation of the facility while WTP construction occurs. Those items were assigned costs and are included as short-term improvements in the phasing of the proposed alternative.

4. References

Environmental Protection Agency (EPA). 2002. *The Clean Water and Drinking Water Infrastructure Gap Analysis*. EPA-816-R-02-020.

Attachment A Wicks Plant Timeline

Wicks Plant Timeline

1949	Original Plant Drawings (dwgs in /ScannedConstructionDrawings)
1950	Plant Construction
1960	Wicks Reservoir Intake Repair (dwg in /ScannedConstructionDrawings)
1967	Wicks Improvements – Alum room addition, WWtank2, Intake Screen, Chlorine feed mods (dwgs in /ScannedConstructionDrawings)
1968	Crow Creek Dam Construction (dwgs in /ScannedConstructionDrawings)
1973	Settling Tubes Installed (dwgs in /ScannedConstructionDrawings)
1 982	ClearWell #1 & plant mods (Chlorine/Fluoride Bldg)
1985	Polymer Room
1990	Chem Lab Remodel and Carbon Bldg (dwgs in /ScannedConstructionDrawings)
1991	Drying Lagoon
1996	Historic Flood Caustic Soda System Diesel Generator
1999	Crow Creek Dam Telemetry
2003	Fish Screen/Ladder
2008	Clearwell #2
2009	Filter Upgrades Convert from Alum to ACH Prechlorination stopped (July)
2011	Convert to NaOCI (Summer)
2012	New LogBoom @ CCD Spillway Brushing Install new NaOCI tanks

Design, build, and install ACH Pump Diffused Flash Mixer (dwg in Mngr Office)

- 2013 Government Flat Complex/Blackburn Fire Drum handler for phosphates Upgrade Radio/modems for CCD Communications
- 2014 New metal roofing on Chlorine, Generator, Carbon, Compressor Bldgs Replacement Phosphate Analyzer Replace/Upgrade Fluoride Hopper and Feed System Filter plant floor tile replacement/lab counters/eye-wash upgrade Filter plant floor Asbestos/Lead Abatement
- 2015 Filter Media Addition to Top-off Filters
- 2016 Replacement Fluoride Analyzer LT2 Sampling Begins Begin Upgrade of Plant Railing
- 2017 Filter Mag Meter Installation Replacement Raw Turbidimeter Replace PLC and Reservoir Level Sensor @ CCD
- 2018 Sed Basin No 1 Sealing Project Replace Basin Baffling
- 2023 Full Replacement of Anthracite Filter Media UCMR 5

Attachment B Structural Assessment

Wicks WTP Structural Assessment

Date:	September 13, 2023
Project name:	The Dalles Water System Master Plan
Project no:	D3718900
Client:	City of The Dalles, OR
Prepared by:	Luke Scoggins, S.E.

1. Assessment Summary

A visual structural assessment of the Wicks Water Treatment Plant was performed on April 18, 2024. The primary focus was on the flocculation, sedimentation, and filter basins. Flocculation and Sedimentation Basins 2 were drained and cleaned to allow access to the interior of the basins. Similarly, Filter Basin 2 was drained to allow for visual assessment. Prior to and following the visual assessment, the facility engineering drawings were reviewed. The drawings are dated May 27, 1949.

The flocculation and sedimentation basins are open-topped reinforced concrete tanks as originally designed and are adjacent to and connected to the multi-story, reinforced concrete filter complex. The filter basins are at the interior of the building. The sedimentation basins were covered with prestressed hollow-core slabs. According to plant staff, these were added some time around 1980 to protect the plastic tube settlers from degradation due to UV exposure.

While on-site, the clearwell vault and the washwater reservoirs were briefly inspected from the exterior. The clearwell vault is a small vault with interior dimensions of 12'x6' with a 9' depth, based on the design drawings dated November 1981. The washwater reservoirs consist of two tanks, one is reinforced concrete and was built at same time as the flocculation, sedimentation, and filter basins. This tank is 24-feet in diameter with a 13.5-foot side wall height. The other is a welded steel tank with design drawings dated August 1967. It is 24-feet in diameter with a 16-foot side wall height.

The site structures were not analyzed in detail through calculations. Seismic evaluation was also not performed. Given their age, the structures were likely not designed and detailed for current seismic requirements. The sedimentation basins in particular are not expected to perform well during a moderate to severe seismic event. This is due to the strut type detailing used in the design, which relies on a tension/compression strut to support the top of basin walls and requires balanced loading conditions to satisfy this assumption.

1.1 Flocculation and Sedimentation Basins

The concrete at the exterior of Sedimentation Basin 1 was weathered at the top surface with some visible cracks. The wall on the west was mostly above grade and was painted. The paint obscured most of the concrete but was failing is some areas. The concrete surface in these exposed areas was found to be dusting and somewhat chalky, but otherwise sound. There were many small vertical cracks visible, but no significant leakage was observed (Figure 1). Most of the cracks were concentrated near the middle of the structure. Plant staff indicated that leakage was repaired on this wall some years ago through crack injection.



Figure 1. West exterior wall of Sedimentation Basin 1.

The basin interiors are uncoated. Below the operating waterline, the cement paste was gone, leaving exposed aggregate in most areas (Figures 2 and 3). Paste and small aggregate between the larger aggregate was easily removed by firm scratching with a rock hammer. In areas of the flocculation basin, the cement paste was still present, but was easily scratched off to a depth of 1⁴″ until aggregate was encountered. Due to the amount of aggregate exposure and abrasive removal with hammer, it is estimated that the concrete surface is severely deteriorated to a depth of 1.5-inches or more from original surface in some locations. Most of the concrete surface deterioration was likely due to chemical attack from the addition of aluminum chloride and chlorine to water treated in the basins as part of the historic treatment process.

Figure 2. Interior of Sedimentation Basin 2.





Figure 3. Interior of Sedimentation Basin 2 at base of wall.

At the underside of the overhanging slabs from the walkway, exposed reinforcing was visible in many locations (Figure 4). At locations where reinforcing was exposed, it appeared that the reinforcing was close to the surface and did not have the recommended 2-inches of cover shown in the original drawings.

Figure 4. Exposed reinforcing in walkway slab over Sedimentation Basin 2.



Jacobs Engineering Group Inc. 240829095430_928b920c

The prestressed, hollow-core slabs covering the basins showed significant cracks, spalls, and general deterioration. The damage appears to be a result of weathering and freeze/thaw exposure. Several of the panels are beginning to split parallel to the open cores and prestressing strands (Figure 5).

Figure 5. Cracking and splitting of prestressed slab.



The tube settler steel support brackets were uncoated and showed signs of corrosion. Hardware and anchor bolts had significant rust buildup. Plant staff indicated that a few of the brackets required modifications and that anchors were added to strengthen their supports. The plastic tube settlers also appeared to have some damage and appeared brittle (Figure 6).

Figure 6. Tube settlers and supports as seen from below.



1.2 Filter Basins

The concrete at the interior of the filter basins was in similar condition to that in the sedimentation basins, but less severely deteriorated (Figure 7). Below the water line, the concrete paste at the surface was mostly gone with exposed small aggregate visible. Paste and small aggregate could be removed with moderate scratching of the rock hammer. Due to the amount of aggregate exposure and abrasive removal with hammer, it is estimated that the concrete surface is deteriorated to a depth of about ¾-inch from the original surface.

Above the weir wall, some spalling was visible with exposed reinforcing (Figure 8). It appears to be a horizontal bar in the wall that is too close to the surface and subject to corrosion, causing the concrete to spall along its length. This is likely to continue over time if unaddressed.

Figure 7. Interior of Filter 2.



Figure 8. Spalling and exposed reinforcing in Filter 2.



Jacobs Engineering Group Inc. 240829095430_928b920c

1.3 Clearwell Vault

Only one sidewalk door is shown in the design drawings, however an additional sidewalk door of the same size was in place at the opposite end of the vault. The opening for this door at the concrete slab appears to have been saw-cut; it is unknown when this work was done. The top surface of the concrete slab between sidewalk doors showed signs of very severe scaling. The top ½-inch to ¾-inch layer of concrete appeared to have completely debonded and was easily removed (Figure 9). The concrete below this layer remained unsound to an unknown depth. It is likely this is freeze-thaw damage possibly exacerbated through poor, premature concrete finishing during placement and/or the lack of air entrainment admixture in the original concrete mix. The concrete is likely to continue scaling to a greater depth over time.

Figure 9. Very severe scaling on the concrete slab.



1.4 Washwater Reservoirs

The reservoirs were only briefly observed from the exterior. The steel reservoir coating appeared to be in good condition. It should be noted that the primarily vulnerability for welded steel tanks is corrosion at the interior above the water line where the coating system is not well maintained. As noted, the interior was not observed.

The concrete reservoir showed signs of significant large pattern map cracking and leakage with efflorescence at most of the cracks (Figure 10). Due to the efflorescence, it is likely these cracks formed years ago and have been actively, but slowly leaking over time. It is not clear how extensive these cracks are around the perimeter of the tank or the interior. It is difficult to speculate to the cause without more information.



Figure 10. Map cracking at tank exterior.

2. Conclusions and Recommendations

2.1 Flocculation and Sedimentation Basins

These basins are 75 years old and have met their original design life. Since the additions of aluminum chloride and chlorine have stopped, the chemical attack at the concrete surface will be arrested. However, the concrete is showing some substantial deterioration overall and significant repairs would be required to bring back the concrete to original construction condition and design capacity. Although there does not appear to be any specific damage or deterioration that would lead to an imminent structural failure or water-holding ability, the concrete should be expected to continue to degrade and carbonate over time, further reducing the design capacity of the structure.

It is recommended to consider replacement of these basins within the next 15-25 years. Depending how long they must stay in service until replacement, some repairs may be warranted to keep the basins in service.

2.1.1 Prestressed Hollow-Core Slabs

The damage in these slabs is not practically repairable and they are likely to continue to degrade. As this damage and cracking continues, it may lead to sections completely cleaving off and becoming unstable and buckling due to the prestressing force becoming eccentric to the remaining concrete section. This may result in a sudden release of the stored energy of the prestressed strand as the concrete fails and strands debond. This would be an unsafe condition for any nearby personnel at the time of failure. It is recommended to safely remove and dispose of these slabs as soon as practical.

2.1.2 Exposed Reinforcing

The exposed reinforcing observed on the underside of the walkway slab is not the primary load carrying reinforcing for the cantilever slab. The deterioration will continue if not addressed, but it is expected to be slow. If the basins are to stay in service for more than 10 years, it is recommended to repair the concrete in these areas with a repair mortar to provide protection for this reinforcing.

2.1.3 Concrete Surface at Basin Interior

Due to the significant deterioration of the concrete, to repair to original condition, the defective concrete would have to be fully removed until sound concrete is found. Then a vertical surface repair mortar would be applied and properly bonded to the surface to get to the original design thickness. This process is time consuming, very costly, and is not recommended for a structure of this age where replacement is a viable alternative.

2.2 Filter Basins

These basins are 75 years old and have met their original design life. Since the additions of aluminum chloride and chlorine have stopped, the chemical attack at the concrete surface will be arrested. The concrete is showing some moderate deterioration overall. These basins are in better condition than the sedimentation basins and are expected to last longer in current exposure conditions.

2.2.1 Exposed Reinforcing

The exposed reinforcing observed is not the primary load carrying reinforcing for the wall at that location. The deterioration will continue if not addressed, but it is expected to be slow. If the basins are to stay in service for more than 10 years, it is recommended to repair the concrete in these areas with a repair mortar to provide protection for this reinforcing.

2.3 Clearwell Vault

The deteriorating concrete slab is limited in area. It could be repaired by removing the unsound concrete and properly applying a horizontal repair mortar. However, the depth of unsound concrete is unknown, and the slab is only 6-inches thick. A proper bond is critical to avoid freeze-thaw damage to the bonded interface which could cause the repair to fail. It may not be worth the cost of removing the unsound concrete, preparing the surface, and properly applying the repair mortar for this limited area of concrete. Alternatively, the slab and sidewalk doors could be removed, and an aluminum cover system installed in their place with access hatches. This could also be part of a larger modification to provide adjacent stair access to the vault to eliminate the confined space entry procedures.

2.4 Washwater Reservoirs

The welded steel tank should be inspected on the interior and its coating maintained at a regular interval to avoid damage from long-term corrosion.

The concrete tank is 75 years old and has met the original design life. The interior should be inspected for concrete surface conditions and for exposed reinforcing. Recommendations and potential repairs would be similar to the filter and sedimentation basins, depending on the interior conditions. The exterior cracks could be injected to stop the leaks, but the total rate of leakage appears very minor. Alternatively, the cracks may be left in their current condition, monitored for the remainder of the tank service, and addressed if the leakage increases significantly.

Attachment C Defect Improvements Cost Estimate

No.	Facility	Asset	Defect	Priority (1 high - 3 low)	Necessary for WTP Expansion?	Necessary for WTP Replacement?	Mitigation Assumption	Total Cost	Notes
1	Wicks Well	Well Pump	The pump does not have SCADA connectivity or temperature and pressure sensors.	2	Y	Y	Addition of flow meter, pump controls, temp/vib sensors and integration with SCADA	\$ 195,000	Assumes radio connectivity is feasible (not buried fiber)
2	Wicks Well	Roadway	There is a lack of fencing to prevent snow and rocks from sloughing onto the roadway and any cars.	3	Y	γ	Installation of 6 ft chainlink fence with wiring and anchors above roadway	\$ 19,500	None
3	Intake Structure	Gates and Fish Screen	Sufficient lighting and handrails are lacking and boards on walkways are not secure. Access to the creek for removing weir logs, including stairs and a handrail, is needed as well.	1	Y		Addition of stairs, handrail, and lighting around intake structure and at creek	\$ 292,500	None
4	Intake Structure		A proper lid is needed on the stop log diversion to the creek.	1	Y	Υ	Lid replacement	\$ 9,750	None
5	Intake Structure	Πητοκό (ποτό	The "big wheel" intake gate requires manual operation - automation for remote operation should be added.	2	Y	Y	Actuator addition with connection to SCADA	\$ 62,400	Assumes radio connectivity is feasible (not buried fiber)
6	Intake Structure	Fish Screens	The fish screens are ~15 years old and may need replacement. Sediment buildup periodically requires digging out the screen to the intake. The fish screens require daily maintenance (wash down and monitoring bearings, motors, PLCs) and could be improved. The fish screen equipment should be integrated into SCADA so that alarms are visible to WTP operators.	2	Y	γ	SCADA integration of fish screen alarms	\$ 62,400	This is complete connection of fish screen to SCADA, not just one alarm. Assumes radio connectivity is feasible (not buried fiber). Assumes new radio equipment. Would need to add graphics and design interface.

No.	Facility	Asset	Defect	Priority (1 high - 3 low)	Necessary for WTP Expansion?	Necessary for WTP Replacement?	Mitigation Assumption	Total Cost	Notes
7	Intake Structure		Instrumentation installed in USGS shed is outdated and should be replaced with a pressure transmitter with SCADA connectivity.	3	Y	Y	Addition of pressure transmitter connected to SCADA	\$ 62,400	Assumes radio connectivity is feasible (not buried fiber)
8	Headworks/ Flash Mix	Headworks	The headworks has no SCADA connectivity, gate actuator, or level sensor to allow for automated flow control to the plant.	2	Y		Replace entire headworks with new inline mechanical mixer, flow meter, and flow control valve	\$ 1,092,000	None
9	Headworks/ Flash Mix	Chemical Addition/ Flash Mix	There is no redundancy in the ACH injection/mixing system.	2	Ν		Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ -	New chemical facility is captured in alternatives analysis cost estimate
10	Headworks/ Flash Mix	Headworks	The headworks has no cover, presenting issues with leaf fall clogging pipes, gates, screens, and equipment.	3	Y		Replace entire headworks with new inline mechanical mixer, flow meter, and flow control valve	See Item 8	None
11	Headworks Chemical Building	PAC Feed Hopper	There is no apparent loader/lift to feed dry PAC into hopper.	3	Y	Ν	Purchase of manual scissor lift	\$ 1,500	None
12	Flocculation & Sedimentation	Track Vac	Panels and switches on the track vac are due for replacement. On train 1, the high and low speeds are reversed for the track vac system programming.	1	Y	Ν	Panel and switch replacement for both trac vacs, as well as reprogramming of Train 1	\$ 31,200	None
13	Flocculation & Sedimentation		There is visible cracking in the covers on top of the basins.	1	Y	γ	Demolish sedimentation basin covers and install 420 LF railing around the openings.	\$ 200,850	Performed simultaneously with Item 16 below - concrete slab could be replaced with FRP slats or wooden boards, if covers are desired

No.	Facility	Asset	Defect	Priority (1 high - 3 low)	Necessary for WTP Expansion?	Necessary for WTP Replacement?	Mitigation Assumption	Total Cost	Notes
14	Sodimontation	Structural Walls	Sedimentation basin walls are showing visible signs of degradation and angular cracking that are in need of repair and potentially long- term replacement.	2	Y	Y	Per structural evaluation, exposed reinforcements should be coated with mortar	\$ 195,000	None
15	Flocculation & Sedimentation	Sedimentation Tubes	Settling tubes are brittle and fall apart when moved. Supports are becoming disconnected from walls.	2	Y	Y	Replace existing tube settlers with SST Plate Settlers	\$ 1,209,000	Performed simultaneously with Item 14 above
	Flocculation & Sedimentation	Track Vac Compressor	Seals are leaking. There is visible vibration in the bearings and no safety provisions for high temperatures on the bearings.	2	Y	Y	Replacement of track vac compressor	\$ 15,600	The WTP currently has 15k budgeted for this
17	Filter Building	Filter Building	Exterior walls of the filters are showing signs of deterioration.	3	Ν	Ν	Structural evaluation noted that the exterior walls were not a concernand can be left alone	\$ -	See Structural Evaluation TM
18	Filter Building	ACH Pumps	Pumps/chemical feed system are not connected to SCADA.	1	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains		New chemical facility is captured in alternatives analysis cost estimate
19	Filter Building	Surface Wash and Filter Influent Valves	Some valves are too high to access and there are no chain wheels in place.	2	Y	Ν	Purchase of new operator chains	\$ 5,000	Cost assumes valves are not currently electrically actuated
20	Liltor Ruilding	Filtration Piping	Piping is nearing the end of its life and will have to be replaced within 10-15 years.	2	Y	Ν	Replacement of all filter related piping	\$ 585,000	None

No.	Facility	Asset	Defect	Priority (1 high - 3 low)	Necessary for WTP Expansion?	Necessary for WTP Replacement?	Mitigation Assumption	Total Cost	Notes
21	Filter Building	ACH Feed System	Chemical piping is lacking calibration columns and redundancy.	3	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains		New chemical facility is captured in alternatives analysis cost estimate
22	Polymer Room	Filter Aid Polymer Pumps	Pumps/chemical feed system are not connected to SCADA.	1	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains		New chemical facility is captured in alternatives analysis cost estimate
23		Filter Aid Polymer Feed System	Chemical piping is lacking calibration columns and redundancy.	3	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ -	New chemical facility is captured in alternatives analysis cost estimate
24	Polymer Room	Phosphoric Acid Pumps	Pumps/chemical feed system are not connected to SCADA.	1	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ -	New chemical facility is captured in alternatives analysis cost estimate
25	Polymer Room	Phosphoric Acid Storage	No chemical containment is present.	1	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains		New chemical facility is captured in alternatives analysis cost estimate
26	Polymer Room	Polyphosphat e Pumps	Pumps/chemical feed system are not connected to SCADA.	1	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ -	New chemical facility is captured in alternatives analysis cost estimate
27	IPOlymer Room	Polyphosphat e Storage	No chemical containment is present.	1	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$-	New chemical facility is captured in alternatives analysis cost estimate
28	Polymer Room	Filter Aid Polymer Storage	No chemical containment is present.	3	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ -	New chemical facility is captured in alternatives analysis cost estimate

No.	Facility	Asset	Defect	Priority (1 high - 3 low)	Necessary for WTP Expansion?	Necessary for WTP Replacement?	Mitigation Assumption	Total Cost	Notes
29	Polymer Room	Phosphoric Acid Pumps	Chemical piping is lacking calibration columns and redundancy.	3	Ν		Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ -	New chemical facility is captured in alternatives analysis cost estimate
30	Polymer Room		Chemical piping is lacking calibration columns and redundancy.	3	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ -	New chemical facility is captured in alternatives analysis cost estimate
31	Washwater Tanks	Washwater Tank 1	Washwater Tank 1 has structural issues with its roof.	1	Υ	Υ	Construct a new 100,000 gallon washwater tank	\$ 1,111,500	None
32	Washwater Tanks	Washwater Tank 2	Washwater Tank 2 is old and showing signs of degradation.	1	Υ	Υ	Construct a new 100,000 gallon washwater tank	See Item 31	None
33	Washwater Tanks		A cover is missing on the manhole/vault (3 ft deep, safety concern).	1	Y	Y	Purchase new cover for vault	\$ 5,000	None
34	Washwater Tanks	Tanks	Both washwater tanks are a located below a rocky hill, presenting concerns that falling rocks could damage the tanks and take them out of service.	2	Y	Y	6 ft chainlink fence with wiring and anchors	\$ 14,625	Around 80' of fence would be needed as measured in Google Earth - rounded up to 100' to be conservative
35	Caustic Soda Building	Caustic Soda Pumps	Pumps/chemical feed system are not connected to SCADA.	1	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ -	New chemical facility is captured in alternatives analysis cost estimate
36	Caustic Soda Building	INH ANAWZOr	pH analyzer is not functioning and needs to be repaired or replaced.	2	Y	Υ	Replacement of pH analyzer and Cl sensor, along with moving all sensors/analyzers into one location.		Includes Item 37

No.	Facility	Asset	Defect	Priority (1 high - 3 low)	Necessary for WTP Expansion?	Necessary for WTP Replacement?	Mitigation Assumption	Total Cost	Notes
37	Caustic Soda Building	Samples	Sample points and analyzers in the facility are spread out around various locations.	3	Y	Y	Move chlorine analyzer from fluoride building. Captured in Item 36.	See Item 36	WTP Staff noted that the chlorine analyzer would need to be moved from the floride room to the caustic building
38	Caustic Soda Building	Caustic Soda Pumps	Chemical piping is lacking calibration columns and redundancy.	3	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ -	New chemical facility is captured in alternatives analysis cost estimate
39	Caustic Soda Building	Entire Building and Tank	Caustic system and tank are no longer in use.	3	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ -	New chemical facility is captured in alternatives analysis cost estimate
40	Chlorine Building	Sodium Hypochlorite Pumps	Pumps/chemical feed system are not connected to SCADA.	1	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ -	New chemical facility is captured in alternatives analysis cost estimate
41	Chlorine Building	Sodium Hypochlorite Storage Tanks	Chemical tanks do not vent to atmosphere.	1	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ -	New chemical facility is captured in alternatives analysis cost estimate
4	Chlorine Building	Sodium Hypochlorite Storage Tanks	Exterior filling connection for both tanks does not exist.	1	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ -	New chemical facility is captured in alternatives analysis cost estimate
43	Chlorine Building	Sodium Hypochlorite Storage Tanks	Hypo tank walls are deteriorating and quite soft.	1	Ν	Y	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ 20,000	While a new chemical facility is captured in alternatives analysis cost estimate, the hypo tanks need to remain in use
44	Chlorine Building	Sodium Hypochlorite Storage Tanks	Tanks are not properly anchored.	1	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ -	New chemical facility is captured in alternatives analysis cost estimate
45	Chlorine Building	Fluoride Pumps	Pumps/chemical feed system are not connected to SCADA.	1	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$ -	New chemical facility is captured in alternatives analysis cost estimate

No.	Facility	Asset	Defect	Priority (1 high - 3 low)	Necessary for WTP Expansion?	Necessary for WTP Replacement?	Mitigation Assumption	Total Cost	Notes
46	Chlorine Building	Sodium Hypochlorite Storage Tanks	There is no level measurement instrumentation on the tanks.	2	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$-	New chemical facility is captured in alternatives analysis cost estimate
47	Chlorine Building	Sodium Hypochlorite Pumps	Chemical piping is lacking calibration columns and redundancy.	3	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$-	New chemical facility is captured in alternatives analysis cost estimate
48	Chlorine Building	Fluoride Pumps	Chemical piping is lacking calibration columns and redundancy.	3	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$-	New chemical facility is captured in alternatives analysis cost estimate
49	Chlorine Building	Fluoride Injection System	The existing fluoride pump (10 hp) is oversized.	3	Ν	Ν	Build a new chemical facility, capable of supplying chemicals to all treatment trains	\$-	New chemical facility is captured in alternatives analysis cost estimate
50	Clearwells	Clearwell 1 Vault	Access hatches are not secured to the concrete and don't seal properly. There is no drainage setup so water accumulates in the vault.	1	Y	Y	Construction of new vault adjacent to existing vault	\$ 585,000	None
51	Clearwells	Clearwell 1 Vault Sump Pump	Sump pump does not work. A rope is currently being used as a float and the vault does not actually drain when it should.	1	Y	Y	Construction of new vault adjacent to existing vault	See Item 50	None
52	Clearwells	Clearwell 1 Vault	The vault is a confined space, making it difficult to access the flow meters, level sensor, pressure sensors, valves, fluoride injection point, and chlorine injection point within.	1	Υ	γ	Construction of new vault adjacent to existing vault	See Item 50	None

No.	Facility	Asset	Defect	Priority (1 high - 3 low)	Necessary for WTP Expansion?	Necessary for WTP Replacement?	Mitigation Assumption	Total Cost	Notes
53	Clearwells	Clearwell 1	Light staining and small chips/holes in the coatings on metal surfaces was observed.	2	Υ	Y	Replace CW1, see Item 55	See Item 55	See Item 55
54	Clearwells	Clearwell 1 Vault	Minor defects in flow element and transmitter. No visible corrosion on grounding wire or terminal blocks.	2	γ	Y	Replace flow element and transmitter	\$ 13,650	None
55	Clearwells	Clearwell 1	Significant corrosion was found in the roof upon inspection in July 2023.	2	Υ	Y	Replace CW1	\$ 1,560,000	Cost provided to City by Tank Industry Consultants
56	Solids Handling	Effluent Weir	The effluent weir is difficult to operate and ineffective.	2	Ν	Ν	Residuals handling improvements identified in alternatives analysis.	\$ -	None
57	Solids Handling	Sludge Lagoons	The sludge lagoons require manual dredging to send solids to the drying beds.	2	Ν	N	Residuals handling improvements identified in alternatives analysis.	\$ -	Residuals handling improvements are captured in alternatives analysis cost estimate
58	Solids Handling	Large and Small Drying Beds	There are issues with solids dispersion within the drying beds.	2	Ν	Ν	Residuals handling improvements identified in alternatives analysis.	\$ -	Residuals handling improvements are captured in alternatives analysis cost estimate
59	Offices and Ancillary Buildings		A sink hole (approximately 5'x3') formed adjacent to the filter/lab building and floc/sed basin walls. While the sink hole was filled in with flow fill, the cause has not been determined or addressed.	1	Ν	Ν	Unknown, pending geotech assessment.	\$ -	Assess during geotech assessment ahead of future expansion

No.	Facility	Asset	Defect	Priority (1 high - 3 low)	Necessary for WTP Expansion?	Necessary for WTP Replacement?	Mitigation Assumption	Total Cost	Notes
60	Offices and Ancillary Buildings	Shop Building	The shop building has no heat or insulation.	3	Ν	Ν	Incorporate shop building functions in new admin building as part of WTP expansion	\$ -	Admin building cost accounted for in alternatives analysis cost estimate
61	Offices and Ancillary Buildings	Shop Building	The shop building is showing signs of structural degradation. The roof leaks severely.	3	Ν	Ν	Incorporate shop building functions in new admin building as part of WTP expansion	\$-	Admin building cost accounted for in alternatives analysis cost estimate
62	Offices and Ancillary Buildings	Office Building	The office building adjacent to floc/sed basin is exhibiting structural degradation. It appears to be falling off the foundation	3	Ν	Ν	Incorporate office building functions in new admin building as part of WTP expansion	\$ -	Admin building cost accounted for in alternatives analysis cost estimate
63	Offices and Ancillary Buildings	Plumbing Building	The plumbing building is in poor shape.	3	Ν	Ν	Incorporate plumbing building functions in new admin building as part of WTP expansion	\$ -	Aumin building cost accounted for in alternatives analysis cost

Attachment C Capacity Assessment

Wicks WTP Capacity Assessment

Date:	September 13, 2023
Project name:	The Dalles Water System Master Plan
Project no:	D3718900
Client:	City of The Dalles, OR
Prepared by:	Tyler Kurtz, P.E.
Reviewed by:	Enoch Nicholson, P.E.

1. Background

The City of The Dalles (City) is considering options to increase the capacity of the Wicks Water Treatment Plant (WTP) to meet future demands and allow for the injection of water into the City's planned aquifer storage and recovery (ASR) system in winter so that it can be withdrawn in summer. To effectively evaluate expansion alternatives, a clear understanding of the existing winter capacity of the WTP is needed. Two capacity assessments were performed to better understand the existing WTP's current capacity.

2. Introduction

The first capacity assessment was conducted from December 12-14, 2023, and the second was conducted from February 20-22, 2024. Prior to the assessment, it was estimated that one train could handle up to 2.25 MGD, with an absolute maximum of 3.0 MGD due to the rated WTP capacity of 6.0 MGD through both trains. During the assessment, the ACH dose ranged from 20.0-25.0 mg/L for the first assessment and 16.0-18.0 mg/L for the second. The polymer dose ranged from 0.020-0.028 mg/L for the first assessment and 16.0-18.0 mg/L for the second. Chemical doses were selected by operators based off jar testing and filter performance and adjusted as they would be in normal operation.

During the second capacity assessment, a couple issues arose regarding the polymer system which negatively impacted results. During the first night of the assessment, polymer was dosed to both filters when Filter 1 was taken offline and Filter 2 was brought online, causing polymer to run out prematurely. This caused the filter run beginning at 23:50 on February 20 to only last a little more than 6 hours, as turbidity breakthrough rapidly increased once the polymer ran out. Once the polymer was brought back online and properly operated, a filter run time of 14.5 hours was achieved. Additionally, there were issues with the new batch of polymer that was made once it ran out, which is thought to have created shortened filter runs on February 21. This issue was discovered and rectified the morning of February 22.

Tables 1 and 2 provides a timeline of the assessments.

Table 1. Capacity	y Assessment 1 timeline.
Date/Time	Notes
December 12, 20	023
0315	Filter 1 is backwashed for the last time prior to capacity assessment.
0640	Filter 2 is backwashed for the last time prior to capacity assessment.
0830	Filter 1 is taken offline. Flow is increased from 1.20 to 1.50 MGD through Filter 2.
1113	No decrease in performance is noted. It is assumed that all impacts to treatment performance because of increased flow are reflected in plant readings within ~2.5 hours, based off t_{10} and volume calculations performed by Enoch Nicholson and Tyler Mitchell. Flow is increased from 1.50 to 2.00 MGD through Filter 2.
1350	No decrease in performance is noted. Again, it is assumed that all impacts to treatment performance because of the last flow increase are reflected in plant readings by this time. Flow is increased from 2.00 to 2.20 MGD through Filter 2.
1700	No decrease in performance is noted at this point. Filter 2 is taken offline after running for a little more than 7 hours, as it is believed that the maximum flow possible is close to being reached and a "full" filter run at 2.20 MGD is desired. Flow is diverted to Filter 1, remaining at 2.20 MGD. Filter 2 is backwashed.
December 13, 20	023
0740	Filter 1 reaches terminal headloss (10.0') and is backwashed after 15.6 hours of run time at 2.20 MGD (4,767 gal/sf UFRV). Filter 1 is immediately placed back online, as Filter 2 has been drained to collect a filter media sample unrelated to capacity assessment.
1035	Flow through Filter 1 is increased from 2.20 to 2.50 MGD.
1330	Particle breakthrough begins to be seen in Filter 1, continuously increasing.
1620	Filter 1 is backwashed after 8.3 hours of run time due to reaching terminal headloss (10.0'). Approximately half of Filter 1's run time was at 2.20 MGD and half was at 2.50 MGD. Flow is diverted to Filter 2, remaining at 2.50 MGD.
2320	Filter 2 is backwashed after 6.7 hours of run time at 2.50 MGD (2,326 gal/sf UFRV) due to particle breakthrough.
2345	Flow is diverted to Filter 1 and is decreased from 2.50 to 2.20 MGD.
December 14, 20	023
0937	Filter 1 reaches terminal headloss (10.0') and is backwashed after 10.5 hours of run time at 2.20 MGD (3,208 gal/sf UFRV).
1100	Both filters are brought online, with 2.40 MGD split between them. Capacity assessment is concluded.
1100	

Table 1. Capacity Assessment 1 timeline.

Date/Time	Notes
February 20, 202	4
0800	Filter 2 is backwashed for the last time prior to capacity assessment.
0905	Filter 1 is taken offline. Flow is increased from 1.40 to 2.00 MGD through Filter 2.
1220	No performance impacts noted. Flow through Filter 2 is increased from 2.00 to 2.20 MGD
1335	Filter 1 is backwashed for the last time prior to capacity assessment.
1445	No performance impacts noted. Flow through Filter 2 is increased from 2.20 to 2.50 MGD
1645	Flow is diverted to Filter 1 and maintained at 2.50 MGD. Filter 2 is backwashed.
2350	Flow is diverted to Filter 2 and decreased to 2.20 MGD. Filter 1 is taken offline after 7.0 hours of run time at 2.50 MGD (2,431 gal/sf UFRV) due to turbidity breakthrough.
February 21, 202	4
0610	New polymer solution is made. Later results suggest there were issues with this solution.
0610	Filter 2 is backwashed after 6.33 hours of run time (1,934 gal/sf UFRV) due to turbidity breakthrough. This likely occurred due to polymer no longer being dosed.
0703	Filter 2 is brought back online, maintaining flow at 2.20 MGD.
1600	Filter 1 is brought online at 0.8 MGD to account for additional demand.
2215	Filter 2 is backwashed after 14.5 hours of run time (4,431 gal/sf UFRV) due to turbidity breakthrough. Flow is increased to 2.30 MGD through Filter 2.
February 22, 202	4
0700	New polymer is made and filter performance notably increases, leading operators to believe that there may have been issues with the previous batch of polymer.
1200	Filter 2 is backwashed after 14.0 hours of run time (4,472 gal/sf UFRV) due to turbidity breakthrough. Flow is increased to 2.40 MGD through Filter 2 and maintained at 0.80 MG through Filter 1.
2345	Filter 2 is backwashed prematurely prior to shift changeover after 12.33 hours of run time (4,110 gal/sf/UFRV). The capacity assessment concludes, and an even flow split is resumed.

Table 2. Capacity Assessment 2 timeline

2.1 Monitoring Plan

Table 3 presents the monitoring plan for the first capacity assessment, detailing where samples were collected in the treatment process and which parameters were tested during different phases of the capacity assessment. Water quality parameters like alkalinity, pH, turbidity, and particle counts were sampled every 4 hours according to their normal schedule, except for particle count which was continuously measured with an online analyzer. TOC and UV₂₅₄ absorbance samples were collected for normal and high-flow samples. Normal flow samples were collected on December 14, 2023, about three hours after the plant was returned to normal operations with 2.4 MGD being split between both filters.

High-flow samples were taken on December 13, 2023, when 2.5 MGD was being sent through Filter 2 alone, approximately 4.7 hours into a filter run.

Sample Location	Alkalinity	рН	Turbidity	Particle Count	тос	UVA ₂₅₄
Headworks (Raw Water)	As scheduled	As scheduled	As scheduled	-	Normal flow, highest flow	Normal flow, highest flow
Post-Sedimentation Basin	-	-	As scheduled	-	Normal flow, highest flow	Normal flow, highest flow
Filter Effluent	As scheduled	As scheduled	As scheduled	Continuous	Normal flow, highest flow	Normal flow, highest flow

Table 3. Capacity Assessment 1 monitoring plan.

The monitoring plan for the second capacity assessment was updated to provide increased sampling frequency. Parameters were broken into three different categories:

- 1. Recorded any time the flow or flow distribution was changed:
 - a. Flow to each filter
 - b. Filter run time
 - c. Chemical doses
- 2. Recorded every hour and every time the flow or flow distribution was changed:
 - a. Raw water temperature
 - b. Turbidities (raw, over-filter, and individual filter effluent)
- 3. Recorded just before capacity assessment and once equilibrium was reached at the highest flow rate:
 - a. Color
 - b. pH
 - c. Alkalinity (raw and finished)
 - d. TOC (raw, over-filter, and effluent)
 - e. UVA₂₅₄ (raw, over-filter, and effluent)

Normal flow samples were collected on February 20, 2024, just before capacity assessment began, with 1.4 MGD flowing through Filter 2. High-flow samples were taken on February 22, 2024, when 2.4 MGD was being sent through Filter 2, approximately 4.7 hours into a filter run.

2.2 Raw Water Quality

Raw water quality was measured during the capacity assessments and compared with historic data for the months the tests occurred in, shown in Tables 4 and 5. In both tests, the measured TOC and temperatures were slightly above historic averages. The alkalinity of the raw water seen during the second capacity assessment was lower than average, while the turbidity was above average. Overall, the raw water observed during the capacity assessments was generally in line with historic averages. No historic UV₂₅₄ absorbance data was provided.

Parameter	Capacity Assessment 1 Raw Water	Historic December Raw Water
Temperature (°C)	5.7	4.6 ¹
рН	7.60	7.56 ¹
TOC (mg/L)	2.5	1.9 ²
Alkalinity (mg/L)	44.1	47.0 ²
Turbidity (NTU)	2.37	1.84 ³
UVA ₂₅₅ (cm ⁻¹)	0.078	

¹2018-2023

²2007-2023

Table 5. Capacity Assessment 2 raw water quality comparison.

Parameter	Capacity Assessment 2 Raw Water	Historic February Raw Water
Temperature (°C)	4.59	4.04 ¹
рН	7.34	7.35 ¹
TOC (mg/L)	4.42	2.96 ²
Alkalinity (mg/L)	28.7	41.7 ²
Turbidity (NTU)	9.40	6.16 ¹
UVA ₂₅₅ (cm ⁻¹)	0.211	

¹2018-2023

²2007-2023

2.3 **Turbidity and Particle Count**

Turbidities measured during the capacity assessments showed that pretreatment and filtration turbidity removals were adequate up to 2.5 MGD in the first capacity assessment and 2.4 MGD in the second, with filtered water turbidity measured by the online analyzer remaining below the operational goal of 0.1 NTU throughout both assessments. During the second assessment, turbidity was also measured using the lab analyzer, which did record turbidities exceeding 0.1 NTU at each flow rate sporadically throughout the assessment. Effluent turbidity ranged from 0.021-0.054 NTU during the first assessment, with an average of 0.028 NTU over the entire assessment. In the second assessment, effluent turbidity ranged from 0.027-0.072 NTU, with an average of 0.038 NTU. Turbidities measured throughout the treatment process are plotted in Figures 1 and 2.

During the first capacity assessment, particle breakthrough was observed in Filter 1 on 12/13/23 when the flow was set at 2.5 MGD (Figure 3), but this did not manifest in turbidity breakthrough (Figure 1). Particle breakthrough was not observed at lower flow rates.

Like the first capacity assessment, particle breakthrough was observed during the second capacity assessment in Filter 1 when flow was increased to 2.5 MGD on 2/20/24 (Figure 4), but this did not manifest in turbidity breakthrough. However, sedimentation performance appeared to be negatively

impacted by the increased flow rate, as the over-filter turbidity steadily increased while this flow rate was maintained (Figure 2). An increase in raw turbidity coincided with the increasing over-filter turbidity, but to a lesser degree (4% and 28% increases, respectively). Particle breakthrough was only observed at other tested flow rates near the end of filter runs or when polymer ran out on 2/21/24.

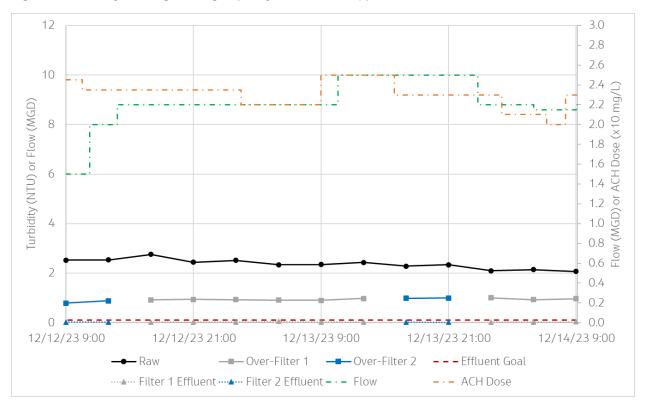


Figure 1. Turbidity readings during Capacity Assessment 1, plotted with flow and ACH dose.

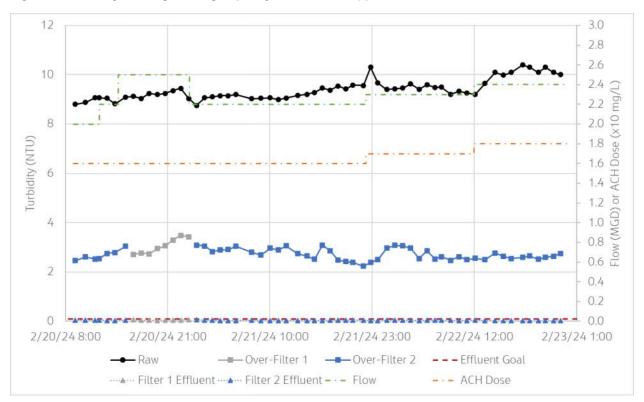


Figure 2. Turbidity readings during Capacity Assessment 2, plotted with flow and ACH dose.

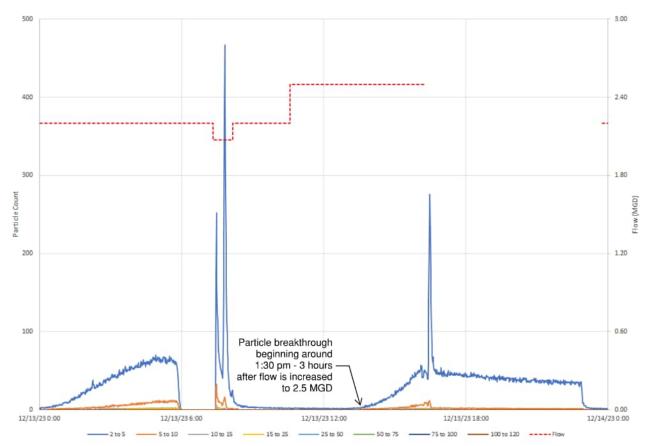


Figure 3. Particle counts for Filter 1 on December 13, 2023.

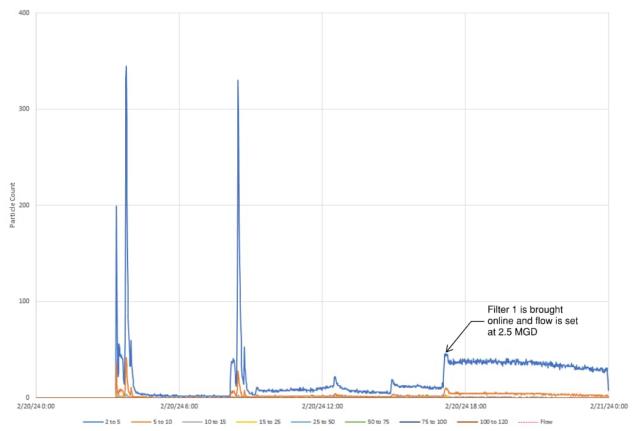


Figure 4. Particle counts for Filter 1 on February 20, 2024.

2.4 Unit Filter Run Volume

During the first capacity assessment, unit filter run volumes (UFRVs) decreased to their lowest value of 2,326 gal/sf when flow was set at 2.5 MGD. At 2.2 MGD, UFRVs of 3,208 and 4,767 gal/sf were achieved. No flows between 2.2 and 2.5 MGD were tested during the first capacity assessment due to time constraints.

UFRVs measured during the second capacity assessment were similar to those observed in the first capacity assessment. The greatest UFRV was achieved on February 21 when Filter 2 ran at 2.3 MGD for 14 hours, producing a UFRV of 4,472 gal/sf. The final filter run on February 22 achieved a similar UFRV (4,110 gal/sf) when Filter 2 ran at 2.4 MGD for 12.33 hours, though this run was ended prematurely due to an upcoming shift-change. WTP operators believed that this run would have likely run for closer to 14 hours had it been allowed to continue, which would have yielded the highest UFRV during the capacity assessments of approximately 4,700 gal/sf.

2.5 Total Organic Carbon

In the first assessment, TOC removal through pretreatment was consistent between normal and high-flow conditions, averaging 44% (Figures 5 and 6). TOC removal through the filters increased from essentially no additional TOC removal at normal flow (42% total) to 64% total at the highest flow. Water samples taken during normal flow conditions showed that UV₂₅₄ absorbance decreased through the filters, while samples taken during high flow showed an increase. The observed increase in UV₂₅₄ absorbance coincided with the particle breakthrough that was observed in Filter 1.

During the second assessment, TOC removal through pretreatment was again consistent between normal and high-flow conditions, averaging 31% (Figures 7 and 8). TOC removal through the filters was consistent between normal and high-flow conditions, averaging 42%.

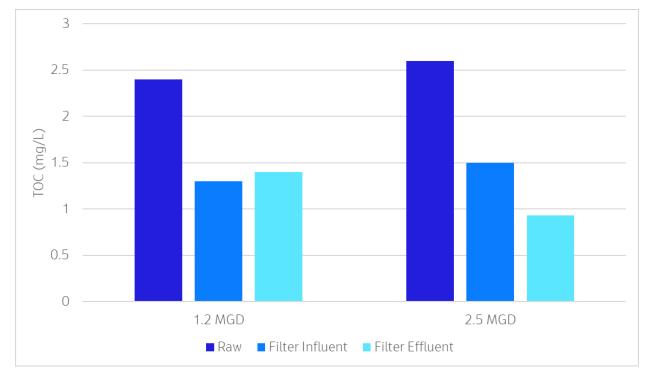
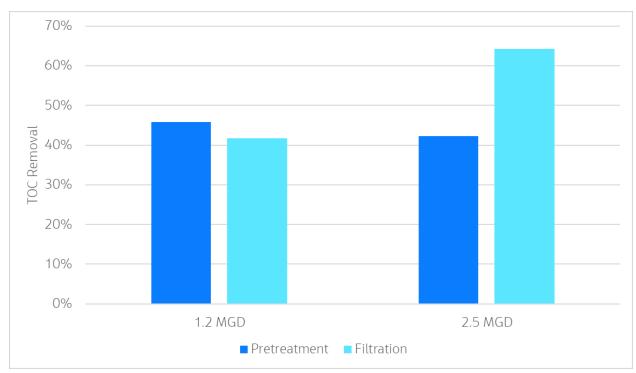


Figure 5. TOC concentrations measured during Capacity Assessment 1.

Figure 6. TOC removals through treatment during Capacity Assessment 1.



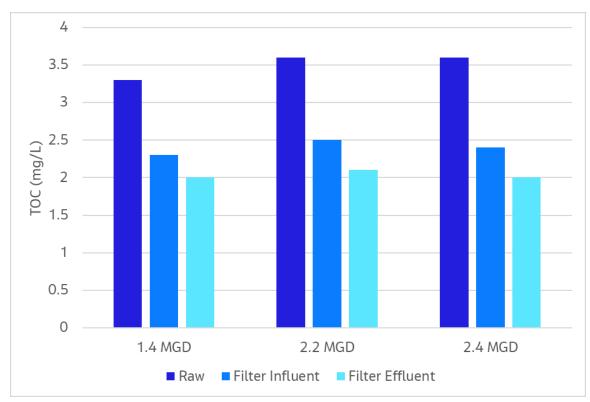
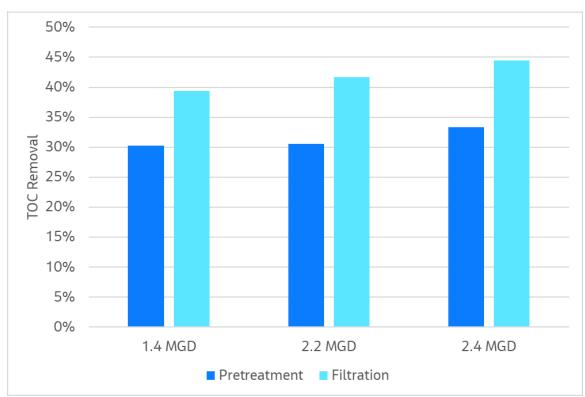


Figure 7. TOC concentrations measured during Capacity Assessment 2.

Figure 8. TOC removals through treatment during Capacity Assessment 2.



3. Conclusions

The two capacity assessments captured raw water conditions that were somewhat typical for winter in The Dalles, with a few caveats. During both capacity assessments, water temperatures were slightly above average for the month of the test. These warmer temperatures may have yielded better performance than what could be typically expected during winter, as colder temperatures will suppress sedimentation performance, leading to shorter filter run times. Turbidity was also greater than average during both assessments, particularly in the second capacity assessment.

Based on the observations from the first capacity assessment, the Wicks WTP is physically capable of an instantaneous capacity of at least 4.4 MGD during the conditions assessed in December 2023. The results of the second capacity assessment suggested that an instantaneous capacity of 4.8 MGD was feasible during winter conditions with above average temperatures and turbidities. When the flow was set to 2.4 MGD through one filter, no particle breakthrough was observed and a UFRV of 5,000 gal/sf was nearly achieved, almost meeting the UFRV goal of the facility.

However, the aforementioned flows do not account for backwash and filter to waste flows. Figure 9 shows UFRV vs net production capacity and number of backwashes per day for Wicks WTP. The net production capacity accounts for filter production that is lost during backwashes and filter to waste. As shown in Figure 9, net production capacity drops off significantly as UFRVs decrease below 3,000 gal/sf, while UFRVs greater than 5,000 gal/sf provide minimal increases to net production capacity. Filter loading rates during both capacity assessments ranged from 5.1-5.8 gpm/sf, with acceptable filter runs being observed up to 5.6 gpm/sf. UFRVs exceeding 4,000 gal/sf were achieved in both capacity assessments.

Based on both capacity tests, the net filtration capacity during average winter conditions (excluding storm events, which would significantly reduce capacity) could reach 4.8 MGD. Assuming a UFRV of 4,000 gal/sf, a net production capacity of 4.1 MGD would be achieved with both filters online.

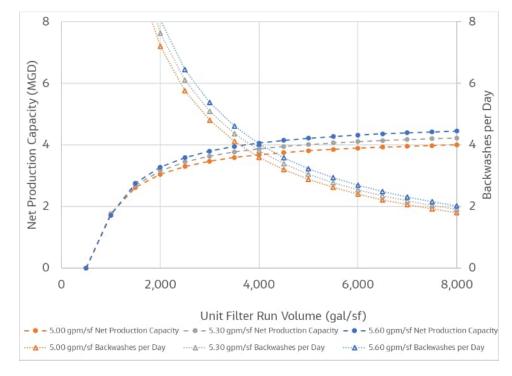


Figure 9. Net production capacity and backwash frequency based on unit filter run volume.

Attachment D TMDL Evaluation

Wicks WTP TMDL Evaluation

Date:	September 13, 2023		
Project name:	The Dalles Water System Master Plan		
Project no:	D3718900		
Client:	City of The Dalles, OR		
Prepared by:	Erin Thatcher, P.E. Enoch Nicholson, P.E.		
Reviewed by:	Enoch Nicholson, P.E. Tyler Kurtz, P.E.		

1. Introduction

This technical memorandum provides an evaluation of the Wicks Water Treatment Plant (WTP) compliance with the thermal wasteload allocations (WLAs) established in the *Middle Columbia-Hood* (*Miles Creek*) Subbasin TMDL (Oregon Department of Environmental Quality [DEQ], 2008). It identifies the thermal limits applicable to the Wicks WTP's current and potential future discharge to South Fork Mill Creek near the City of The Dalles, Oregon. This discharge consists of filter backwash wastewater from shallow treatment lagoons used to settle out solids before the wastewater is discharged to the creek. The shallow lagoons allow the wastewater to heat up above the background temperature of the creek and exceed the total maximum daily load (TMDL) WLA for the discharge.

2. Regulatory Requirements

Thermal WLAs assigned to the Wicks WTP in the *Miles Creek TMDL* (DEQ, 2008) apply in two distinct seasons, as indicated below in Table 1. The WLAs, or thermal load limits (TLLs), are calculated with Equation 1, shown below, using the effluent and receiving water flows and the allowable temperature increase of 0.2 $^{\circ}$ C.

Time Period	WLA	Human Use Allowance (HUA; ∆T _{all})	Applicable Temperature Criterion
May 16 – October 14	See Equation 1	0.2 °C	18 °C
October 15 – May 15	See Equation 1	0.2 ℃	13 <i>°</i> C

Table 1. WLAs for the Wicks Water Treatment Plant (from Table 3-8 of the Middle Columbia-Hood [Miles Creek] Subbasin TMDL; DEQ, 2008).

$$TLL = 3.78541 \times Q_e \times S \times \Delta T_{all} \times \rho \tag{1}$$

Where

TLL = thermal load limit, million-kilocalories per day (mkcal/day)

Q_e = effluent flow, mgd

Q_r = upstream river flow, mgd

 $S = dilution = (Q_e + Q_r)/Q_e$

 ΔT_{all} = allowable HUA temperature increase at edge of mixing zone, 0.2 °C

 ρ = density of water, 1 g/cm³

Equation 2 below is used to determine compliance with the TLL determined by Equation 1.

$$\Delta T_{mz} = \frac{T_e + (S-1) \times T_c}{S} - T_c \tag{2}$$

Where:

 ΔT_{mz} = temperature increase at edge of mixing zone (for comparison to HUA of 0.2 °C)

T_e = effluent temperature

 $S = dilution = (Q_e + Q_r)/Q_e$

 T_c = applicable temperature standard, °C

3. Evaluation Results

Tables 2 and 3 below list the TLLs for a range of future discharge flows as calculated by Equation 1, for the wet October 15 – May 15 and the dry May 16 – October 14 seasons, respectively. The tables also list the corresponding maximum allowable effluent temperatures as calculated by Equation 2. These calculations show that discharge flows near and below approximately 5,000 gallons per day (3.5 gpm) represent a negligible portion of the receiving stream and no temperature controls on such a small volume of discharge would be needed, as the wastewater would not be expected to reach the applicable maximum allowable effluent temperatures.

These estimated TLLs are based on critical receiving water flows represented by the monthly minimum of the running 7-day average of the daily flows for the station labeled "SFMC 5am Flow Reading" minus the "Wicks Raw Flow Daily Total" from June 2014 – June 2024. Typically, the receiving water flow that represented critical conditions for determining compliance with water quality criteria would be the lowest 7-day average flow that occurs once every 10 years (the "7Q10 flow"), which requires a longer dataset than currently available for the South Fork Mill Creek.

Table 2. Wet Season Thermal Load Compliance Calculated for the Wicks WTP, October 15 – May 15, Receiving Water Flow = 1.1 mgd¹

Effluent Flow (mgd)	Thermal Load Limit (TLL), mkcal/day	Maximum Allowable Effluent Temperature (T _e)
0.005	0.86	58.6°C (137.5°F)

0.01	0.87	35.9°C (96.6°F)
0.02	0.87	24.5 (76.1°F)
0.04	0.89	18.9 (66.0°F)
0.10	0.93	15.5 (59.9°F)
0.20	1.01	14.3 (57.7°F)

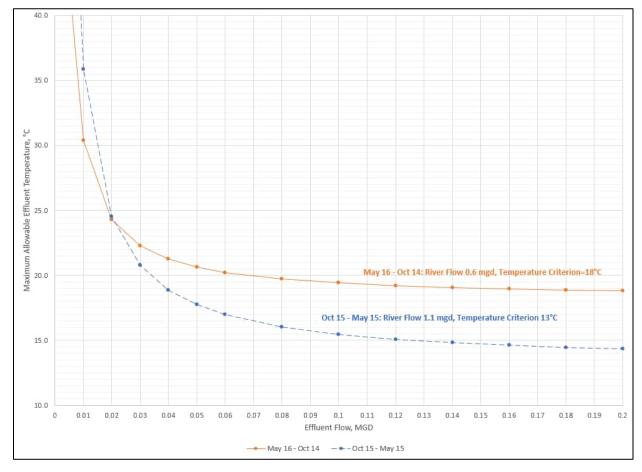
¹ The receiving water flow of 1.1 mgd represents the nonparametric 10th percentile of the monthly minimum of the measured 7-day running average flows for the October 15 – May 15 season from the "SFMC 5am Flow Reading" minus the "Wicks Raw Flow Daily Total" data, June 2014 – June 2024.

Table 3. Dry Season Thermal Load Compliance Calculated for the Wicks WTP, May 16 – October 14,
River Flow = 0.6 mgd ¹

Effluent Flow (mgd)	Thermal Load Limit (TLL), mkcal/day	Maximum Allowable Effluent Temperature (T _e)
0.005	0.47	42.6°C (108.7°F)
0.01	0.47	30.4°C (86.7°F)
0.02	0.48	24.3°C (75.7°F)
0.04	0.49	21.2°C (70.2°F)
0.10	0.54	19.4°C (66.9°F)
0.20	0.61	18.8°C (65.8°F)

¹ The receiving water flow of 0.6 mgd represents the nonparametric 10th percentile of the monthly minimum of the measured 7-day running average flows for the May 16 – October 14 season from the "SFMC 5am Flow Reading" minus the "Wicks Raw Flow Daily Total" data, June 2014 – June 2024.

Figure 1 plots the maximum allowable effluent temperatures (T_e from Equation 2) against effluent (discharge) flows according to Equation 2 where ΔT_{mz} is set to the allowable HUA increase of 0.2 °C, for both seasons defined in the *Miles Creek TMDL* (DEQ, 2008). Actual measured temperatures of the discharge to South Fork Mill Creek ranged between 21 and 26 degrees Celsius in July – September 2012 based on monitoring data provided by the Wicks WTP staff, which would have required discharge flows as low or lower than 0.03 mgd to demonstrate compliance. No other discharge temperature data were available for this evaluation.





The Maximum Allowable Effluent Temperatures for compliance with the corresponding TLLs listed above in Tables 2 and 3 are calculated with the maximum allowable temperature increase of 0.20°C. This does not include any margin of safety. The actual thermal load for compliance would likely be calculated on a daily basis with daily average effluent flows and temperatures, and that daily thermal load would be evaluated against the WLA. Other permits have evaluated compliance using a monthly or weekly average of those daily thermal loads evaluated against the WLA. It is recommended that the monitoring and reporting requirements and compliance mechanism (renewed General Permit or individual NPDES permit) for TLL compliance be clarified with DEQ prior to establishing any discharge flow and temperature requirements for planning and design purposes. If needed, a compliance schedule should be negotiated with DEQ. Estimated actual excess thermal load (ETL) for the discharge can be calculated with the following equation:

$$ETL\left(\frac{mkcal}{day}\right) = (Q_e)(T_e - T_c)(CF)$$
(3)

Where

ETL = excess thermal load, mkcal/day

Q_e = effluent flow

T_e = effluent temperature, °C

T_c = temperature criterion, °C

CF = conversion factor, 2.446665 mkcal-s/°C-ft³-day

There were no concurrent effluent flow and temperature data available for this evaluation. Effluent flow data were available for June 2014 – June 2024, and effluent temperature data were available for only part of the dry season (July-August) in 2012. According to the temperatures measured in July-August 2012 (21-26 °C) and effluent flows of 0.2 to 0.9 mgd ("Daily Backwash Total" data from 2014-2024), actual daily ETLs may typically range from approximately 1 to 12 mkcal/day, with occasional maximums up to 27 mkcal/day if higher effluent flows coincide with maximum temperatures, compared to an estimated TLL near 1 mkcal/day for the May 16-October 14 dry season (see Table 3).

4. Conclusion

This evaluation shows that the current Wicks WTP discharge to South Fork Mill Creek does not comply with the thermal WLA requirements of the *Miles Creek TMDL* (DEQ, 2008). Potential mitigation measures for thermal WLA compliance for this discharge include backwash recycle, cooling tower(s), hyporheic discharge, and riparian restoration, including various combinations of these solutions. For example, riparian restoration alone may not provide enough mitigation for the full ETL during at least part of the year (e.g., spring or fall outside of full leaf-out). Jacobs has completed formal feasibility and alternatives analyses for these types of solutions for Boise, Idaho; Ashland, Oregon; and Steamboat Springs, Colorado.

Backwash recycle, which reduces the volume of discharge and the corresponding actual thermal load, is a preferred solution for the Wicks WTP because it will also allow the plant to meet future water demands while reducing the volume of wastewater discharged to the South Fork Mill Creek to zero or near zero, which will demonstrate compliance with the *Miles Creek TMDL*.

Table 4 compares the potential solutions in terms of ability to meet the City's TMDL and water supply needs, as well as relative capital costs, based on previous Jacobs project experience (CH2M HILL, 2013; The Freshwater Trust et al., 2024; Jacobs, 2021).

Based on this evaluation, complete backwash recycling has been assumed for capital improvement planning purposes. Discharging the solids drying bed supernatant to the Creek during part or all of the year could also be evaluated as a potential alternative.

Mitigation	Meets TMDL Requirements	Meets City Water Supply Needs	Relative Capital Cost	
Backwash Recycle	\checkmark	\checkmark	\$\$\$\$	
Evaporative Cooling Tower	\checkmark		\$\$\$	
Hyporheic Discharge	?		\$\$\$	
Riparian Restoration (Shading)	?		\$\$ \$\$\$\$\$ (See Note 1)	

Table 4.	Comparison	of ETL	Mitigation	Solutions

¹ May require combination with cooling towers for at least part of the year to fully meet mitigation requirements.

5. References

CH2M HILL. 2013. City of Boise Temperature Compliance Evaluation. June 10.

The Freshwater Trust, Jacobs Engineering Group Inc., and Aquatic Ecosystem Sciences. 2024. *City of Ashland Flow Augmentation for Excess Thermal Load, Phase 1: Feasibility and Limitations Study.* Version #2 FINAL. February 26.

Jacobs. 2021. Temperature Reduction Alternatives Analysis for City of Steamboat Springs, CO Wastewater Treatment Facility Memorandum. June.

Oregon Department of Environmental Quality. 2008. *Middle Columbia-Hood (Miles Creek) Subbasin TMDL*. December.

Attachment E Cost Estimate Summary

WTP Alternative A: DAF with GMF Cost Estimate

Detail Report Project Name: The Dalles WTP - 9.5mgd DAF Project Number: D3718900 Design Stage: ROM

Estimator: Jones T Rev No. / Data: R04 - 09/11/2024 Class Estimate: Class 5

Work	Trade					1									
Pkg		WorkActiv	Unit Price	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Ame
04.0				CIP 1 - Short Term Wicks WTP Improvements Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor											
13.0				Special Construction											
	13.01			Buildings Complete											
		13.00.01.0400	13.01.99.00	Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor Special Construction, Other											
				Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor	1.00 ls					-	59,500	59,500.00 /ls	59,500		
	_			13.01.99.00 Special Construction, Other	1.00 LS						59,500	59,500.00 /LS	59,500		(
				13.00.01.0400 Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor 13.01 Buildings Complete	1.00 LS 1.00 LS						59,500 59,500	59,500.00 /LS 59,500.00 /LS	59,500 59,500		
				13.0 Special Construction	1.00 LS						59,500	59,500.00 /LS	59,500		
				04.0 Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor	1.00 LS						59,500	59,500.00 /LS	59,500	68,043.21 /LS	
04.1 13.0				Demo Sed Basin Covers, Repair Sed Basin Walls, Replace Plate Settlers Special Construction											
10.0	13.01			Buildings Complete											
		13.00.01.0410		Demo Sed Basin Covers, Repair Sed Basin Walls, Replace Plate Settlers											
			13.01.99.00	Special Construction, Other Demo Sed Basin Covers, Repair Sed Basin Walls, Replace Plate Settlers	1.00 ls						720,000	720,000.00 /ls	720,000	823,379.98 /ls	
				13.01.99.00 Special Construction, Other	1.00 LS						720,000	720,000.00 /LS	720,000	823,379.98 /LS	
				13.00.01.0410 Demo Sed Basin Covers, Repair Sed Basin Walls, Replace Plate Settlers	1.00 LS						720,000		720,000		
				13.01 Buildings Complete 13.0 Special Construction	1.00 LS 1.00 LS						720,000 720,000	720,000.00 /LS 720,000.00 /LS	720,000		
				04.1 Demo Sed Basin Covers, Repair Sed Basin Walls, Replace Plate Settlers	1.00 LS						720,000	720,000.00 /LS	720,000		
				1.00 CIP 1 - Short Term Wicks WTP Improvements	1.00 LS						779,500	779,500.00 /LS	779,500	891,423.19 /LS	8
				CIP 3 - WTP Replacement, Phase 1A											
0.5				Improvements to existing Wicks WTP											
13.0	13.01			Special Construction Buildings Complete											
		13.00.01.0400		Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor											
			13.01.99.00	Special Construction, Other	100 1						1.077.677	1 277 000 00 *		1 000 700 44	
	-			Improvements to existing Wicks WTP 13.01.99.00 Special Construction, Other	1.00 ls 1.00 LS						1,377,000 1,377,000	1,377,000.00 /ls 1,377,000.00 /LS	1,377,000 1,377,000		
				13.00.01.0400 Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor	1.00 LS						1,377,000	1,377,000.00 /LS	1,377,000	1,689,790.11 /LS	
				13.01 Buildings Complete	1.00 LS						1,377,000		1,377,000		
				13.0 Special Construction 00.5 Improvements to existing Wicks WTP	1.00 LS 1.00 LS						1,377,000 1,377,000		1,377,000 1,377,000		
02.1				Install temporary generator							.,			.,	
26.0				Electrical Work											
	26.00	26.25.07.0010		Electrical Generator w/ Enclosure											
			26.25.07.02	Electrical Equipment, Generators - >100 to 200 KW											
				Electrical Wiring and Conduit Allowance	1.00 ls 1.00 ea	16	4 204	10,000	5,000		-	5,000.00 /ls 11,321.14 /ea	5,000		
				Generator Enclosure Generator set,diesel,3 phase 4 wire,277/480 v,125 kw,incl battery,charger,muffler,automatic transfer switch&day tank,excl	1.00 ea	69	1,321 5,714			- 665		38,679.24 /ea	38,679		
				conduit, wiring, & concrete	4.00.1.0	05	7.025	40.000	5.000			55 000 20 /l C	55.000	00 707 00 // 0	
				26.25.07.02 Electrical Equipment, Generators - >100 to 200 KW 26.25.07.0010 Generator w/ Enclosure	1.00 LS 1.00 LS	85	7,035		5,000			55,000.38 /LS 55,000.38 /LS	55,000 55,000		
				26.00 Electrical	1.00 LS	85	7,035		· · · · · · · · · · · · · · · · · · ·			55,000.38 /LS	55,000		
	_			26.0 Electrical Work	1.00 LS	85	7,035					55,000.38 /LS	55,000		
12.2	_			02.1 Install temporary generator Reroute electrical feed to Wicks WTP	1.00 LS	85	7,035	42,300	5,000	665		55,000.38 /LS	55,000	82,707.08 /LS	
26.0				Electrical Work											
	26.10			Site Electrical											
		26.10.20.0010	26 10 20 00	Site Electrical Allowance Site Electrical, Other											
			20.10.20.00	Site Electrical Allowance (~15% of Construction Costs)	1.00 ls						214,800	214,800.00 /ls	214,800	263,592.53 /ls	
				26.10.20.00 Site Electrical, Other	1.00 LS						214,800	214,800.00 /LS	214,800		
	_			26.10.20.0010 Site Electrical Allowance 26.10 Site Electrical	1.00 LS 1.00 LS						214,800 214,800	214,800.00 /LS 214,800.00 /LS	214,800 214,800		
				26.0 Electrical Work	1.00 LS						214,800		214,800		
				02.2 Reroute electrical feed to Wicks WTP	1.00 LS						214,800		214,800		
	_			3.1A CIP 3 - WTP Replacement, Phase 1A	1.00 LS	85	7,035	42,300	5,000	665	1,591,800	1,646,800.38 /LS	1,646,800	2,036,089.72 /LS	2
	_			CIP 3 - WTP Replacement, Phase 1B											
02.0				Demolition - Plumbing Building Existing Conditions											
	02.40			Demolition											
		02.01.02.0010		Demo Strucutral Concrete											
			02.01.02.02	Selective Demolition, Cut-out, Concrete, Slabs Demo Concrete Foundations	25.00 CY	35	2,462			- 1,875		173.50 /CY	4,337	271.89 /CY	
				02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs	25.00 CY	35	2,462			1,875		173.50 /CY	4,337		
			02.01.02.99	Selective Demolition, Cut-out, Concrete, Other											
				Demolition Concrete Other 02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	2.50 CY 2.50 CY	6	410			- 313 313		289.16 /CY 289.16 /CY	723		
				Earthworks, Sitework, Hauling and Dump Fees											
	-			Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	60.00 ton 3.00 LD	-	- 427	1,800		536	-	30.00 /ton 321.06 /LD	1,800		
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline) 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	3.00 LD 3.00 LD	6	427			536		921.06 /LD	2,763		
				02.01.02.0010 Demo Strucutral Concrete	27.50 CY	47				2,724		284.49 /CY	7,823		
		02.01.02.0070	02.04.02.00	Misc. Demolition Sturcture/Building Demoltion											
			02.01.02.00	Sturcture/Building Demoltion Building demolition, large urban projects, masonry, includes 20 mile haul, excludes foundation demolition, dump fees	640.00 SF	205	14,183	-		- 16,364	-	47.73 /SF	30,546	74.80 /SF	
				02.01.02.00 Sturcture/Building Demoltion	640.00 SF	205				16,364		47.73 /SF	30,546		
			31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees	440.00							00.00 //			
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	140.00 ton 7.00 LD	14	997	4,200		1,251	-	30.00 /ton 321.06 /LD	4,200		
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	7.00 LD	14	997	4,200		1,251		921.06 /LD	6,447	1,329.44 /LD	
		02.01.06.0010		02.01.02.0070 Misc. Demolition Electrical Demolition	1.00 LS	219	15,179	4,200		17,614		36,993.88 /LS	36,994	57,177.08 /LS	
	+	02.01.00.0010	02.01.06.01	Electrical Facility Demolition											

D3718900-04-The Dalles WTP-9_5mgd DAF-tj Property of Jacobs, All Rights Reserved - Copyright 2021

Detail Report Project Name: The Dalles WTP - 9.5mgd DAF Project Number: D3718900 Design Stage: ROM

Estimator: Jones T Rev No. / Data: R04 - 09/11/2024 Class Estimate: Class 5

Area Bid Ite		Vork Trad Pkg Pkg		Unit Price Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Amount
				02.01.06.01 Electrical Facility Demolition	1.00 LS	40	2,729			1,383	4,112.78 /LS	4,113	6,445.36 /LS	6,445
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	10.00 ton			300			- 30.00 /ton	300	41.32 /ton	413
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	0.50 LD	1	71			- 89	- 321.06 /LD	161	503.12 /LD	252
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees 02.01.06.0010 Electrical Demolition	0.50 LD 1.00 LS	1	71 2,801	300 300		89 1,473	921.06 /LD 4,573.31 /LS	461 4,573	1,329.42 /LD 7,110.07 /LS	665
				02.40 Demolition	1.00 LS	307	21,280	6,300		21,811	4,573.31 /LS 49,390.65 /LS	4,573	76,205.70 /LS	7,110
				02.0 Existing Conditions	1.00 LS	307	21,280	6,300		21,811	49,390.65 /LS	49,391	76,205.70 /LS	76,206
01.2				01.1 Demolition - Plumbing Building	1.00 LS	307	21,280	6,300		21,811	49,390.65 /LS	49,391	76,205.70 /LS	76,206
01.2	02.	2.0		Demolition - Covered storage area Existing Conditions										
		02.40		Demolition										
			02.01.02.0010	Demo Strucutral Concrete 02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs										4
				Demo Concrete Foundations	33.20 CY	46	3,270			- 2,490	- 173.50 /CY	5,761	271.89 /CY	9,028
				02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs	33.20 CY	46	3,270			2,490	173.50 /CY	5,761	271.89 /CY	9,028
				02.01.02.99 Selective Demolition, Cut-out, Concrete, Other Demolition Concrete Other	3.32 CY	8	545			- 415	- 289.16 /CY	960	453.16 /CY	1,504
				02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	3.32 CY	8	545			415	289.16 /CY	960	453.16 /CY	1,504
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	79.69 ton			2,391			- 30.00 /ton	2,391	41.31 /ton	3,292
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	3.98 LD	8	567			- 712	- 321.06 /LD	1,279	503.14 /LD	2,005
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	3.98 LD	8	567	2,391		712	921.11 /LD	3,670	1,329.51 /LD	5,297
			02.01.02.0070	02.01.02.0010 Demo Strucutral Concrete Misc. Demolition	36.52 CY	62	4,383	2,391		3,617	284.49 /CY	10,390	433.40 /CY	15,829
				02.01.02.00 Sturcture/Building Demoltion										
				Building demolition, large urban projects, masonry, includes 20 mile haul, excludes foundation demolition, dump fees	850.00 SF 850.00 SF	272 272	18,836 18,836	-		- 21,733 21,733	- 47.73 /SF 47.73 /SF	40,569 40,569		63,578 63,578
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	000.00 SF	212	10,030			21,100	41.13 /3F	40,069	74.80 /SF	03,578
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	185.94 ton			5,578			- 30.00 /ton	5,578	41.31 /ton	7,682
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline) 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	9.30 LD 9.30 LD	19	1,324 1,324	5,578		- 1,661 1,661	- 321.06 /LD 921.05 /LD	2,985 8,563	503.15 /LD 1,329.43 /LD	4,678
				02.01.02.0070 Misc. Demolition	1.00 LS	291	20,160	5,578		23,394	49,132.37 /LS	49,132		75,938
			02.01.06.0010	Electrical Demolition										4
				02.01.06.01 Electrical Facility Demolition Electrical Demolition - Med Crew Electrical Demolition - Med Crew	10.63 hr	53	3,625			- 1,837	- 514.10 /hr	5,462	805.67 /hr	8,560
				02.01.06.01 Electrical Facility Demolition	1.00 LS	53	3,625			1,837	5,462.28 /LS	5,462	8,560.22 /LS	8,560
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	12.20.475			200			20.00 /mm	200	44.20 //mm	54
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	13.28 ton 0.66 LD	1	95	398		- 119	- 30.00 /ton - 321.05 /LD	398 213		334
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	0.66 LD	1	95	398		119	921.10 /LD	612	1,329.50 /LD	883
				02.01.06.0010 Electrical Demolition 02.40 Demolition	1.00 LS 1.00 LS	54 407	3,719 28,262	398 8,367		1,956 28,967	6,073.89 /LS 65,596.54 /LS	6,074 65,597	9,443.01 /LS 101,210.09 /LS	9,443
				02.0 Existing Conditions	1.00 LS	407	28,262	8,367		28,967	65,596.54 /LS	65,597	101,210.09 /LS	101,210
				01.2 Demolition - Covered storage area	1.00 LS	407	28,262	8,367		28,967	65,596.54 /LS	65,597	101,210.09 /LS	101,210
01.3	02.	2.0		Demolition - Wicks House Existing Conditions										4
	02.	02.40	0	Demolition										
			02.01.02.0010	Demo Strucutral Concrete										4
				02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs Demo Concrete Foundations	93.75 CY	131	9,234			- 7,032	- 173.50 /CY	16,265	271.89 /CY	25,490
				02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs	93.75 CY	131	9,234			7,032	173.50 /CY	16,265	271.89 /CY	25,490
				02.01.02.99 Selective Demolition, Cut-out, Concrete, Other Demolition Concrete Other	9.38 CY	22	1,539			- 1,172	- 289.16 /CY	2,711	453.16 /CY	4,248
				02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	9.38 CY	22	1,539			1,172	289.16 /CY	2,711	453.16 /CY	4,248
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees										
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	225.00 ton 11.25 LD	23	- 1,602	6,750	· · · · · · · · · · · · · · · · · · ·		- 30.00 /ton - 321.06 /LD	6,750 3,612	41.31 /ton 503.15 /LD	9,296
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	11.25 LD	23	1,602	6,750		2,010	921.06 /LD	10,362	1,329.44 /LD	14,956
			00.01.00.0070	02.01.02.0010 Demo Strucutral Concrete	103.13 CY	176	12,374	6,750		10,214	284.49 /CY	29,338	433.40 /CY	44,695
			02.01.02.0070	Misc. Demolition 02.01.02.00 Sturcture/Building Demoltion										
				Building demolition, large urban projects, masonry, includes 20 mile haul, excludes foundation demolition, dump fees	2,400.00 SF	768	53,185	-		- 61,364	- 47.73 /SF	114,549		179,516
				02.01.02.00 Sturcture/Building Demoltion 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	2,400.00 SF	768	53,185			61,364	47.73 /SF	114,549	74.80 /SF	179,516
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	525.00 ton		-	15,750			- 30.00 /ton	15,750	41.31 /ton	21,690
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	26.25 LD 26.25 LD	53 53	3,738 3,738	15,750		- 4,690 4,690	- 321.06 /LD	8,428 24,178		13,208 34,898
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees 02.01.02.0070 Misc. Demolition	26.25 LD 1.00 LS	821	<u>3,738</u> 56,923	15,750		66,054	921.06 /LD 138,727.04 /LS	138,727		214,414
			02.01.04.40	HVAC Demolition									.,,	
				02.01.04.40 HVAC Demolition	00.00 1-		10.07-			5 400	54140 8-		005.07	
			-	HVAC Demolition - Med Crew 02.01.04.40 HVAC Demolition	30.00 hr 1.00 LS	150 150	10,235 10,235			- 5,188 5,188	- 514.10 /hr 15,422.91 /LS	15,423 15,423		24,170 24,170
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees										
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	37.50 ton 1.88 LD	A	- 267	1,125			- 30.00 /ton - 321.06 /LD	1,125		1,549
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	1.88 LD	4	267	1,125		335	921.06 /LD	1,727	1,329.43 /LD	2,493
				02.01.04.40 HVAC Demolition	1.00 LS	154	10,502	1,125		5,523	17,149.89 /LS	17,150		26,663
			02.01.06.0010	Electrical Demolition 02.01.06.01 Electrical Facility Demolition										4
				Electrical Demolition - Med Crew	30.00 hr	150	10,235			- 5,188	- 514.10 /hr	15,423		24,170
				02.01.06.01 Electrical Facility Demolition	1.00 LS	150	10,235			5,188	15,422.91 /LS	15,423	24,170.07 /LS	24,170
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	37.50 ton			1,125			- 30.00 /ton	1,125	41.31 /ton	1,54
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	1.88 LD	4	267			- 335	- 321.06 /LD	602	503.15 /LD	94:
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	1.88 LD	4	267 10,502	1,125		335	921.06 /LD 17,149.89 /LS	1,727	1,329.43 /LD	2,493
				02.01.06.0010 Electrical Demolition 02.40 Demolition	1.00 LS 1.00 LS	154	<u>10,502</u> 90,302	24,750		5,523 87,313	202,364.78 /LS	202,365		312,434
				02.0 Existing Conditions	1.00 LS	1,304	90,302	24,750		87,313	202,364.78 /LS	202,365	312,434.13 /LS	312,434
01.0				01.3 Demolition - Wicks House	1.00 LS	1,304	90,302	24,750		87,313	202,364.78 /LS	202,365	312,434.13 /LS	312,434
01.6	02.	2.0	-	Demolition - Generator building Existing Conditions										
			0	Demolition	1									

D3718900-04-The Dalles WTP-9_5mgd DAF-tj Property of Jacobs, All Rights Reserved - Copyright 2021

Detail Report Project Name: The Dalles WTP - 9.5mgd DAF Project Number: D3718900 Design Stage: ROM

Estimator: Jones T Rev No. / Data: R04 - 09/11/2024 Class Estimate: Class 5

ea Bid Item	n Work Trade Pkg Pkg	WorkActiv	Unit Price Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Amount
_		02.01.02.0010	Demo Strucutral Concrete 02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs										
			Demo Concrete Foundations	10.00 CY		985			- 750	- 173.50 /CY	1,735	271.89 /CY	2,7
			02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs 02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	10.00 CY	14	985			750	173.50 /CY	1,735	271.89 /CY	2,7*
			Demolition Concrete Other	1.00 CY		164			- 125	- 289.16 /CY	289	453.15 /CY	4
_			02.01.02.99 Selective Demolition, Cut-out, Concrete, Other 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	1.00 CY	2	164			125	289.16 /CY	289	453.15 /CY	4
			Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	24.00 ton		-	720)		- 30.00 /ton	720		9
			Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline) 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	1.20 LD 1.20 LD	2	171 171	720)	- 214 214	- 321.06 /LD 921.06 /LD	385 1,105	503.15 /LD 1,329.44 /LD	6
			02.01.02.0010 Demo Strucutral Concrete	11.00 CY	19	1,320	720		1,089	284.49 /CY	3,129	433.40 /CY	4,70
		02.01.02.0070	Misc. Demolition 02.01.02.00 Sturcture/Building Demoltion										
			Building demolition, large urban projects, masonry, includes 20 mile haul, excludes foundation demolition, dump fees	256.00 SF	82	5,673			- 6,546	- 47.73 /SF	12,219	74.80 /SF	19,1
_			02.01.02.00 Sturcture/Building Demoltion 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	256.00 SF	82	5,673			6,546	47.73 /SF	12,219	74.80 /SF	19,14
			Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	56.00 ton			1,680			- 30.00 /ton	1,680	41.31 /ton	2,3
			Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline) 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	2.80 LD 2.80 LD		399 39 9	1,680)	- 500 500	- 321.06 /LD 921.06 /LD	899 2,579	503.15 /LD 1,329.44 /LD	1,4
			02.01.02.0070 Misc. Demolition	1.00 LS	88	6,072	1,680		7,046	14,797.55 /LS	14,798	22,870.84 /LS	22,8
		02.01.04.40	HVAC Demolition 02.01.04.40 HVAC Demolition										
			HVAC Demolition - Med Crew	3.20 hr	16	1,092			- 553	- 514.10 /hr	1,645	805.67 /hr	2,5
_			02.01.04.40 HVAC Demolition 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	1.00 LS	16	1,092			553	1,645.11 /LS	1,645	2,578.13 /LS	2,51
			Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	4.00 ton			120			- 30.00 /ton	120		1
_			Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline) 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	0.20 LD 0.20 LD		28			- 36 36	- 321.05 /LD 921.05 /LD	64 184	503.15 /LD 1,329.45 /LD	1
			02.01.04.40 HVAC Demolition	1.00 LS		1,120			589	1,829.32 /LS	1,829	2,844.02 /LS	2,84
_		02.01.06.0010	Electrical Demolition 02.01.06.01 Electrical Facility Demolition										
			Electrical Demolition - Med Crew	3.20 hr	16	1,092			- 553	- 514.10 /hr	1,645	805.67 /hr	2,5
			02.01.06.01 Electrical Facility Demolition 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	1.00 LS	16	1,092			553	1,645.11 /LS	1,645	2,578.13 /LS	2,5
			Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	4.00 ton			120)		- 30.00 /ton	120		1
			Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline) 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	0.20 LD 0.20 LD	0	28	120)	- 36 36	- 321.05 /LD 921.05 /LD	64 184	503.25 /LD 1,329.50 /LD	1
			02.01.06.0010 Electrical Demolition	1.00 LS		1,120			589	1,829.32 /LS	1,829	2,844.03 /LS	2,8
			02.40 Demolition	1.00 LS		9,632			9,313	21,585.57 /LS 21,585.57 /LS	21,586 21,586	33,326.31 /LS 33,326.31 /LS	33,3
-			02.0 Existing Conditions 01.6 Demolition - Generator building	1.00 LS		9,632			9,313 9,313	21,585.57 /LS 21,585.57 /LS	21,586	33,326.31 /LS	33,32
			3.1B CIP 3 - WTP Replacement, Phase 1B	1.00 LS	2,157	149,476	42,057	•	147,405	338,937.54 /LS	338,938	523,176.23 /LS	523,17
C			CIP 3 - WTP Replacement, Phase 1C										
03.1	33.0		New 30" filtered water Utilities										
_	33.02		Buried Process Pipe, Ductile Iron										
		33.00.04.FW30	30" FW - Finished Water 31.00.01.01 Trenching, Backfill, and Compaction										
			Rent trench box, 8000 lb., 8' x 16'	40.00 day		-			- 4,806	- 120.15 /day	4,806	188.29 /day	7,5
			Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering Backfill, 6' layers, compaction in layers, hand tamp, PIPE ZONE	1,841.67 CY 561.75 ecy		29,298			- 30,318	- 32.37 /CY - 23.47 /ecy	59,616 13,184	50.73 /CY 36.78 /ecy	93,-
			Backfill, 12 ^e layers, compaction in layers, roller compaction with operator walking, ABOVE PIPE ZONE	1,023.15 ecy	82	5,943 5,853		7	- <u>1,074</u> - <u>1,038</u>	- 6.86 /ecy	7,017 18,688	10.75 /ecy	10,1
			Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING	561.75 lcy 102.31 lcy	16	1,066	1,852		- 189	- 33.27 /cy - 30.37 /cy	3,107	48.15 /lcy 44.15 /lcy	4,
			Hauling,excavated borrow material,loose cubic yards,20 mile round trip,0.4 load/hr,base wide rate,12 cy truck,highway haulers,exclud loading	es 818.52 lcy	168	11,954			- 16,609	- 34.90 /lcy	28,563	54.69 /lcy	44,
			31.00.01.01 Trenching, Backfill, and Compaction	1,841.67 CY	983	67,298	13,649		54,035	73.29 /CY	134,981	113.45 /CY	208,9
			33.00.04.30 Buried Pipe, Ductile Iron, 30" 30" pipe, DI, RJ, excav/bkfill not included, 250#	850.00 LF	357	29,834	166.097	7	- 16.862	- 250.35 /LF	212,793	355.20 /LF	301,
_			30° DI, RJ, EII, 45	17.00 ea	168	14,065	94,473	3	- 7,949	- 6,852.21 /ea	116,488	9,682.58 /ea	164,
			Megalugs for DI Pipe w/ Accessories, 30" Polywrap, 30" pipe	43.00 ea 850.00 lf	86	7,187	46,373		- 4,062	- 1,340.06 /ea - 1.32 /lf	57,622	1,895.17 /ea 1.82 /lf	81,
			Add for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape	1.00 ea 850.00 lf	24	2,006			- 1,134	- 3,889.25 /ea - 0.97 /lf	3,889 821	5,952.54 /ea 1.49 /lf	5,
_		1			9				1				556,
			33.00.04.30 Buried Pipe, Ductile Iron, 30"	850.00 LF		53,802			30,007	462.04 /LF	392,735	655.04 /LF	
_			33.00.04.FW30 30" FW - Finished Water	850.00 LF	1,627	121,101	322,575	i	84,042	620.84 /LF	527,717	900.85 /LF	765,
					1,627 1,627		322,575 322,575	j j					765, 765,
			33.00.04.FW30 30" FW - Finished Water 33.02 Buried Process Pipe, Ductile Iron 33.0 Utilities 03.1 New 30" filtered water	850.00 LF	1,627 1,627 1,627	121,101 121,101	322,575 322,575 322,575	5 5	84,042 84,042	620.84 /LF 620.84 /LF	527,717 527,717	900.85 /LF 900.85 /LF 765,724.01 /LS	765, 765, 765,
03.2	33.0		33.00.04.FW30 30" FW - Finished Water 33.02 Buried Process Pipe, Ductile Iron 33.0 Utilities	850.00 LF 850.00 LF 1.00 LS	1,627 1,627 1,627	121,101 121,101 121,101	322,575 322,575 322,575	5 5	84,042 84,042 84,042	620.84 /LF 620.84 /LF 527,716.84 /LS	527,717 527,717 527,717	900.85 /LF 900.85 /LF 765,724.01 /LS	765, 765, 765,
03.2	33.0 33.02		33.00.04,FW30 20° FW - Finished Water 33.02 Buried Process Pipe, Ductile Iron 33.0 Utilities 03.1 New 30° filtered water New 12° BWS Utilities Buried Process Pipe, Ductile Iron	850.00 LF 850.00 LF 1.00 LS	1,627 1,627 1,627	121,101 121,101 121,101	322,575 322,575 322,575	5 5	84,042 84,042 84,042	620.84 /LF 620.84 /LF 527,716.84 /LS	527,717 527,717 527,717	900.85 /LF 900.85 /LF 765,724.01 /LS	765, 765, 765,
03.2		33.00.04.BWS12	33.00.04.FW30 30" FW - Finished Water 33.02 Burled Process Pipe, Ductile Iron 03.1 New 30" filtered water New 12" BWS Utilities Burled Process Pipe, Ductile Iron New 12" BWS	850.00 LF 850.00 LF 1.00 LS	1,627 1,627 1,627	121,101 121,101 121,101	322,575 322,575 322,575	5 5	84,042 84,042 84,042	620.84 /LF 620.84 /LF 527,716.84 /LS	527,717 527,717 527,717	900.85 /LF 900.85 /LF 765,724.01 /LS	765, 765, 765,
03.2			33.00.04.FW30 30" FW - Finished Water 33.02 Buried Process Pipe, Ductile Iron 33.0 Utilities 03.1 New 30" filtered water New 12" BWS Utilities Buried Process Pipe, Ductile Iron New 12" BWS 31.00.1.01 Trenching, Backfill, and Compaction Rent trench box, 8000 b., 8'x 16'	850.00 LF 850.00 LF 1.00 LS 	1,627 1,627 1,627 1,627	121,101 121,101 121,101 121,101	322,575 322,577 322,577 322,575	5 5	- 3,605	620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS	527,717 527,717 527,717 527,717 527,717	900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 188.29 /day	765, 765, 765, 765,
03.2			33.00.04.FW30 30" FW - Finished Water 33.02 Burled Process Pipe, Ductile Iron 33.0 Utilities 03.1 New 30" filtered water New 12" BWS Utilities Burled Process Pipe, Ductile Iron New 12" BWS 31.00.01.01 Trenching, Backfill, and Compaction	850.00 LF 850.00 LF 1.00 LS 1.00 LS	1,627 1,627 1,627 1,627	121,101 121,101 121,101	322,575 322,576 322,576 322,576	5 5	84,042 84,042 84,042 84,042	620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS	527,717 527,717 527,717 527,717 527,717	900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS	765, 765, 765, 765, 765,
03.2			33.00.04,FW30 30" FW - Finished Water 33.02 Buried Process Pipe, Ductile Iron 33.0 Utilities 03.1 New 30" filtered water New 12" BWS Utilities Buried Process Pipe, Ductile Iron New 12" BWS 31.00.1.01 Trenching, Backfill, and Compaction Rent trench box, 8000 b., 8'x 16' Exavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering Backfill, 6' layers, compaction in layers, noller compaction with operator walking, ABOVE PIPE ZONE	850.00 LF 850.00 LF 1.00 LS 1.00 LS 30.00 day 1.527.78 CY 375.43 ecy 1.018.52 ecy	1,627 1,627 1,627 1,627 1,627 340 340 146	121,101 121,101 121,101 121,101 121,101 121,101 124,305 8,811 5,916	322,575 322,577 322,577 322,577		84,042 84,042 84,042 84,042 - 3,605 - 25,151 - 1,070	620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS 	527,717 527,717 527,717 527,717 527,717 527,717 527,717 527,717 527,717 527,717 527,717 527,717	900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 36.78 /ecy 10.75 /ecy	765 765 765 765 765
03.2			33.00.04,FW30 30° FW - Finished Water 33.02 Buried Process Pipe, Ductile Iron 33.0 Utilities 03.1 New 30° filtered water 03.1 New 30° filtered water New 12° EWS Utilities 31.00.01.01 Trenching, Backfill, and Compaction Rent trench box, 8000 lb., 8' x 16' Exexuating, trench or continuous long, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering Backfill, 6' layers, compaction in layers, hand tamp, PIPE ZONE Backfill, 12' layers, compaction in layers, hand tamp, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, and, dead or bank, BEDDING	850.00 LF 850.00 LF 1.00 LS 30.00 day 1.527.78 CV 375.43 ev 375.43 ev 375.43 ev 375.43 ev 375.43 lov	1,627 1,627 1,627 1,627 1,627 340 146 81 81 60 616	121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101	322,575 322,577 322,577 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,576 322,576 322,5777 322,5777 322,57777 322,577777777777777777777777777777777777	- -	84,042 84,042 84,042 84,042 - 3,605 - <t< td=""><td>620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS - - - - - - - - - - - - - - - - - - -</td><td>\$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$24,717 \$24,717 \$24,717 \$24,717 \$24,717 \$25,717 \$27,717 \$2</td><td>900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 36.78 /ecy 10.75 /ecy 48.15 /lcy 44.15 /lcy</td><td>765, 7655, 7655, 765, 765, 765, 765, 765</td></t<>	620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS - - - - - - - - - - - - - - - - - - -	\$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$24,717 \$24,717 \$24,717 \$24,717 \$24,717 \$25,717 \$27,717 \$2	900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 36.78 /ecy 10.75 /ecy 48.15 /lcy 44.15 /lcy	765, 7655, 7655, 765, 765, 765, 765, 765
03.2			33.00.04,FW30 30° FW - Finished Water 33.02 Buried Process Pipe, Ductile Iron 33.0 Utilities 03.1 New 30° filtered water New 12° BWS Utilities Buried Process Pipe, Ductile Iron New 12° BWS Utilities Buried Process Pipe, Ductile Iron New 12° BWS 31.00.01.01 Trenching, Backfill, and Compaction Rent trench box, 8000 b., 8'x 16' Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering Backfill, 6' layers, compaction in layers, noller compaction with operator walking, ABOVE PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING Hauling,excavated borrow material.lose cubic yards.20 mile round trip.0.4 laad/m.base wide rate,12 cy truck, highway haulers, exclud	850.00 LF 850.00 LF 1.00 LS 30.00 day 1.527.78 CV 375.43 ev 375.43 ev 375.43 ev 375.43 ev 375.43 lov	1,627 1,627 1,627 1,627 1,627 340 146 81 81 60 616	121,101 121,101 121,101 121,101 121,101 121,101 124,305 8,811 5,916 3,912	322,575 322,577 322,577 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,576 322,576 322,5777 322,5777 322,57777 322,577777777777777777777777777777777777	- -	84,042 84,042 84,042 84,042 - 36,05 - 25,151 - 1,070 684	620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS 527,716.84 /LS - - - - - - - - - - - - - - - - - - -	527,717 527,717 527,717 527,717 527,717 3,605 49,455 8,811 6,985 12,490	900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 36.78 /ecy 10.75 /ecy 48.15 /lcy	765 765 765 765
			33.00.04,FW30 30° FW - Finished Water 33.02 Buried Process Pipe, Ductile Iron 33.0 Utilities 03.1 New 30° filtered water 03.1 New 30° filtered water New 12° EWS Utilities 31.00.01.01 Trenching, Backfill, and Compaction Rent trench box, 8000 b., 8'x 16' Exactly and the process of the proces of the process of the process of the process process of the proc	850.00 LF 850.00 LF 1.00 LS 30.00 day 1.527.78 CV 375.43 ev 375.43 ev 375.43 ev 375.43 ev 375.43 lov	1,627 1,627 1,627 1,627 1,627 1,627 1,627 1,627 1,627 1,627 1,627 1,627	121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101	322,575 322,577 322,577 322,575 32,575 32,5	- -	84,042 84,042 84,042 84,042 - 3,605 - <t< td=""><td>620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS - - - - - - - - - - - - - - - - - - -</td><td>\$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$24,717 \$24,717 \$24,717 \$24,717 \$24,717 \$25,717 \$27,717 \$2</td><td>900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 36.78 /ecy 10.75 /ecy 48.15 /lcy 54.89 /lcy</td><td>765 7765 7765 765 765</td></t<>	620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS - - - - - - - - - - - - - - - - - - -	\$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$27,717 \$24,717 \$24,717 \$24,717 \$24,717 \$24,717 \$25,717 \$27,717 \$2	900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 36.78 /ecy 10.75 /ecy 48.15 /lcy 54.89 /lcy	765 7765 7765 765 765
03.2			33.00.04,FW30 30° FW - Finished Water 33.02 Buried Process Pipe, Ductile Iron 33.0 Utilities 03.1 New 30° filtered water New 12° BWS Utilities Buried Process Pipe, Ductile Iron New 12° BWS Utilities Buried Process Pipe, Ductile Iron New 12° BWS 31.00.01.01 Trenching, Backfill, and Compaction Rent trench box, 8000 b., 8'x 16' Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering Backfill, 6' layers, compaction in layers, noller compaction with operator walking, ABOVE PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, rushed or screened bank run gravel, PIPE ZONE Fill by borrow material,lose cubic yards,20 mile round trip.0.4 load/nr.base wide rate,12 cy truck,highway haulers,exclud loading 31.00.01.01 Trenching, Backfill, and Compaction 31.00.01.02 Sureid Pipe, Ductile Iron, 12" <td>850.00 LF 850.00 LF 1.00 LS 1.00 LS 30.00 day 1.527.78 CY 375.43 ecy 1.018.52 ecy 375.43 loy 101.85 loy 65 S59.2.6 loy 1,527.78 CY</td> <td>1,627 1,627 1,627 1,627 1,627 340 146 81 146 81 160 16 104 748</td> <td>121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 1,061 3,912 1,061 3,912 1,061 5,9142</td> <td>322,575 322,577 322,57</td> <td>Image: Section of the sectio</td> <td>84,042 84,042 84,042 84,042 -</td> <td>620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS 527,716,84 /LS 527,716,84 /LS 527,716,84 /LS 527,716,84 /LS 527,716,84 /LS 527,716,94 /LS</td> <td>527,717 52,717 52,717</td> <td>900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 36.78 /ecy 10.75 /ecy 48.15 /lcy 44.15 /lcy 54.69 /lcy 103.63 /CY</td> <td>765 765 765 765 765</td>	850.00 LF 850.00 LF 1.00 LS 1.00 LS 30.00 day 1.527.78 CY 375.43 ecy 1.018.52 ecy 375.43 loy 101.85 loy 65 S59.2.6 loy 1,527.78 CY	1,627 1,627 1,627 1,627 1,627 340 146 81 146 81 160 16 104 748	121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 1,061 3,912 1,061 3,912 1,061 5,9142	322,575 322,577 322,57	Image: Section of the sectio	84,042 84,042 84,042 84,042 -	620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS 527,716,84 /LS 527,716,84 /LS 527,716,84 /LS 527,716,84 /LS 527,716,84 /LS 527,716,94 /LS	527,717 52,717 52,717	900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 36.78 /ecy 10.75 /ecy 48.15 /lcy 44.15 /lcy 54.69 /lcy 103.63 /CY	765 765 765 765 765
			33.00.04,FW30 30" FW - Finished Water 33.02 Buried Process Pipe, Ductile Iron 33.0 Utilities 03.1 New 30" filtered water New 12" BWS Utilities 31.00.01.01 Trenching, Backfill, and Compaction Rent trench box, 8000 b., 8'x 16' Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering Backfill, 6' layers, compaction in layers, hand tamp. PIPE ZONE Backfill, 12' layers, compaction in layers, noller compaction with operator walking, ABOVE PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, crushed lead or bank, BEDING Hauing excavated borrow material,loose cubic yards,20 mile round trip,0.4 loadhr,base wide rate,12 cy truck,highway haulers,exclud loading	850.00 LF 850.00 LF 1.00 LS 1.00 LS 30.00 day 30.00 day 1.527.78 CY 1.018.52 ecy 375.43 loy 1.018.52 ecy 375.43 loy 1.018.52 ecy 375.43 loy 1.018.52 ecy 1.527.78 CY 1.100.00 LF 2.0.00 ea	1,627 1,627	121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 1061 7,438 51,442 22,982 7,688	322,575 322,577 322,577 322,575 322,57	Image: Section of the sectio	84,042 84,042 84,042 84,042 - <td< td=""><td>620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS </td><td>527,717 527,71</td><td>900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 36.78 /ecy 10.75 /ecy 48.15 /lcy 44.15 /lcy 54.69 /lcy 103.63 /CY 103.63 /CY 120.93 /LF 1,872.66 /ea</td><td>765 765 765 765</td></td<>	620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS 	527,717 527,71	900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 36.78 /ecy 10.75 /ecy 48.15 /lcy 44.15 /lcy 54.69 /lcy 103.63 /CY 103.63 /CY 120.93 /LF 1,872.66 /ea	765 765 765 765
			33.00.04,FW30 30° FW - Finished Water 33.02 Buried Process Pipe, Ductile Iron 33.0 Utilities 03.1 New 30° filtered water New 12° BWS Utilities Buried Process Pipe, Ductile Iron New 12° BWS Utilities 31.00.1.01 Tenching, Backfill, and Compaction Rent tench box, 8000 b., 8° x 16° Exavariang, rench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering Backfill, 6' layers, compaction in layers, hand tamp, PIPE ZONE Backfill, 12' layers, compaction in layers, near conduit, custed or screend bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING Hauling exavated borrow material,loose cubic yards,20 mile round trip,0.4 load/nr,base wide rate,12 cy truck,highway haulers,exclud loading 33.00.01.01 Trenching, Backfill, and Compaction 33.00.04.12 Buried Pipe, Ductile forn, 12" 12' Dip, R.J. R.J. gacaw/bkill not included, 350# 12' Dip, R.J. R.J. exavabiliti not included, 350# 12' Dip, R.J. B. 45 Megalage for DI Pipe w/ Accessories, 12"	850.00 LF 850.00 LF 1.00 LS 30.00 day 1.227.78 CY 375.43 ecy 375.43 ecy 375.43 ley 101.85 ecy 375.43 ley 101.85 ley es 509.26 ley 1,527.78 CY 1,527.78 CY 1,100.00 LF	1,627 1,627 1,627 1,627 1,627 340 146 81 146 104 748 275	121,101 121,10	322,575 322,577 322,577 322,575 322,575 7 322,575 7 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,575 322,576 322,577 322,575 32	Image: Section of the sectio	84,042 84,042 84,042 84,042 84,042 3,605 - <tr< td=""><td>620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS </td><td>527,717 527,717 527,717 527,717 527,717 3,605 49,455 8,811 6,895 12,490 3,093 17,771 102,210 91,626</td><td>900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 38.78 /ecy 10.75 /ecy 48.15 /ley 44.15 /ley 54.69 /lcy 103.63 /CY 120.93 /LF 1,872.66 /ea</td><td>765, 765, 765, 765, 765, 775, 13 10 18 4 27 158, 133, 37 20</td></tr<>	620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS 	527,717 527,717 527,717 527,717 527,717 3,605 49,455 8,811 6,895 12,490 3,093 17,771 102,210 91,626	900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 38.78 /ecy 10.75 /ecy 48.15 /ley 44.15 /ley 54.69 /lcy 103.63 /CY 120.93 /LF 1,872.66 /ea	765, 765, 765, 765, 765, 775, 13 10 18 4 27 158, 133, 37 20
			33.00.04,FW30 30" FW - Finished Water 33.02 Buried Process Pipe, Ductile Iron 33.0 Utilities 03.1 New 30" filtered water New 12" BWS Utilities Buried Process Pipe, Ductile Iron New 12" BWS Utilities Buried Process Pipe, Ductile Iron New 12" BWS 31.00.01.01 Trenching, Backfill, and Compaction Rent trench box, 8000 b., 6"x 16" Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4" to 6" deep, excludes sheeting or dewatering Backfill, 12" layers, compaction in layers, hand tamp, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run grave, IPPE ZONE Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run grave, IPPE ZONE Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run grave, IPPE ZONE Hauling excavated borrow material,loose cubic yards,20 mile round trip.0.4 load/hr,base wide rate,12 cy truck,highway haulers,exclud loading 31.00.01.01 Trenching, Backfill, and Compaction 31.00.04.12 Buried Pipe, Ductile fron, 12" 12" DIR, J. Elt, 45 Megalugs for DI Pipe w/ Accessories, 12" Polywrap, 12" pipe Ad for tie-in to existing (Adjust pr	850.00 LF 850.00 LF 1.00 LS 1.00 LS 30.00 day 1.527.78 CY 1.018.52 ecy 375.43 ecy 1.018.52 ecy 375.43 loy 1.018.52 ecy 1.018.52 ecy 1.1527.78 CY 1.100.00 LF 2.000 ea 5.500 ea 1.100.00 H	1,627 1,627	121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 121,101 1061 7,438 51,442 22,962 7,688 4,596 	322,575 322,577 32,577 32,5	Image: Section of the sectio	84,042 84,042 84,042 84,042 - <td< td=""><td>620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS </td><td>\$27,717 \$2,717 \$2,7</td><td>900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 36.78 /ecy 10.75 /ecy 10.75 /ecy 10.75 /ecy 10.75 /ecy 103.63 /CY 103.63 /CY 120.93 /LF 1,872.66 /ea 0.73 /H 5,852.55 /ea</td><td>765,7 765,7 765,7 765,7 765,7 765,7 765,7 765,7 13,1 10,0 14,1 13,1 10,0 14,1 14,1 158,3 158,3 133,1 37,7 20,2 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 158,1 158</td></td<>	620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS 	\$27,717 \$2,717 \$2,7	900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 36.78 /ecy 10.75 /ecy 10.75 /ecy 10.75 /ecy 10.75 /ecy 103.63 /CY 103.63 /CY 120.93 /LF 1,872.66 /ea 0.73 /H 5,852.55 /ea	765,7 765,7 765,7 765,7 765,7 765,7 765,7 765,7 13,1 10,0 14,1 13,1 10,0 14,1 14,1 158,3 158,3 133,1 37,7 20,2 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 133,1 158,3 158,1 158
			33.00.04,FW30 30° FW - Finished Water 33.02 Buried Process Pipe, Ductile Iron 33.0 Utilities 03.1 New 30° filtered water 03.1 New 30° filtered water 03.1 New 30° filtered water New 12° BWS Utilities 31.00.01.01 Trenching, Backfill, and Compaction Rent trench box, 8000 lb., 8'x 16' Exavating, trench or continuous ofting, Near Existing Utilities, 1-1/2 C.Y. excavator, 4'to 6' deep, excludes sheeting or dewatering Backfill, 12' layers, compaction in layers, hand tamp, PIPE ZONE Backfill, 12' layers, compaction in layers, hand tamp, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, cushed or screend bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, cushed or screend bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING Hauling.excavated borrow material,losse cubic yards, 20 mile round trip, 0.4 load/hr.base wide rate, 12 cy truck, highway haulers, exclud loading 31.00.01.01 Trenching, Backfill, and Compaction 83.00.04.12 Buried Pipe, Ductile Iron, 12° Megalugs for DI Pipe w/ Accessories, 12° Puried Pipe, Ductile Iron, 12° Paly Ray, R.J., Scav&Mithin ton included, 350# 12° Di, D. IP Pipe w/ Accessories, 12° </td <td>850.00 LF 850.00 LF 1.00 LS 1.00 LS 30.00 day 1.527.78 CY 1.018.52 ecy 375.43 ecy 375.43 ecy 1.018.52 ecy 1.018.50 ecy</td> <td>1,627 1,627</td> <td>121,101 121,10</td> <td>322,575 322,577 322,577 322,575 322,57</td> <td>Image: Section of the sectio</td> <td>84,042 84,042 84,042 84,042 84,042 3,005 - 3,005 - 25,151 - - 10,070 694 - 10,334 41,040 - - 12,989 - 4,345 - - -</td> <td>620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS </td> <td>527,717 52,717 52,</td> <td>900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 36.78 /ecy 10.75 /ecy 48.15 /lcy 44.15 /lcy 44.15 /lcy 103.63 /CY 103.63 /CY 120.93 /LF 1.872.86 /ea 3.72.86 /ea 0.73 /lt</td> <td>765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 133.1 133.1 133.1 133.1 37.1 20.0 8 5.5 133.1 37.1 20.1 8 133.1 37.1 20.1 8 133.1 37.1 20.1 8 133.1 37.1 20.1 133.1 37.1 20.1 133.1 37.1 20.1 20.1 20.1 20.1 20.1 20.1 20.1 20</td>	850.00 LF 850.00 LF 1.00 LS 1.00 LS 30.00 day 1.527.78 CY 1.018.52 ecy 375.43 ecy 375.43 ecy 1.018.52 ecy 1.018.50 ecy	1,627 1,627	121,101 121,10	322,575 322,577 322,577 322,575 322,57	Image: Section of the sectio	84,042 84,042 84,042 84,042 84,042 3,005 - 3,005 - 25,151 - - 10,070 694 - 10,334 41,040 - - 12,989 - 4,345 - - -	620.84 /LF 620.84 /LF 527,716.84 /LS 527,716.84 /LS 	527,717 52,717 52,	900.85 /LF 900.85 /LF 765,724.01 /LS 765,724.01 /LS 188.29 /day 50.73 /CY 36.78 /ecy 10.75 /ecy 48.15 /lcy 44.15 /lcy 44.15 /lcy 103.63 /CY 103.63 /CY 120.93 /LF 1.872.86 /ea 3.72.86 /ea 0.73 /lt	765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 765.7 133.1 133.1 133.1 133.1 37.1 20.0 8 5.5 133.1 37.1 20.1 8 133.1 37.1 20.1 8 133.1 37.1 20.1 8 133.1 37.1 20.1 133.1 37.1 20.1 133.1 37.1 20.1 20.1 20.1 20.1 20.1 20.1 20.1 20

D3718900-04-The Dalles WTP-9_5mgd DAF-tj Property of Jacobs, All Rights Reserved - Copyright 2021

Bid Iter	n Work Pkg		WorkActiv	Unit Price Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Amou
				33.0 Utilities 03.2 New 12" BWS	1.00 LS 1.00 LS	1,205 1,205	89,634 89,634	87,066 87,066		62,106 62,106		238,805.46 /LS 238,805.46 /LS	238,805 238,805	357,702.28 /LS 357,702.28 /LS	357
03.3				Residuals piping	1.00 L3	1,205	03,034	07,000		02,100		230,003.40 /L3	238,003	337,702.20 713	357
	33.0	_		Utilities											
		33.02	33.00.04.SEDB04	Buried Process Pipe, Ductile Iron 04" Solids & 04" EDB Recycle Lines											
		_	33.00.04.3EDB04	31.00.01.01 Trenching, Backfill, and Compaction											
		_		Rent trench box, 8000 lb., 8' x 16'	148.00 day	0.004	-			- 17,782	-	120.15 /day	17,782	188.29 /day	5
				Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering Backfill, 6' layers, compaction in layers, hand tamp, PIPE ZONE	10,456.79 CY 1,187.26 ecy	2,324 461	166,351 27,864			- 172,142		32.37 /CY 23.47 /ecy	338,493 27,864	50.73 /CY 36.78 /ecy	
		_		Backfill, 12" layers, compaction in layers, roller compaction with operator walking, ABOVE PIPE ZONE	8,641.98 ecy	691	50,194	-		- 9,075		6.86 /ecy	59,269	10.75 /ecy	
				Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING	1,187.26 lcy 604.94 lcy	190 97	12,371 6,303	24,932		- 2,194 - 1,118		33.27 /lcy 30.37 /lcy	39,498 18,371	48.15 /lcy 44.15 /lcy	
				Hauling, excavated borrow material, loose cubic yards, 20 mile round trip, 0.4 load/hr, base wide rate, 12 cy truck, highway haulers, excludes	1,814.81 lcy	372	26,505			- 36,825	-	34.90 /lcy	63,330		
				loading 31.00.01.01 Trenching, Backfill, and Compaction	10,456.79 CY	4,135	289,589	35,882		239,137		53.99 /CY	564,607	83.97 /CY	87
				33.00.04.04 Buried Pipe, Ductile Iron, 4"											
				4* pipe, DI, RJ, excav/bkfill not included, 350# 4* DI, RJ, Ell, 45	7,000.00 LF 140.00 ea	1,050 266	88,773 22,489	193,914 25,690		- 43,050 - 10,906		46.53 /LF 422.04 /ea	325,737 59,085	67.66 /LF 626.53 /ea	· · ·
				Megalugs for DI Pipe w/ Accessories, 4"	280.00 ea	280	23,673	10,570		- 11,480	-	163.30 /ea	45,723	248.74 /ea	
		_		Polywrap, 4" pipe Add for tie-in to existing (Adjust productivity)	7,000.00 lf 4.00 ea	96	- 8,023	2,240 3,000			-	0.32 /lf 3,889.26 /ea	2,240	0.44 /lf 5,952.56 /ea	
		_		Pipe Marking, ID Tape	7,000.00 lf	70	5,849	910			-	0.97 /lf	6,759	1.49 /lf	
		_		33.00.04.04 Buried Pipe, Ductile Iron, 4" 33.00.04.SEDB04 04" Solids & 04" EDB Recycle Lines	7,000.00 LF 7,000.00 LF	1,762 5,897	148,807 438,396	236,324 272,206		69,970 309,107		65.01 /LF 145.67 /LF	455,102 1,019,709	95.47 /LF 220.90 /LF	6
				33.02 Buried Process Pipe, Ductile Iron	7,000.00 LF	5,897	438,396	272,200		309,107		145.67 /LF	1,019,709	220.90 /LF	1,54
				33.0 Utilities	1.00 LS	5,897	438,396	272,206		309,107		1,019,708.75 /LS	1,019,709		1,5
90.1		_		03.3 Residuals piping Sitework Allowance	1.00 LS	5,897	438,396	272,206		309,107		1,019,708.75 /LS	1,019,709	1,546,320.83 /LS	1,5
50.1	31.0			Earthwork											
		31.00		Site/Civil General Items											
			31.00.01.0010	Sitework Allowance 31.00.01.00 Site/Civil, General Conditions											
				Sitework Allowance (~6% construction costs)	1.00 ls						226,000	226,000.00 /ls	226,000	277,336.65 /ls	
		_		31.00.01.00 Site/Civil, General Conditions	1.00 LS						226,000		226,000	277,336.65 /LS	2
	_			31.00.01.0010 Sitework Allowance 31.00 Site/Civil General Items	1.00 LS 1.00 LS						226,000 226,000		226,000 226,000	277,336.65 /LS 277,336.65 /LS	2
				31.0 Earthwork	1.00 LS						226,000	226,000.00 /LS	226,000	277,336.65 /LS	2
		_		90.1 Sitework Allowance	1.00 LS	0.700	040.400	004.040		455.055	226,000		226,000	277,336.65 /LS	
		_		3.1C CIP 3 - WTP Replacement, Phase 1C	1.00 LS	8,729	649,130	681,846		455,255	226,000	2,012,231.05 /LS	2,012,231	2,947,083.77 /LS	2,9
01.7	_			CIP 4 - WTP Replacement, Phase 2A Demolition Caustic Soda Building											
••••	02.0			Existing Conditions											
		02.40		Demolition											
		_	02.01.02.0010	Demo Strucutral Concrete 02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs											
				Demo Concrete Foundations	33.98 CY	48	3,347			- 2,549		173.50 /CY	5,896	280.76 /CY	
		_		02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs 02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	33.98 CY	48	3,347			2,549		173.50 /CY	5,896	280.76 /CY	
				Demolition Concrete Other	3.40 CY	8	558			- 425	-	289.16 /CY	983	467.93 /CY	
		_		02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	3.40 CY	8	558			425		289.16 /CY	983	467.93 /CY	
		_		31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	81.56 ton			2,447			-	30.00 /ton	2,447	42.85 /ton	
		_		Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	4.08 LD	8	581			- 729	-	321.06 /LD	1,309	519.55 /LD	
	_			31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees 02.01.02.0010 Demo Strucutral Concrete	4.08 LD 37.38 CY	64	581 4,486	2,447		729 3,702		921.07 /LD 284.49 /CY	<u>3,756</u> 10,635	1,376.53 /LD 447.94 /CY	
			02.01.02.0070	Misc. Demolition	37.30 01	04	4,400	2,447		5,702		204.43 /01	10,033	447.34 701	
		_		02.01.02.00 Sturcture/Building Demoltion											
				Building demolition, large urban projects, masonry, includes 20 mile haul, excludes foundation demolition, dump fees 02.01.02.00 Sturcture/Building Demolition	870.00 SF 870.00 SF	278 278	19,280 19,280	•		- 22,244 22,244	-	47.73 /SF 47.73 /SF	41,524 41,524	77.24 /SF 77.24 /SF	
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	0.000 0.		10,200								
		_		Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	190.31 ton 9.52 LD	19	- 1,355	5,709		1,700	-	30.00 /ton 321.06 /LD	5,709 3,055	42.85 /ton 519.55 /LD	
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline) 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	9.52 LD 9.52 LD	19	1,355	5,709		1,700		921.03 /LD	8,765	1,376.47 /LD	
			00.04.00.00	02.01.02.0070 Misc. Demolition	1.00 LS	297		5,709		23,945		50,288.51 /LS	50,289		
			02.01.06.0010	Electrical Demolition 02.01.06.01 Electrical Facility Demolition											
				Electrical Demolition - Med Crew	12.00 hr	60	4,094			- 2,075		514.10 /hr	6,169		
				02.01.06.01 Electrical Facility Demolition	1.00 LS	60	4,094			2,075		6,169.16 /LS	6,169	9,983.28 /LS	
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	10.00 ton		•	300				30.00 /ton	300	42.85 /ton	
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	0.50 LD	1	71			- 89	-	321.06 /LD	161	519.58 /LD	
	_			31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees 02.01.06.0010 Electrical Demolition	0.50 LD 1.00 LS	61	71 4,165	300 300		2,164		921.06 /LD 6,629.69 /LS	461 6,630	1,376.52 /LD 10,671.54 /LS	
				02.40 Demolition	1.00 LS	422		8,456		29,811		67,552.96 /LS	67,553	107,711.14 /LS	
				02.0 Existing Conditions	1.00 LS	422	29,285	8,456		29,811		67,552.96 /LS	67,553	107,711.14 /LS	
01.8		_		01.7 Demolition Caustic Soda Building Demolition Sodium Hypochlorite Building	1.00 LS	422	29,285	8,456		29,811		67,552.96 /LS	67,553	107,711.14 /LS	
	02.0			Existing Conditions											
		02.40		Demolition											
		_	02.01.02.0010	Demo Strucutral Concrete 02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs											
				Demo Concrete Foundations	57.42 CY	80	5,655			- 4,307	-	173.50 /CY	9,962	280.76 /CY	
				02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs	57.42 CY	80	5,655			4,307		173.50 /CY	9,962	280.76 /CY	
				02.01.02.99 Selective Demolition, Cut-out, Concrete, Other Demolition Concrete Other	5.74 CY	13	942			- 718		289.16 /CY	1,660	467.93 /CY	
				02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	5.74 CY	13				718		289.16 /CY	1,660		
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dumo charges, twiced urban city, building construction materials, includes tipping fees only	137.81 ton			4434				30.00 /ton	4,134	42.85 /ton	
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	137.81 ton 6.89 LD	14	- 981	4,134		- 1,231		30.00 /ton 321.06 /LD	4,134 2,212	42.85 /ton 519.55 /LD	
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	6.89 LD	14	981	4,134		1,231		921.11 /LD	6,346	1,376.57 /LD	
				02.01.02.0010 Demo Strucutral Concrete	63.16 CY	108	7,579	4,134		6,255		284.49 /CY	17,969	447.93 /CY	

D3718900-04-The Dalles WTP-9_5mgd DAF-tj Property of Jacobs, All Rights Reserved - Copyright 2021

9/11/202409:58 Page 4

Page 616 of 664

Detail Report Project Name: The Dalles WTP - 9.5mgd DAF Project Number: D3718900 Design Stage: ROM

Estimator: Jones T Rev No. / Data: R04 - 09/11/2024 Class Estimate: Class 5

			02.01.02.00 Sturcture/Building Demoltion Building demolition, large urban projects, masonry, includes 20 mile haul, excludes foundation demolition, dump fees											
				1,470.00 SF	470	32,576			37,586	-	47.73 /SF	70,161	77.24 /SF	1.
			02.01.02.00 Sturcture/Building Demoltion	1,470.00 SF		32,576			37,586		47.73 /SF	70,161	77.24 /SF	11
			31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees											
			Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	321.56 ton 16.08 LD		- 2,290	9,647	-	- 2,873	•	30.00 /ton 321.06 /LD	9,647 5,162	42.85 /ton 519.55 /LD	
			31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	16.08 LD		2,230	9,647		2,873	-	921.02 /LD	14,809	1,376.45 /LD	
			02.01.02.0070 Misc. Demolition	1.00 LS		34,866	9,647		40,458		84,970.55 /LS	84,971	135,670.98 /LS	1
		02.01.06.0010	Electrical Demolition											
			02.01.06.01 Electrical Facility Demolition Electrical Demolition - Med Crew	24.00 hr	120	8,188			4,150		514.10 /hr	12,338	831.94 /hr	A
			02.01.06.01 Electrical Facility Demolition	1.00 LS		8,188			4,150		12,338.33 /LS	12,338	19,966.54 /LS	
			31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees											
<u> </u>			Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	20.00 ton		-	600	-		-	30.00 /ton	600	42.85 /ton	4
			31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	1.00 LD 1.00 LD		142	600		179 179		321.06 /LD 921.06 /LD	321 921	519.56 /LD 1,376.51 /LD	
			02.01.06.0010 Electrical Demolition	1.00 LS		8,330	600		4,329		13,259.39 /LS	13,259	21,343.05 /LS	
			02.40 Demolition	1.00 LS		50,775	14,381		51,043		116,198.68 /LS	116,199	185,306.46 /LS	
			02.0 Existing Conditions 01.8 Demolition Sodium Hypochlorite Building	1.00 LS 1.00 LS		<u>50,775</u> 50,775	14,381 14,381		51,043 51,043		116,198.68 /LS 116,198.68 /LS	116,199 116,199	185,306.46 /LS 185,306.46 /LS	
			Construct new finished water chem building	1.00 LS	132	50,775	14,301		51,043		110,198.08 /LS	110,199	185,306.46 /LS	
	13.0		Special Construction											
		13.01	Buildings Complete											
		13.00.01.0401	Construct new finished water chem building											4
			13.00.01.02 Buildings, Operations	0.405.00.07				0.0772			070.00 /05	010 7	205 CO 105	
			Building Complete - Chemical Building 13.00.01.02 Buildings, Operations	3,125.00 SF 3,125.00 SF				843,750 843,750	-	-	270.00 /SF 270.00 /SF	843,750 843,750	385.63 /SF 385.63 /SF	1
_			13.00.01.02 Buildings, Operations 13.00.01.0401 Construct new finished water chem building	1.00 LS				843,750			843,750.00 /LS	843,750	1,205,088.73 /LS	1
			13.01 Buildings Complete	1.00 LS				843,750			843,750.00 /LS	843,750	1,205,088.73 /LS	1
			13.0 Special Construction	1.00 LS				843,750			843,750.00 /LS	843,750	1,205,088.73 /LS	1
			05.0 Construct new finished water chem building	1.00 LS				843,750			843,750.00 /LS	843,750	1,205,088.73 /LS	1
11	11.0		On-Site Hypo Generation System Commercial Equipment											
11	. 1.0	11.00	Equipment		-									
		11.00.99.0011	Equipment Costs from Replica											
			11.00.99.00 Equipment, Other											
			On-Site Sodium Hypo: Hypo - 11 - Equipment	1.00 ls				-		912,066	912,065.94 /ls	912,066	1,165,851.31 /ls	
			11.00.99.00 Equipment, Other	1.00 LS						912,066	912,065.94 /LS	912,066	1,165,851.31 /LS	1
			11.00.99.0011 Equipment Costs from Replica 11.00 Equipment	1.00 LS 1.00 LS						912,066 912,066	912,065.94 /LS 912,065.94 /LS	912,066 912,066	1,165,851.31 /LS 1,165,851.31 /LS	1
			11.0 Commercial Equipment	1.00 LS						912,066	912,065.94 /LS	912,066	1,165,851.31 /LS	1
26	26.0		Electrical Work											
		26.00	Electrical											4
		26.00.99.0016	Electrical Costs from Replica											4
			26.00.99.00 Electrical, Other On-Site Sodium Hypo: Hypo - 16 Electrical	1.00 ls						75,753	75,752.98 /ls	75,753	96,831.50 /ls	
			26.00.99.00 Electrical, Other	1.00 LS						75,753	75,752.98 /LS	75,753	96,831.50 /LS	
			26.00.99.0016 Electrical Costs from Replica	1.00 LS						75,753	75,752.98 /LS	75,753	96,831.50 /LS	
			26.00 Electrical	1.00 LS						75,753	75,752.98 /LS	75,753	96,831.50 /LS	4
	40.0		26.0 Electrical Work	1.00 LS						75,753	75,752.98 /LS	75,753	96,831.50 /LS	<u> </u>
40		40.19	Process Pipe Process Pipe, Other											
		40.00.99.0015	Mechanical Costs from Replica											
			40.00.99.01 Process Pipe, Other											
			On-Site Sodium Hypo: Hypo - 15 Mechanical	1.00 ls	_			-	-	151,506	151,505.97 /ls	151,506	193,663.00 /ls	4
			40.00.99.01 Process Pipe, Other 40.00.99.0015 Mechanical Costs from Replica	1.00 LS 1.00 LS						151,506 151,506	151,505.97 /LS 151,505.97 /LS	151,506 151,506	193,663.00 /LS 193,663.00 /LS	l
			40.19 Process Pipe, Other	1.00 LS						151,506	151,505.97 /LS	151,506	193,663.00 /LS	
			40.0 Process Pipe	1.00 LS						151,506	151,505.97 /LS	151,506	193,663.00 /LS	
40	40.9		Instrumentation & Controls											
		40.90	Instrumentation & Controls											4
-+		40.90.99.0013	Special Construction from Replica											
			40.90.99.01 I&C, Other On-Site Sodium Hypo: Hypo - 13 Special Construction	1.00 ls						75,753	75,752.98 /ls	75,753	96,831.50 /ls	
			40.90.99.01 I&C, Other	1.00 LS						75,753	75,752.98 /LS	75,753	96,831.50 /LS	
			40.90.99.0013 Special Construction from Replica	1.00 LS						75,753	75,752.98 /LS	75,753	96,831.50 /LS	4
			40.90 Instrumentation & Controls	1.00 LS						75,753	75,752.98 /LS	75,753		
			40.9 Instrumentation & Controls	1.00 LS 1.00 LS						75,753 1,215,078	75,752.98 /LS 1,215,077.87 /LS	75,753 1,215,078	96,831.50 /LS 1,553,177.31 /LS	
			05.1 On-Site Hypo Generation System Fluoride Storage/Equipment	1.00 LS						1,215,078	1,210,0/7.0/ /LS	1,215,078	1,353,177.31 /LS	
	11.0		Commercial Equipment		-									
		11.00	Equipment											
		11.00.99.0011	Equipment Costs from Replica											
			11.00.99.00 Equipment, Other		_						201 101 15		F00 405 55 3	
-+			Dry Chemical: Fluoride - 11 - Equipment 11.00.99.00 Equipment, Other	1.00 ls 1.00 LS	-			-	-	391,491 391,491	391,491.42 /ls 391,491.42 /LS	391,491 391,491	500,425.20 /ls 500,425.20 /LS	
-+			11.00.99.0011 Equipment Costs from Replica	1.00 LS						391,491	391,491.42 /LS	391,491	500,425.20 /LS	
			11.00 Equipment	1.00 LS						391,491	391,491.42 /LS	391,491	500,425.20 /LS	
			11.0 Commercial Equipment	1.00 LS						391,491	391,491.42 /LS	391,491	500,425.20 /LS	4
26	26.0		Electrical Work											4
		26.00	Electrical											
		26.00.99.0016	Electrical Costs from Replica 26.00.99.00 Electrical, Other											
			26.00.99.00 Electrical, other Dry Chemical: Fluoride - 16 Electrical	1.00 ls	-					86,055	86,055.39 /ls	86,055	110,000.59 /ls	
			26.00.99.00 Electrical, Other	1.00 LS						86,055	86,055.39 /LS	86,055	110,000.59 /LS	
			26.00.99.0016 Electrical Costs from Replica	1.00 LS						86,055	86,055.39 /LS	86,055	110,000.59 /LS	
			26.00 Electrical	1.00 LS						86,055	86,055.39 /LS	86,055	110,000.59 /LS	
			26.0 Electrical Work	1.00 LS						86,055	86,055.39 /LS	86,055	110,000.59 /LS	4
40	40.0	40.40	Process Pipe											
		40.19 40.00.99.0015	Process Pipe, Other Mechanical Costs from Replica											

D3718900-04-The Dalles WTP-9_5mgd DAF-tj Property of Jacobs, All Rights Reserved - Copyright 2021

9/11/202409:58 Page 5

	Vork Tra Pkg Pk		ctiv Unit Pri	e Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total A
			40.00.99.	Process Pipe, Other Dry Chemical: Fluoride - 15 Mechanical	1.00 ls						35,149	35,149.38 /ls	35,149	44,929.80 /ls	
				40.00.99.01 Process Pipe, Other	1.00 LS						35,149	35,149.38 /LS	35,149		
				40.00.99.0015 Mechanical Costs from Replica	1.00 LS						35,149	35,149.38 /LS	35,149	44,929.80 /LS	
				40.19 Process Pipe, Other	1.00 LS						35,149	35,149.38 /LS	35,149		
40.	9			40.0 Process Pipe Instrumentation & Controls	1.00 LS						35,149	35,149.38 /LS	35,149	44,929.80 /LS	
40.	40.9	90		Instrumentation & Controls											
		40.90.99.0	13	Special Construction from Replica											
			40.90.99.	II I&C, Other											
				Dry Chemical: Fluoride - 13 Special Construction 40.90.99.01 I&C, Other	1.00 ls 1.00 LS						13,333 13,333	13,332.53 /ls 13,332.53 /LS	13,333 13,333	17,042.36 /ls 17,042.36 /LS	
				40.90.99.0013 Special Construction from Replica	1.00 LS						13,333	13,332.53 /LS	13,333	17,042.36 /LS	
				40.90 Instrumentation & Controls	1.00 LS						13,333	13,332.53 /LS	13,333	17,042.36 /LS	
				40.9 Instrumentation & Controls	1.00 LS						13,333	13,332.53 /LS	13,333	17,042.36 /LS	
2				05.2 Fluoride Storage/Equipment	1.00 LS						526,029	526,028.72 /LS	526,029	672,397.95 /LS	
.3	0			Caustic Storage/Equipment Commercial Equipment											
	11.0	00		Equipment											
		11.00.99.0	11	Equipment Costs from Replica											
			11.00.99.												
				Liquid Chemical: Caustic - 11 - Equipment 11.00.99.00 Equipment, Other	1.00 ls 1.00 LS						28,483 28,483	28,483.12 /ls 28,483.12 /LS	28,483 28,483	36,408.64 /ls 36,408.64 /LS	
				11.00.99.0011 Equipment, Other 11.00.99.0011 Equipment Costs from Replica	1.00 LS						28,483	28,483.12 /LS	28,483	36,408.64 /LS	
				11.00 Equipment	1.00 LS						28,483	28,483.12 /LS	28,483	36,408.64 /LS	
				11.0 Commercial Equipment	1.00 LS						28,483	28,483.12 /LS	28,483	36,408.64 /LS	
26.				Electrical Work											
	26.0	26.00.99.0		Electrical Electrical Costs from Replica		-									
		20.00.99.0	26.00.99.												
				Liquid Chemical: Caustic - 16 Electrical	1.00 ls						5,454	5,454.00 /ls	5,454	6,971.59 /ls	
				26.00.99.00 Electrical, Other	1.00 LS						5,454	5,454.00 /LS	5,454	6,971.59 /LS	
				26.00.99.0016 Electrical Costs from Replica	1.00 LS						5,454	5,454.00 /LS	5,454	6,971.59 /LS	
			26.00 Electrical 26.0 Electrical Work	1.00 LS 1.00 LS						5,454 5,454	5,454.00 /LS 5,454.00 /LS	5,454 5,454	6,971.59 /LS 6,971.59 /LS		
40.	.0			Process Pipe	1.00 LS						0,404	J,4J4.00 /LO	5,404	3,371.397123	
	40.1	9		Process Pipe, Other											
		40.00.99.0		Mechanical Costs from Replica											
			40.00.99.												
				Liquid Chemical: Caustic - 15 Mechanical 40.00.99.01 Process Pipe, Other	1.00 ls 1.00 LS						13,332 13,332	13,332.00 /ls 13,332.00 /LS	13,332 13,332	17,041.67 /ls 17,041.67 /LS	
				40.00.99.0015 Mechanical Costs from Replica	1.00 LS						13,332	13,332.00 /LS	13,332	17,041.67 /LS	
				40.19 Process Pipe, Other	1.00 LS						13,332	13,332.00 /LS	13,332	17,041.67 /LS	
				40.0 Process Pipe	1.00 LS						13,332	13,332.00 /LS	13,332	17,041.67 /LS	
40.				Instrumentation & Controls											
	40.9	40.90.99.0	10	Instrumentation & Controls Special Construction from Replica											
		40.90.99.0	40.90.99.												
				Liquid Chemical: Caustic - 13 Special Construction	1.00 ls						58,782	58,782.00 /ls	58,782	75,138.29 /ls	
				40.90.99.01 I&C, Other	1.00 LS						58,782	58,782.00 /LS	58,782	75,138.29 /LS	
				40.90.99.0013 Special Construction from Replica 40.90 Instrumentation & Controls	1.00 LS						58,782	58,782.00 /LS	58,782	75,138.29 /LS	
				40.9 Instrumentation & Controls	1.00 LS 1.00 LS						58,782 58,782	58,782.00 /LS 58,782.00 /LS	58,782 58,782	75,138.29 /LS 75,138.29 /LS	
				05.3 Caustic Storage/Equipment	1.00 LS						106,051	106,051.12 /LS	106,051	135,560.19 /LS	
.4				Polyphosphate Storage/Equipment											
11.				Commercial Equipment											
	11.0			Equipment											
		11.00.99.0	11.00.99.	Equipment Costs from Replica											
			11.00.99.	Equipment, Other Liquid Chemical: PolyPhos - 11 - Equipment	1.00 ls						28,483	28,483.12 /ls	28,483	36,408.64 /ls	
				11.00.99.00 Equipment, Other	1.00 LS						28,483	28,483.12 /LS	28,483	36,408.64 /LS	
				11.00.99.0011 Equipment Costs from Replica	1.00 LS						28,483	28,483.12 /LS	28,483	36,408.64 /LS	
				11.00 Equipment 11.0 Commercial Equipment	1.00 LS 1.00 LS						28,483 28,483	28,483.12 /LS 28,483.12 /LS	28,483 28,483		
26.	.0			Electrical Work	1.00 LS						20,403	10,400.12 /LO	20,403	00,400.04 /20	
	26.0	00		Electrical											
		26.00.99.0		Electrical Costs from Replica											
			26.00.99.		4.00 *							4.040.00		C 400 CO - 8	
				Liquid Chemical: PolyPhos - 16 Electrical 26.00.99.00 Electrical, Other	1.00 ls 1.00 LS						4,848 4,848	4,848.00 /ls 4,848.00 /LS	4,848 4,848	6,196.98 /ls 6,196.98 /LS	
				26.00.99.0016 Electrical Costs from Replica	1.00 LS						4,848	4,848.00 /LS	4,848	6,196.98 /LS	
				26.00 Electrical	1.00 LS						4,848	4,848.00 /LS	4,848	6,196.98 /LS	
	-			26.0 Electrical Work	1.00 LS						4,848	4,848.00 /LS	4,848	6,196.98 /LS	
40.	0.0 40.1	9		Process Pipe Process Pipe, Other											
	40.1	40.00.99.0	15	Mechanical Costs from Replica											
				M Process Pipe, Other											
				Liquid Chemical: PolyPhos - 15 Mechanical	1.00 ls						12,726	12,726.00 /ls	12,726		
				40.00.99.01 Process Pipe, Other	1.00 LS						12,726	12,726.00 /LS	12,726	16,267.05 /LS	
				40.00.99.0015 Mechanical Costs from Replica 40.19 Process Pipe, Other	1.00 LS 1.00 LS	-					12,726 12,726	12,726.00 /LS 12,726.00 /LS	12,726 12,726	16,267.05 /LS 16,267.05 /LS	
				40.19 Process Pipe	1.00 LS						12,726	12,726.00 /LS	12,726		
40.	.9			Instrumentation & Controls							.2,.20	.,	.2,.20		
	40.9			Instrumentation & Controls											
		40.90.99.0		Special Construction from Replica											
			40.90.99.	11 I&C, Other Liquid Chemical: PolyPhos - 13 Special Construction	1.00 ls						53,934	53,934.00 /ls	53,934	68,941.32 /ls	
				Liquid Chemical: PolyPhos - 13 Special Construction 40.90.99.01 I&C, Other	1.00 IS 1.00 LS	1					53,934	53,934.00 /ls	53,934		
				40.90.99.0013 Special Construction from Replica		-	1								
				40.90.99.0013 Special Construction from Replica	1.00 LS						53,934	53,934.00 /LS	53,934	68,941.32 /LS	

D3718900-04-The Dalles WTP-9_5mgd DAF-tj Property of Jacobs, All Rights Reserved - Copyright 2021

Estimator: Jones T Rev No. / Data: R04 - 09/11/2024 Class Estimate: Class 5

id Item Work Trac	ade ²kg	WorkActiv Unit Price	Description	Takeoff Quantity Labo	r Hours Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Amou
			05.4 Polyphosphate Storage/Equipment	1.00 LS					99,991	99,991.12 /LS	99,991	127,813.99 /LS	127
.5 11.0			Phosphoric Acid Storage/Equipment										
11.0	.00		Commercial Equipment Equipment										
		00.99.0011	Equipment Costs from Replica										
		11.00.99.00	Equipment, Other	4.00 km					20.402	00.400.40	00.400	20 400 04 //-	
			Liquid Chemical: PhosAcid - 11 - Equipment 11.00.99.00 Equipment, Other	1.00 ls 1.00 LS				·	28,483 28,483	28,483.12 /ls 28,483.12 /LS	28,483 28,483	36,408.64 /ls 36,408.64 /LS	3
			11.00.99.0011 Equipment Costs from Replica	1.00 LS					28,483	28,483.12 /LS	28,483	36,408.64 /LS	3
			11.00 Equipment	1.00 LS					28,483	28,483.12 /LS	28,483	36,408.64 /LS	3
26.0	_		11.0 Commercial Equipment Electrical Work	1.00 LS					28,483	28,483.12 /LS	28,483	36,408.64 /LS	3
26.0	.00		Electrical										
		00.99.0016	Electrical Costs from Replica										
		26.00.99.00	Electrical, Other Liquid Chemical: PhosAcid - 16 Electrical	1.00 ls					4,242	4,242.00 /ls	4,242	5,422.34 /ls	
			26.00.99.00 Electrical, Other	1.00 LS					4,242	4,242.00 /LS	4,242	5,422.34 /LS	
			26.00.99.0016 Electrical Costs from Replica	1.00 LS					4,242	4,242.00 /LS	4,242	5,422.34 /LS	
			26.00 Electrical	1.00 LS					4,242	4,242.00 /LS	4,242	5,422.34 /LS	
40.0			26.0 Electrical Work Process Pipe	1.00 LS					4,242	4,242.00 /LS	4,242	5,422.34 /LS	
40.1	.19		Process Pipe, Other										
	40.	00.99.0015	Mechanical Costs from Replica										
		40.00.99.01	Process Pipe, Other Liquid Chemical: PhosAcid - 15 Mechanical	1.00 ls					11,514	11,514.00 /ls	11,514	14,717.82 /ls	
			40.00.99.01 Process Pipe, Other	1.00 LS					11,514	11,514.00 /LS	11,514	14,717.82 /LS	1
			40.00.99.0015 Mechanical Costs from Replica	1.00 LS					11,514	11,514.00 /LS	11,514	14,717.82 /LS	
			40.19 Process Pipe, Other 40.0 Process Pipe	1.00 LS 1.00 LS					11,514 11,514		11,514 11,514	14,717.82 /LS 14,717.82 /LS	1
40.9			Instrumentation & Controls	1.00 L3					11,514	11,514.00 /L3	11,514	14,/17.02 /L3	'
	40.90 40.90.99.0013		Instrumentation & Controls										
			Special Construction from Replica										
	_	40.90.99.01	I&C, Other Liquid Chemical: PhosAcid - 13 Special Construction	1.00 ls					52,116	52,116.00 /ls	52,116	66,617.45 /ls	
			40.90.99.01 I&C, Other	1.00 LS					52,116	52,116.00 /LS	52,116	66,617.45 /LS	
			40.90.99.0013 Special Construction from Replica	1.00 LS					52,116	52,116.00 /LS	52,116	66,617.45 /LS	(
			40.90 Instrumentation & Controls 40.9 Instrumentation & Controls	1.00 LS 1.00 LS					52,116 52,116	52,116.00 /LS 52,116.00 /LS	52,116 52,116	66,617.45 /LS 66,617.45 /LS	
			05.5 Phosphoric Acid Storage/Equipment	1.00 LS					96,355	96,355.12 /LS	96,355	123,166.25 /LS	12
			Construct new backwash supply pump station										
11.0			Commercial Equipment										
11.0		00.99.0011	Equipment Equipment Costs from Replica										
			Filter BW PS: BWS - 11 - Equipment	1.00 ls					149,076	149,076.00 /ls	149,076	190,556.88 /ls	1
			11.00.99.00 Equipment, Other	1.00 LS 1.00 LS					149,076 149,076	149,076.00 /LS 149,076.00 /LS	149,076 149,076	190,556.88 /LS 190,556.88 /LS	19
			11.00.99.0011 Equipment Costs from Replica 11.00 Equipment	1.00 LS					149,076	149,076.00 /LS	149,076	190,556.88 /LS	19
			11.0 Commercial Equipment	1.00 LS					149,076	149,076.00 /LS	149,076	190,556.88 /LS	19
13.0			Special Construction										
13.0		00.01.0401	Buildings Complete Construct new finished water chem building										
	10.												
			Building Complete - Pump Station Building	360.00 SF			97,200			270.00 /SF	97,200	385.63 /SF	1
			13.00.01.02 Buildings, Operations 13.00.01.0401 Construct new finished water chem building	360.00 SF 1.00 LS			<u>97,200</u> 97,200			270.00 /SF 97,200.00 /LS	97,200 97,200	385.63 /SF 138,826.22 /LS	1:
			13.01 Buildings Complete	1.00 LS			97,200			97,200.00 /LS	97,200	138,826.22 /LS	13
			13.0 Special Construction	1.00 LS			97,200			97,200.00 /LS	97,200	138,826.22 /LS	1:
26.0			Electrical Work Electrical										
20.0			Electrical Costs from Replica										
			Electrical, Other										
			Filter BW PS: BWS - 16 Electrical 26.00.99.00 Electrical, Other	1.00 ls 1.00 LS					76,962	76,962.00 /ls 76,962.00 /LS	76,962	98,376.94 /ls 98,376.94 /LS	
			26.00.99.0016 Electrical Costs from Replica	1.00 LS					76,962 76,962	76,962.00 /LS	76,962 76,962	98,376.94 /LS	
			26.00 Electrical	1.00 LS					76,962		76,962		
			26.0 Electrical Work	1.00 LS					76,962	76,962.00 /LS	76,962	98,376.94 /LS	
40.0	10		Process Pipe Process Pipe, Other										
40.13		00.99.0015	Mechanical Costs from Replica										
			Process Pipe, Other										
			Filter BW PS: BWS - 15 Mechanical 40.00.99.01 Process Pipe, Other	1.00 ls 1.00 LS			-		127,866 127,866	127,866.00 /ls 127,866.00 /LS	127,866 127,866	163,445.14 /ls 163,445.14 /LS	1
			40.00.99.0015 Mechanical Costs from Replica	1.00 LS					127,866	127,866.00 /LS	127,866	163,445.14 /LS	1
			40.19 Process Pipe, Other	1.00 LS					127,866	127,866.00 /LS	127,866	163,445.14 /LS	1
			40.0 Process Pipe	1.00 LS					127,866	127,866.00 /LS	127,866	163,445.14 /LS	1
40.9 40.9	90		Instrumentation & Controls Instrumentation & Controls										
40.0		90.99.0013	Special Construction from Replica										
		40.90.99.01	I&C, Other										
			Filter BW PS: BWS - 13 Special Construction 40.90.99.01 I&C, Other	1.00 ls 1.00 LS			-	-	41,208 41,208	41,208.00 /ls 41,208.00 /LS	41,208 41,208	52,674.26 /ls 52,674.26 /LS	
			40.90.99.001 &C, Other 40.90.99.0013 Special Construction from Replica	1.00 LS					41,208		41,208	52,674.26 /LS	
			40.90 Instrumentation & Controls	1.00 LS					41,208	41,208.00 /LS	41,208	52,674.26 /LS	
			40.9 Instrumentation & Controls	1.00 LS					41,208	41,208.00 /LS	41,208	52,674.26 /LS	
			06.0 Construct new backwash supply pump station	1.00 LS	4 4 7 4		97,200		395,112		492,312		6
			4.2A CIP 4 - WTP Replacement, Phase 2A	1.00 LS	1,154 80,060	0 22,837	940,950	80,854	2,438,616	3,563,317.59 /LS	3,563,318	4,754,101.46 /LS	4,75
			CIP 4 - WTP Replacement, Phase 2B										
			Construct new admin building Special Construction										
13.0			l ebeene eenon aanan			1							1

D3718900-04-The Dalles WTP-9_5mgd DAF-tj Property of Jacobs, All Rights Reserved - Copyright 2021

Estimator: Jones T Rev No. / Data: R04 - 09/11/2024 Class Estimate: Class 5

Bid Item Work Pkg		WorkActiv	Unit Price	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total
	1	13.01.99.0013	10.01.00.00	Administration Building (RS Means 1-Story Office)											
			13.01.99.00	Special Construction, Other Administration Building (RS Means 1-Story Office)	4,000.00 SF					-	1,320,000	330.00 /SF	1,320,000	421.82 /SF	
				13.01.99.00 Special Construction, Other	1.00 LS						1,320,000	1,320,000.00 /LS	1,320,000		
				13.01.99.0013 Administration Building (RS Means 1-Story Office)	4,000.00 SF						1,320,000	330.00 /SF	1,320,000	421.82 /SF	
				13.01 Buildings Complete 13.0 Special Construction	1.00 LS 1.00 LS						1,320,000 1,320,000	1,320,000.00 /LS 1,320,000.00 /LS	1,320,000 1,320,000		
				07.0 Construct new admin building	1.00 LS						1,320,000	1,320,000.00 /LS	1,320,000		
0.2				Sitework/Site Electrical/Yard Piping/SCADA Allowance							1	// ////			
26.0				Electrical Work											
	26.10	26.10.20.0010		Site Electrical											
		26.10.20.0010	26.10.20.00	Site Electrical Allowance Site Electrical, Other											
			20110120100	Site Electrical Allowance (~15% of Construction Costs)	1.00 ls					-	730,000	730,000.00 /ls	730,000	933,124.91 /ls	
				26.10.20.00 Site Electrical, Other	1.00 LS						730,000	730,000.00 /LS	730,000	933,124.91 /LS	
				26.10.20.0010 Site Electrical Allowance	1.00 LS 1.00 LS						730,000	730,000.00 /LS	730,000	933,124.91 /LS	
				26.10 Site Electrical 26.0 Electrical Work	1.00 LS						730,000 730,000	730,000.00 /LS 730,000.00 /LS	730,000 730,000	933,124.91 /LS 933,124.91 /LS	
31.0				Earthwork	1.00 20						100,000	100,000.00 /20	100,000	300,124.01 /20	
	31.00			Site/Civil General Items											
	3	31.00.01.0010		Sitework Allowance											
			31.00.01.00		1.00 la						200.000	200.000.00 //-	200.000	270 002 40 //-	
	+ +			Sitework Allowance (-6% construction costs) 31.00.01.00 Site/Civil, General Conditions	1.00 ls 1.00 LS						290,000 290,000	290,000.00 /ls 290,000.00 /LS	290,000 290,000	370,693.46 /ls 370,693.46 /LS	
				31.00.01.0010 Sitework Allowance	1.00 LS						290,000	290,000.00 /LS	290,000	370,693.46 /LS	
				31.00 Site/Civil General Items	1.00 LS						290,000	290,000.00 /LS	290,000		
				31.0 Earthwork	1.00 LS						290,000	290,000.00 /LS	290,000	370,693.46 /LS	
40.9	40.90			Instrumentation & Controls Instrumentation & Controls											
		40.90.07.0010		Plant Computer System (SCADA allowance)											
			40.90.07.01	I&C, SCADA											
				SCADA Software Development (~6% of Constuction Costs)	1.00 ls						290,000	290,000.00 /ls	290,000	370,693.46 /ls	
				40.90.07.01 I&C, SCADA	1.00 LS						290,000	290,000.00 /LS	290,000	370,693.46 /LS	
				40.90.07.0010 Plant Computer System (SCADA allowance) 40.90 Instrumentation & Controls	1.00 LS 1.00 LS						290,000 290,000	290,000.00 /LS 290,000.00 /LS	290,000 290,000		
				40.9 Instrumentation & Controls	1.00 LS						290,000	290,000.00 /LS	290,000		
				90.2 Sitework/Site Electrical/Yard Piping/SCADA Allowance	1.00 LS						1,310,000	1,310,000.00 /LS	1,310,000		
				4.2B CIP 4 - WTP Replacement, Phase 2B	1.00 LS						2,630,000	2,630,000.00 /LS	2,630,000	3,361,806.20 /LS	
				CIP 5 - WTP Replacement, Phase 3A											
4				Demolition - Conference room											
02.0				Existing Conditions											
	02.40	02.01.02.0010		Demolition Demo Strucutral Concrete											
			02.01.02.02												
			02101102102	Demo Concrete Foundations	30.47 CY	43	3,001			2,285		173.50 /CY	5,286	294.07 /CY	
				02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs	30.47 CY	43	3,001			2,285		173.50 /CY	5,286	294.07 /CY	
			02.01.02.99	Selective Demolition, Cut-out, Concrete, Other Demolition Concrete Other	3.05 CY	7	500			381		289.16 /CY	881	490.12 /CY	
				02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	3.05 CY	7	500			381		289.16 /CY	881	490.12 /CT	
			31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees								200110 /01			
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	73.13 ton		-	2,194		-		30.00 /ton	2,194		
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline) 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	3.66 LD 3.66 LD	7	521 521	2,194	· · · · · ·	653 653		321.06 /LD 921.10 /LD	1,174 3,368		
				02.01.02.0010 Demo Strucutral Concrete	33.52 CY	57	4,022	2,194		3,319		284.49 /CY	9,535		
	0	02.01.02.0070		Misc. Demolition			.,								
			02.01.02.00	Sturcture/Building Demoltion											
				Building demolition, large urban projects, masonry, includes 20 mile haul, excludes foundation demolition, dump fees	780.00 SF	250	17,285			19,943		47.73 /SF	37,229	80.90 /SF	
	+ +		31 20 15 00	02.01.02.00 Sturcture/Building Demoltion Earthworks, Sitework, Hauling and Dump Fees	780.00 SF	250	17,285			19,943		47.73 /SF	37,229	80.90 /SF	
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	170.63 ton		-	5,119		-	-	30.00 /ton	5,119	45.15 /ton	
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	8.53 LD	17	1,215			1,524	-	321.06 /LD	2,739	544.18 /LD	
	+ +			31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	8.53 LD	17	1,215	5,119		1,524		921.07 /LD	7,858		
		02.01.04.40		02.01.02.0070 Misc. Demolition HVAC Demolition	1.00 LS	267	18,500	5,119		21,468		45,086.20 /LS	45,086	75,447.79 /LS	
			02.01.04.40	HVAC Demolition											
				HVAC Demolition - Med Crew	9.75 hr	49	3,326			1,686	-	514.10 /hr	5,012		
			24.00.45.00	02.01.04.40 HVAC Demolition	1.00 LS	49	3,326			1,686		5,012.45 /LS	5,012	8,496.02 /LS	
	+ +		31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	12.19 ton			366				30.00 /ton	366	45.15 /ton	
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	0.61 LD	1	87	300		109	-	321.05 /LD	196		
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	0.61 LD	1	87	366		109		921.44 /LD	561	1,447.77 /LD	
		2 01 06 0010		02.01.04.40 HVAC Demolition	1.00 LS	50	3,413	366		1,795		5,573.61 /LS	5,574	9,377.71 /LS	
	0	02.01.06.0010	02 01 06 01	Electrical Demolition Electrical Facility Demolition											
			52.01.00.01	Electrical Demolition - Med Crew	9.75 hr	49	3,326			1,686	-	514.10 /hr	5,012	871.39 /hr	
				02.01.06.01 Electrical Facility Demolition	0.00	49	3,326			1,686		/LS	5,012	/LS	
			31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees								20.00 ***		15 15 h	
	+ +			Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	12.19 ton 0.61 LD	1	- 87	366	·	109	•	30.00 /ton 321.05 /LD	366	45.15 /ton 544.15 /LD	
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	0.61 LD	1	87	366		109		921.44 /LD	561	1,447.75 /LD	
				02.01.06.0010 Electrical Demolition	1.00 LS	50	3,413	366		1,795		5,573.61 /LS	5,574	9,377.70 /LS	
	+ [02.40 Demolition	1.00 LS	424	29,348	8,044		28,377		65,768.25 /LS	65,768		
	+ +			02.0 Existing Conditions	1.00 LS	424	29,348	8,044		28,377		65,768.25 /LS	65,768 65,768		
.5	+ +			01.4 Demolition - Conference room Demolition - Maintenance shed	1.00 LS	424	29,348	8,044		28,377		65,768.25 /LS	65,768	109,947.77 /LS	
02.0				Existing Conditions											
	02.40			Demolition											
		02.01.02.0010		Demo Strucutral Concrete											
			02.01.02.02	Selective Demolition, Cut-out, Concrete, Slabs						<u></u>		170 55 1011			
				Demo Concrete Foundations	69.06 CY	97	6,802			5,180	-	173.50 /CY	11,982	294.07 /CY	
				02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs	69.06 CY	97	6,802			5,180		173.50 /CY	11,982		

D3718900-04-The Dalles WTP-9_5mgd DAF-tj Property of Jacobs, All Rights Reserved - Copyright 2021 9/11/202409:58 Page 8

Page 620 of 664

Detail Report Project Name: The Dalles WTP - 9.5mgd DAF Project Number: D3718900 Design Stage: ROM

Estimator: Jones T Rev No. / Data: R04 - 09/11/2024 Class Estimate: Class 5

Bid Item	Work Pkg		Unit Price	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total A
			02.01.02.99												
	-			Demolition Concrete Other 02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	6.91 CY 6.91 CY	16	1,134 1,134			863		289.16 /CY 289.16 /CY	1,997 1,997	490.12 /CY 490.12 /CY	
			31.20.15.00		0.91 01	10	1,134			003		209.10 /01	1,997	490.12 /01	
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	165.75 ton		-	4,973		-		30.00 /ton	4,973	45.15 /ton	
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	8.29 LD	17	1,180			1,481		321.06 /LD	2,661	544.19 /LD	
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees 02.01.02.0010 Demo Strucutral Concrete	8.29 LD 75.97 CY	17	1,180 9,116	4,973 4,973		1,481		921.02 /LD 284.49 /CY	7,633	1,447.12 /LD	
		02.01.02.0070		Misc. Demolition	75.97 CT	129	9,110	4,973		7,524		204.49 /01	21,012	469.77 /CY	
			02.01.02.00	Sturcture/Building Demoltion											
				Building demolition, large urban projects, masonry, includes 20 mile haul, excludes foundation demolition, dump fees	1,768.00 SF	566	39,180	-		45,205		47.73 /SF	84,385	80.90 /SF	
	_			02.01.02.00 Sturcture/Building Demoltion	1,768.00 SF	566	39,180			45,205		47.73 /SF	84,385	80.90 /SF	
	-		31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees	200 75 ter			11,603				20.00 /mm	44.000	45.45 /hos	
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	386.75 ton 19.34 LD	39	2,754	11,003		3,455		30.00 /ton 321.06 /LD	11,603	45.15 /ton 544.18 /LD	
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	19.34 LD	39	2,754	11,603		3,455		921.04 /LD	17,811	1,447.15 /LD	
	_			02.01.02.0070 Misc. Demolition	1.00 LS	604	41,933	11,603		48,660		102,195.74 /LS	102,196	171,015.59 /LS	
	_	02.01.06.0010		Electrical Demolition											
	_		02.01.06.01		22.10 hr	111	7.540			2 922		514.10 /hr	11 262	871.39 /hr	
				Electrical Demolition - Med Crew 02.01.06.01 Electrical Facility Demolition	1.00 LS	111	7,540			3,822 3,822		11,361.54 /LS	11,362 11,362	19,257.63 /LS	
			31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees			.,			0,011				10,201100 / 20	
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	27.63 ton		-	829				30.00 /ton	829	45.15 /ton	
	_			Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	1.38 LD	3	197			247		321.06 /LD	443	544.19 /LD	
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees 02.01.06.0010 Electrical Demolition	1.38 LD 1.00 LS	113	197 7,736	829 829		247 4,068		921.17 /LD 12,633.67 /LS	1,272	1,447.34 /LD 21,256.40 /LS	
				02.01.06.0010 Electrical Demolition 02.40 Demolition	1.00 LS 1.00 LS	847	58,786	17,404		60,252		12,633.67 /LS 136,441.87 /LS	12,634	21,256.40 /LS 227,959.98 /LS	
				02.0 Existing Conditions	1.00 LS	847	58,786	17,404		60,252		136,441.87 /LS	136,442	227,959.98 /LS	
				01.5 Demolition - Maintenance shed	1.00 LS	847	58,786	17,404		60,252		136,441.87 /LS	136,442	227,959.98 /LS	
.0				Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor											
	13.0			Special Construction											
		13.01 13.00.01.0400		Buildings Complete Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor		+									
	-	13.00.01.0400	13.01.99.00			+ +									
				Improvements to existing Wicks WTP	1.00 ls					· .	266,000	266,000.00 /ls	266,000	360,425.56 /ls	
	_			13.01.99.00 Special Construction, Other	1.00 LS						266,000		266,000	360,425.56 /LS	
	_			13.00.01.0400 Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor	1.00 LS						266,000		266,000	360,425.56 /LS	
	-			13.01 Buildings Complete	1.00 LS						266,000		266,000 266,000	360,425.56 /LS	
				13.0 Special Construction 04.0 Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor	1.00 LS 1.00 LS						266,000 266,000		266,000	360,425.56 /LS 360,425.56 /LS	
.1	-			New 24" raw water	1.00 13						200,000	200,000.00 /23	200,000	300,423.30 723	
	33.0			Utilities											
		33.02		Buried Process Pipe, Ductile Iron											
		33.00.04.RW24		New 24" raw water											
	_		31.00.01.01		04.00					1.005		100.15 (1)	(005	000.05 (1)	
				Rent trench box, 8000 lb., 8' x 16' Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering	34.00 day 1,316.05 CY	292	20,936			4,085		120.15 /day 32.37 /CY	4,085	203.65 /day 54.87 /CY	
				Backfill, 6" layers, compaction in layers, hand tamp, PIPE ZONE	252.91 ecy	98	5,936	-	-			23.47 /ecy	5,936	39.78 /ecy	
				Backfill, 12" layers, compaction in layers, roller compaction with operator walking, ABOVE PIPE ZONE	962.96 ecy	77	5,593	-		1,011		6.86 /ecy	6,604	11.62 /ecy	
				Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING	252.91 lcy 96.30 lcy	40	2,635	5,311	· · · · · ·	467		33.27 /lcy 30.37 /lcy	8,414 2,924	52.40 /lcy 48.03 /lcy	
	-			Hauling, excavated borrow material, loose cubic yards, 20 mile round trip, 0.4 load/hr, base wide rate, 12 cy truck, highway haulers, excludes	353.09 lcy	72	5,157	-		7,165		34.90 /lcy	12,322	59.15 /lcy	
				loading											
				31.00.01.01 Trenching, Backfill, and Compaction	1,316.05 CY	596	41,260	7,054		34,572		62.98 /CY	82,886	105.73 /CY	
			33.00.04.24	Buried Pipe, Ductile Iron, 24" 24" pipe, DI, RJ, excav/bkfill not included, 350#	1,200.00 LF	432	36,102	189,562		20,405		205.06 /LF	246,069	317.55 /LF	
				24" DI, RJ, Ell, 45	20.00 ea	170	14,207	52,850		8,030	-	3,754.33 /ea	75,087	5,861.44 /ea	
				Megalugs for DI Pipe w/ Accessories, 24"	60.00 ea	120	10,028	28,230		5,668		732.11 /ea	43,926	1,151.51 /ea	
				Polywrap, 24" pipe	1,200.00 lf 1.00 ea	24	-	1,332	-	-	-	1.11 /lf	1,332 3,889	1.67 /lf	
				Add for tie-in to existing (Adjust productivity) Add for tie-in to existing, wet tap by subcontractor	1.00 ea	24	2,006		25,000	1,134		3,889.25 /ea 25,000.00 /ea	25,000	6,449.73 /ea 37,624.58 /ea	
				Pipe Marking, ID Tape	1,200.00 lf	12	1,003	156		-		0.97 /lf	1,159	1.61 /lf	
				33.00.04.24 Buried Pipe, Ductile Iron, 24"	1,200.00 LF	758	63,346	272,880	25,000			330.38 /LF	396,461	512.83 /LF	
				33.00.04.RW24 New 24" raw water	1,200.00 LF	1,354	104,606	279,934	25,000			399.46 /LF	479,347	628.79 /LF	
				33.02 Buried Process Pipe, Ductile Iron	1,200.00 LF	1,354	104,606	279,934	25,000			399.46 /LF 479,347.43 /LS	479,347 479,347	628.79 /LF	
				33.0 Utilities 10.1 New 24" raw water	<u>1.00 LS</u> 1,200.00 LF	1,354 1,354	104,606 104,606	279,934 279,934	25,000 25,000			479,347.43 /LS 399.46 /LF	479,347 479,347	754,548.50 /LS 628.79 /LF	
				5.3A CIP 5 - WTP Replacement, Phase 3A	1.00 LS	2,625	192,740	305,381	25,000		266.000	947,557.55 /LS		1,452,881.81 /LS	
	-			CIP 5 - WTP Replacement, Phase 3B		2,020	102,140	000,001	20,000	100,400	200,000	0.1,007.007.20	541,000	.,,	
6.1				Rapid Mix		+ +									
	13.0	+ +		Special Construction		+ +									
		13.01		Buildings Complete											
		13.01.99.0701		Inline Rapid Mix: New_WTP											
			13.01.99.00									700.017.77		4 000 017 77 0	
		+ +		Inline Rapid Mix: New_WTP Costs from Replica (Total Costs) 13.01.99.00 Special Construction, Other	1.00 ls 1.00 LS	+			· · · ·		789,618 789,618		789,618 789,618	1,069,919.20 /ls 1,069,919.20 /LS	
				13.01.99.00 Special Construction, Other 13.01.99.0701 Inline Rapid Mix: New_WTP	1.00 LS	+ +					789,618		789,618		
	-			13.01 Buildings Complete	1.00 LS	+ +					789,618		789,618		
				13.0 Special Construction	1.00 LS						789,618		789,618	1,069,919.20 /LS	
				08.1 Rapid Mix	1.00 LS	1					789,618	789,618.00 /LS	789,618	1,069,919.20 /LS	
.2	40.5			Flocculation											
	13.0	13.01		Special Construction Buildings Complete		+				+					
		13.01 13.01.99.0702		Buildings Complete Flocculation: NewWTP_DAF		+ +									
		10.07.33.0702	13.01.99.00			+ +									
				Flocculation: NewWTP_DAF Costs from Replica (Total Costs)	1.00 ls					· ·	961,722	961,722.00 /ls	961,722	1,303,117.25 /ls	
				13.01.99.00 Special Construction, Other	1.00 LS						961,722		961,722	1,303,117.25 /LS	
				13.01.99.0702 Flocculation: NewWTP_DAF	1.00 LS						961,722		961,722		
				13.01 Buildings Complete	1.00 LS	+ +					961,722		961,722		
				13.0 Special Construction 08.2 Flocculation	1.00 LS 1.00 LS	+				+	961,722 961,722			1,303,117.25 /LS 1,303,117.25 /LS	
.3				DAF	1.00 1.3	+ +					501,722	JU1,122.00 /LO	501,722	1,000,117.20 /20	
		- I - I		Special Construction		+				1 1					

D3718900-04-The Dalles WTP-9_5mgd DAF-tj Property of Jacobs, All Rights Reserved - Copyright 2021

Bid Item	Work Pkg	Trade Pkg WorkActiv	Unit Price Description	Takeoff Quantity Labor Hou	s Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total A
		13.01 13.01.99.0703	Buildings Complete DAF: New WTP										
		13.01.33.0703	13.01.99.00 Special Construction, Other										
			DAF: New_WTP Costs from Replica (Total Costs)	1.00 ls			-	-	3,956,574	3,956,574.00 /ls	3,956,574	5,361,091.73 /ls	
			13.01.99.00 Special Construction, Other	1.00 LS					3,956,574	3,956,574.00 /LS	3,956,574	5,361,091.73 /LS	5,
			13.01.99.0703 DAF: New_WTP	1.00 LS					3,956,574	3,956,574.00 /LS	3,956,574	5,361,091.73 /LS	5,
			13.01 Buildings Complete	1.00 LS					3,956,574	3,956,574.00 /LS	3,956,574	5,361,091.73 /LS	5,
			13.0 Special Construction	1.00 LS					3,956,574		3,956,574		5
1			08.3 DAF Filtration	1.00 LS					3,956,574	3,956,574.00 /LS	3,956,574	5,361,091.73 /LS	
.4	13.0		Special Construction										
	10.0	13.01	Buildings Complete										
		13.01.99.0704	Filters: New_WTP										
			13.01.99.00 Special Construction, Other										
			Filters: New_WTP Costs from Replica (Total Costs)	1.00 ls			-		5,594,592	5,594,592.00 /ls	5,594,592	7,580,578.78 /ls	
			13.01.99.00 Special Construction, Other	1.00 LS					5,594,592	5,594,592.00 /LS	5,594,592	7,580,578.78 /LS	
			13.01.99.0704 Filters: New_WTP	1.00 LS					5,594,592	5,594,592.00 /LS	5,594,592	7,580,578.78 /LS	4
			13.01 Buildings Complete	1.00 LS					5,594,592	5,594,592.00 /LS	5,594,592	7,580,578.78 /LS	4
			13.0 Special Construction 08.4 Filtration	1.00 LS 1.00 LS					5,594,592 5,594,592	5,594,592.00 /LS 5,594,592.00 /LS	5,594,592 5,594,592	7,580,578.78 /LS 7,580,578.78 /LS	
5			Shoring	1.00 L3					5,594,592	5,594,592.00 /L5	5,594,592	7,500,576.76 765	
,	31.0		Earthwork										
		31.16	Earthworks, Sheeting/Shoring & Cofferdams										
	1	31.16.01.0010	Shoring										
			31.16.01.00 Earthworks, Sheeting and Shoring										
			Shoring, sheet pile, subcontracted		87	-	569,250	-	-	75.00 /SF	569,250	109.12 /SF	
			31.16.01.00 Earthworks, Sheeting and Shoring	7,590.00 SF 9	37		569,250			75.00 /SF	569,250	109.12 /SF	
			31.16.01.0010 Shoring		37		569,250			75.00 /SF	569,250	109.12 /SF	4
			31.16 Earthworks, Sheeting/Shoring & Cofferdams		37		569,250			75.00 /SF	569,250	109.12 /SF	4
			31.0 Earthwork		37		569,250			569,250.00 /LS	569,250		4
			08.5 Shoring	1.00 LS 9	37		569,250			569,250.00 /LS	569,250	828,249.24 /LS	A
	24.0		Dewatering										4
	31.0	31.19	Earthwork Dewatering and Bypass Pumping										4
		31.15.02.0010	Dewatering										
		01.10.02.0010	31.15.02.00 Site Preparation, Dewatering										
			Dewatering Wellpoints, Complete System, Mob	1.00 ea	24		15,000			15,000.00 /ea	15,000	21,824.75 /ea	
			Dewatering Wellpoints, Complete System, Install		40 15,990		-	15,203		6,238.62 /day	31,193	10,262.43 /day	
			Dewatering Wellpoints, Complete System, Rental, First Month	1.00 mo				35,000		35,000.00 /mo	35,000	57,574.42 /mo	4
			Dewatering Wellpoints, Complete System, Rental, after first month, Monthly Dewatering Wellpoints, Complete System, Operation - Labor to maintain / check pumps/ fuel and lube	23.00 mo 24.00 MO 2,1	60 130,996			460,000 9,975		20,000.00 /mo 5,873.79 /MO	460,000 140,971	32,899.67 /mo 9,662.29 /MO	4
			Dewatering Wellpoints, Complete System, Removal		40 15,990			10,431		5,284.06 /day	26,420	8,692.19 /day	
			Dewatering Wellpoints, Complete System, Demob		24	-	10,000	-	-	10,000.00 /ea	10,000	14,549.84 /ea	
			31.15.02.00 Site Preparation, Dewatering	24.00 MO 2,6		3	25,000	530,609		29,941.02 /MO	718,584	49,054.56 /MO	
			31.15.02.0010 Dewatering	24.00 MO 2,6			25,000	530,609		29,941.02 /MO	718,584	49,054.56 /MO	
			31.19 Dewatering and Bypass Pumping	24.00 MO 2,6	88 162,976	6	25,000	530,609		29,941.02 /MO	718,584	49,054.56 /MO	
			31.0 Earthwork	1.00 LS 2,6			25,000	530,609		718,584.40 /LS	718,584	1,177,309.34 /LS	
			08.6 Dewatering	1.00 LS 2,6	88 162,976	5	25,000	530,609		718,584.40 /LS	718,584	1,177,309.34 /LS	4
0			Construct new treatment chem building										4
	13.0		Special Construction										4
		13.01	Buildings Complete										4
		13.00.01.0801	Construct new treatment chem building 13.00.01.02 Buildings, Operations										
			Building Complete - Chemical Building	1,584.00 SF			427,680			270.00 /SF	427,680	406.35 /SF	
			13.00.01.02 Buildings, Operations	1,584.00 SF			427,680			270.00 /SF	427,680	406.35 /SF	
			13.00.01.0801 Construct new treatment chem building	1.00 LS			427,680			427,680.00 /LS	427,680	643,651.26 /LS	
			13.01 Buildings Complete	1.00 LS			427,680			427,680.00 /LS	427,680	643,651.26 /LS	
			13.0 Special Construction	1.00 LS			427,680			427,680.00 /LS	427,680	643,651.26 /LS	
			09.0 Construct new treatment chem building	1.00 LS			427,680			427,680.00 /LS	427,680	643,651.26 /LS	4
1			Coagulant (ACH)								/		4
	11.0	44.00	Commercial Equipment										4
	-	11.00	Equipment										4
		11.00.99.0011	Equipment Costs from Replica										
	1		11.00.99.00 Equipment, Other Liquid Chemical: ACH - 11 - Equipment	1.00 ls					55,146	55,146.00 /ls	55,146	74,721.91 /ls	
	1		11.00.99.00 Equipment, Other	1.00 LS					55,146	55,146.00 /LS	55,146	74,721.91 /LS	
			11.00.99.0011 Equipment Costs from Replica	1.00 LS					55,146	55,146.00 /LS	55,146	74,721.91 /LS	
			11.00 Equipment	1.00 LS					55,146	55,146.00 /LS	55,146		
			11.0 Commercial Equipment	1.00 LS					55,146	55,146.00 /LS	55,146		
	26.0		Electrical Work										
		26.00	Electrical								/		4
	-	26.00.99.0016	Electrical Costs from Replica										4
			26.00.99.00 Electrical, Other	100.1						440.440.00		454.007.40	4
			Liquid Chemical: ACH - 16 Electrical	1.00 ls			· · ·		112,110	112,110.00 /ls	112,110		
	-		26.00.99.00 Electrical, Other 26.00.99.0016 Electrical Costs from Replica	1.00 LS 1.00 LS					112,110 112,110	112,110.00 /LS 112,110.00 /LS	112,110 112,110		
	1		26.00 Electrical	1.00 LS					112,110		112,110		
	1		26.0 Electrical Work	1.00 LS					112,110		112,110		
	40.0		Process Pipe								112,110		
		40.19	Process Pipe, Other										
		40.00.99.0015	Mechanical Costs from Replica										
			40.00.99.01 Process Pipe, Other										
			Liquid Chemical: ACH - 15 Mechanical	1.00 ls				-	23,028	23,028.00 /ls	23,028		4
			40.00.99.01 Process Pipe, Other	1.00 LS					23,028	23,028.00 /LS	23,028	31,202.56 /LS	4
			40.00.99.0015 Mechanical Costs from Replica	1.00 LS					23,028	23,028.00 /LS	23,028		4
			40.19 Process Pipe, Other	1.00 LS					23,028	23,028.00 /LS	23,028		4
	40.5		40.0 Process Pipe	1.00 LS					23,028	23,028.00 /LS	23,028	31,202.56 /LS	4
	40.9	40.00	Instrumentation & Controls								/		
		40.90	Instrumentation & Controls Special Construction from Replica										
			a a a a a a a a a a a a a a a a a a a		1	1	1				P		
		40.90.99.0013	40.90.99.01 I&C, Other					1	1	i	h		

D3718900-04-The Dalles WTP-9_5mgd DAF-tj Property of Jacobs, All Rights Reserved - Copyright 2021

Bid Item Work Trade		WorkActiv	Unit Price	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Am
Pkg Pkg	a ,	Wond total				Labor riours	Eabor Anount	Wateriar anount	Gub / Iniouni	Equip / mount					
				40.90.99.01 I&C, Other 40.90.99.0013 Special Construction from Replica	1.00 LS 1.00 LS						61,812 61,812	61,812.00 /LS 61,812.00 /LS	61,812 61,812	83,754.23 /LS 83,754.23 /LS	
				40.90 Instrumentation & Controls	1.00 LS						61,812	61,812.00 /LS	61,812	83,754.23 /LS	
	_			40.9 Instrumentation & Controls	1.00 LS						61,812	61,812.00 /LS	61,812	83,754.23 /LS	2
09.2				09.1 Coagulant (ACH) Filter Aid Polymer	1.00 LS						252,096	252,096.00 /LS	252,096	341,585.88 /LS	3
11.0				Commercial Equipment											
11.00				Equipment											
	11.00	0.99.0011	11.00.99.00	Equipment Costs from Replica Equipment, Other											
				Liquid Chemical: FilPolymer - 11 - Equipment	1.00 ls						65,518	65,518.00 /ls	65,518	88,775.79 /ls	
				11.00.99.00 Equipment, Other	1.00 LS						65,518	65,518.00 /LS	65,518	88,775.79 /LS	
	-			11.00.99.0011 Equipment Costs from Replica 11.00 Equipment	1.00 LS 1.00 LS						65,518 65,518	65,518.00 /LS 65,518.00 /LS	65,518 65,518	88,775.79 /LS 88,775.79 /LS	
				11.0 Commercial Equipment	1.00 LS						65,518	65,518.00 /LS	65,518		
26.0				Electrical Work											
26.00		0.99.0016		Electrical Electrical Costs from Replica		-									
	20.00		26.00.99.00	Electrical, Other											
				Liquid Chemical: FilPolymer - 16 Electrical	1.00 ls						4,848	4,848.00 /ls	4,848	6,568.96 /ls	
	_			26.00.99.00 Electrical, Other	1.00 LS						4,848	4,848.00 /LS	4,848	6,568.96 /LS	
				26.00.99.0016 Electrical Costs from Replica 26.00 Electrical	1.00 LS 1.00 LS						4,848 4,848	4,848.00 /LS 4,848.00 /LS	4,848 4,848	6,568.96 /LS 6,568.96 /LS	
				26.0 Electrical Work	1.00 LS						4,848	4,848.00 /LS	4,848	6,568.96 /LS	
40.0				Process Pipe											
40.19		0.00.0015		Process Pipe, Other Neckspice Costs from Papiline											
	40.00	0.99.0015	40.00.99.01	Mechanical Costs from Replica Process Pipe, Other		+									
				Liquid Chemical: FilPolymer - 15 Mechanical	1.00 ls						13,332	13,332.00 /ls	13,332	18,064.64 /ls	
				40.00.99.01 Process Pipe, Other	1.00 LS						13,332	13,332.00 /LS	13,332	18,064.64 /LS	
	_			40.00.99.0015 Mechanical Costs from Replica 40.19 Process Pipe, Other	1.00 LS 1.00 LS		<u> </u>		<u> </u>		13,332 13,332	13,332.00 /LS 13,332.00 /LS	13,332 13,332	18,064.64 /LS 18,064.64 /LS	
	_			40.19 Process Pipe	1.00 LS						13,332	13,332.00 /LS	13,332	18,064.64 /LS	
40.9				Instrumentation & Controls									,		
40.90				Instrumentation & Controls											
	40.90	0.99.0013	40.90.99.01	Special Construction from Replica I&C, Other											
			40.30.33.01	Liquid Chemical: FilPolymer - 13 Special Construction	1.00 ls						52,722	52,722.00 /ls	52,722	71,437.43 /ls	
				40.90.99.01 I&C, Other	1.00 LS						52,722	52,722.00 /LS	52,722	71,437.43 /LS	
	_			40.90.99.0013 Special Construction from Replica	1.00 LS						52,722	52,722.00 /LS	52,722	71,437.43 /LS	
	_			40.90 Instrumentation & Controls 40.9 Instrumentation & Controls	1.00 LS 1.00 LS						52,722 52,722	52,722.00 /LS 52,722.00 /LS	52,722 52,722	71,437.43 /LS 71,437.43 /LS	
				09.2 Filter Aid Polymer	1.00 LS						136,420	136,420.00 /LS	136,420	184,846.82 /LS	
10.2				New 30" filtered water											
33.0				Utilities											
33.02		0.04.FW30		Buried Process Pipe, Ductile Iron 30" FW - Finished Water											
				Trenching, Backfill, and Compaction											
				Rent trench box, 8000 lb., 8' x 16'	2.00 day		-			- 240		120.15 /day	240	203.65 /day	
				Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering Backfill, 6' layers, compaction in layers, hand tamp, PIPE ZONE	130.00 CY 39.65 ecy	29	2,068			- 2,140		32.37 /CY 23.47 /ecy	4,208	54.87 /CY 39.78 /ecy	
				Backfill, 12" layers, compaction in layers, roller compaction with operator walking, ABOVE PIPE ZONE	72.22 ecy	6	419			- 76		6.86 /ecy	495	11.62 /ecy	
				Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING	39.65 lcy 7.22 lcy	6	413	833		- 73	· · ·	33.27 /lcy 30.37 /lcy	1,319 219	52.40 /lcy 48.03 /lcy	
				Hauling,excavated borrow material,loose cubic yards,20 mile round trip,0.4 load/hr,base wide rate,12 cy truck,highway haulers,excludes	57.78 lcy	12	844			- 1,172		34.90 /lcy	2,016		
	_			loading											
	_		33.00.04.30	31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 30"	130.00 CY	69	4,750	963		3,715		72.53 /CY	9,429	121.53 /CY	
			00.00.04.00	30° pipe, DI, RJ, excav/bkfill not included, 250#	60.00 LF	25	2,106	11,724		- 1,190		250.35 /LF	15,021	387.20 /LF	
				30" DI, RJ, Ell, 90	1.00 ea	10	827	6,473		- 468	-	7,767.65 /ea	7,768	11,936.23 /ea	
				Megalugs for DI Pipe w/ Accessories, 30" Polywrap, 30" pipe	4.00 ea 60.00 lf	8	669	4,314	<u> </u>	- 378	-	1,340.06 /ea 1.32 /lf	5,360	2,066.46 /ea 1.99 /lf	
				Add for tie-in to existing (Adjust productivity)	1.00 ea	24	2,006			- 1,134	-	3,889.25 /ea	3,889	6,449.71 /ea	
	-			Pipe Marking, ID Tape	60.00 lf	1	50	8 23,348	<u> </u>		-	0.97 /lf	58	1.61 /lf	
				33.00.04.30 Buried Pipe, Ductile Iron, 30" 33.00.04.FW30 30" FW - Finished Water	60.00 LF 60.00 LF	68 137				3,169 6,885		536.25 /LF 693.40 /LF	<u>32,175</u> 41,604	835.00 /LF 1,098.31 /LF	
				33.02 Buried Process Pipe, Ductile Iron	60.00 LF	137	10,408	24,311		6,885		693.40 /LF	41,604	1,098.31 /LF	
				33.0 Utilities	1.00 LS	137				6,885		41,603.95 /LS	41,604	65,898.84 /LS	
0.3	-			10.2 New 30" filtered water New 14" BWS	60.00 LF	137	10,408	24,311		6,885		693.40 /LF	41,604	1,098.31 /LF	
33.0				Utilities		1									
33.02				Buried Process Pipe, Ductile Iron											
	33.00	0.04.BWS14		New 14" BWS											
				Trenching, Backfill, and Compaction Rent trench box, 8000 lb., 8' x 16'	3.00 day					- 360		120.15 /day	360	203.65 /day	
				Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering	146.71 CY	33	2,334			- 2,415	-	32.37 /CY	4,749	54.87 /CY	
				Backfill, 6* layers, compaction in layers, hand tamp, PIPE ZONE	37.50 ecy	15	880					23.47 /ecy	880	39.78 /ecy	
	-			Backfill, 12" layers, compaction in layers, roller compaction with operator walking, ABOVE PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE	95.68 ecy 37.50 lcy	8	556			- 100	-	6.86 /ecy 33.27 /lcy	656 1,248	11.62 /ecy 52.40 /lcy	
				Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING	9.57 lcy	2	100	173		- 18	-	30.37 /lcy	291	48.04 /lcy	
				Hauling, excavated borrow material, loose cubic yards, 20 mile round trip, 0.4 load/hr, base wide rate, 12 cy truck, highway haulers, excludes	51.03 lcy	10	745			- 1,035	-	34.90 /lcy	1,781	59.15 /lcy	
				loading 31.00.01.01 Trenching, Backfill, and Compaction	146.71 CY	73	5,005	961		3,999		67.92 /CY	9,965	113.88 /CY	
				Buried Pipe, Ductile Iron, 14"						-,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			-,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
				14" pipe, DI, RJ, excav/bkfill not included, 350#	100.00 LF	27	2,256			- 1,275	-	107.67 /LF	10,767	168.75 /LF	
	-			14" DI, RJ, Ell, 45 Megalugs for DI Pipe w/ Accessories, 14"	1.00 ea 4.00 ea	5	443 501			- 250 - 283		1,719.25 /ea 352.11 /ea	1,719	2,719.15 /ea 567.19 /ea	
				Polywrap, 14" pipe	100.00 lf		-	59				0.59 /lf	59	0.89 /lf	
				Add for tie-in to existing (Adjust productivity)	1.00 ea	24				- 1,134		3,889.25 /ea	3,889	6,449.71 /ea	
				Pipe Marking, ID Tape 33.00.04.14 Buried Pipe, Ductile Iron, 14"	100.00 lf 100.00 LF	63	84 5,290			2,943	-	0.97 /lf 179.39 /LF	97 17,939	1.61 /lf 285.63 /LF	
				33.00.04.BWS14 New 14" BWS	100.00 LF	136				6,941		279.04 /LF	27,904	452.70 /LF	
				33.02 Buried Process Pipe, Ductile Iron	100.00 LF	136				6,941		279.04 /LF	27,904	452.70 /LF	

D3718900-04-The Dalles WTP-9_5mgd DAF-tj Property of Jacobs, All Rights Reserved - Copyright 2021

Bid Item	Work Trade Pkg Pkg	WorkActiv	Unit Price	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Arr
				33.0 Utilities	1.00 LS	136		10,668		6,941		27,904.13 /LS	27,904	45,270.20 /LS	
1.1				10.3 New 14" BWS BW EQ Basin	100.00 LF	136	10,295	10,668		6,941		279.04 /LF	27,904	452.70 /LF	
	13.0			Special Construction											
	13.01			Buildings Complete		'									
		13.01.99.1101	13.01.99.00	Surge Basin-Decanter: BW_EQ Special Construction, Other		'									
			13.01.99.00	Surge Basin-Decanter: BW_EQ (Cost from RPD_Residuals Replica Cost Estimate)	1.00 ls	·'			-		1,044,000	1,044,000.00 /ls	1,044,000	1,414,602.58 /ls	
				13.01.99.00 Special Construction, Other	1.00 LS	'					1,044,000	1,044,000.00 /LS	1,044,000	1,414,602.58 /LS	1
				13.01.99.1101 Surge Basin-Decanter: BW_EQ	1.00 LS	'					1,044,000	1,044,000.00 /LS	1,044,000		1
				13.01 Buildings Complete 13.0 Special Construction	1.00 LS 1.00 LS	'					1,044,000 1,044,000	1,044,000.00 /LS 1,044,000.00 /LS	1,044,000 1,044,000		1
				11.1 BW EQ Basin	1.00 LS	·'					1,044,000	1,044,000.00 /LS	1,044,000		1
1.2				BW Clarifier		1									
	13.0			Special Construction		'									
	13.01	13.01.99.1102		Buildings Complete Package WTP: BW_Clar		'									
		13.01.99.1102	13.01.99.00	Special Construction, Other											
				Package WTP: BW_Clar (Cost from RPD_Residuals Replica Cost Estimate)	1.00 ls				-	-	717,000	717,000.00 /ls	717,000	971,523.03 /ls	
				13.01.99.00 Special Construction, Other	1.00 LS	'					717,000	717,000.00 /LS	717,000		
				13.01.99.1102 Package WTP: BW_Clar	1.00 LS	'					717,000	717,000.00 /LS	717,000		
				13.01 Buildings Complete 13.0 Special Construction	1.00 LS 1.00 LS	+'					717,000	717,000.00 /LS 717,000.00 /LS	717,000 717,000		
				11.2 BW Clarifier	1.00 LS	1′					717,000	717,000.00 /LS	717,000		
.3				Engineered Drying Beds											
	13.0			Special Construction		'									
	13.01	42.04.00.010.1		Buildings Complete		+'									
		13.01.99.1104	13 01 99 00	Sludge Drying Beds: New Special Construction, Other		+'									
				Special Construction, Other Sludge Drying Beds: New (Cost from RPD_Residuals Replica Cost Estimate)	1.00 ls	<u> </u>					1,022,000	1,022,000.00 /ls	1,022,000	1,384,792.94 /ls	
				13.01.99.00 Special Construction, Other	1.00 LS						1,022,000	1,022,000.00 /LS	1,022,000	1,384,792.94 /LS	
				13.01.99.1104 Sludge Drying Beds: New	1.00 LS	'					1,022,000	1,022,000.00 /LS	1,022,000	1,384,792.94 /LS	
				13.01 Buildings Complete	1.00 LS	+'					1,022,000	1,022,000.00 /LS	1,022,000		
				13.0 Special Construction 11.3 Engineered Drying Beds	1.00 LS 1.00 LS	+'					1,022,000 1,022,000	1,022,000.00 /LS 1,022,000.00 /LS	1,022,000 1,022,000		
4				EDB Recycle Pump Station	1.00 23	+'					1,022,000	1,022,000.00 /23	1,022,000	1,304,732.34 763	
	13.0			Special Construction		1									
	13.01			Buildings Complete		'									
		13.01.99.1105		WPSPS: Recycle		'									
			13.01.99.00	Special Construction, Other WPSPS: Recycle (Cost from RPD_Residuals Replica Cost Estimate)	1.00 ls	'					429,000	429,000.00 /ls	429,000	581,287.84 /ls	
				13.01.99.00 Special Construction, Other	1.00 LS	+'					429,000	429,000.00 /LS	429,000		
				13.01.99.1105 WPSPS: Recycle	1.00 LS	1					429,000	429,000.00 /LS	429,000	581,287.84 /LS	
				13.01 Buildings Complete	1.00 LS	'					429,000	429,000.00 /LS	429,000		
				13.0 Special Construction	1.00 LS	'					429,000	429,000.00 /LS	429,000		
.1				11.4 EDB Recycle Pump Station 20" BWW & FTW	1.00 LS	'					429,000	429,000.00 /LS	429,000	581,287.84 /LS	
	33.0			Utilities											
	33.02			Buried Process Pipe, Ductile Iron		1									
		33.00.04.BWWFT		20" BWW & FTW		7									
		W20	<u></u>	Transform Dest (III and Dessention		'									
			31.00.01.01	Trenching, Backfill, and Compaction Rent trench box, 8000 lb., 8'x 16'	5.00 day	+'				601		120.15 /day	601	203.65 /day	
				Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering	102.84 CY	23	1,636	-		1,693		32.37 /CY	3,329		
				Backfill, 6* layers, compaction in layers, hand tamp, PIPE ZONE	28.73 ecy	11	674		-		-	23.47 /ecy	674	39.78 /ecy	
				Backfill, 12" layers, compaction in layers, roller compaction with operator walking, ABOVE PIPE ZONE	62.96 ecy	5	366		-	66					
					28.73 lev			603	-	53	-	6.86 /ecy 33.27 /lcy	432		
				Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING	28.73 lcy 6.30 lcy	1	299 66	603 114	-	53	-	33.27 /lcy 30.37 /lcy	432 956 191	52.40 /lcy 48.03 /lcy	
				Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING Hauling,excaveled borrow material,losse cubic yards,20 mile round trip,0.4 load/n;base wide rate,12 cy truck,highway haulers,excludes		1 8	299	114			- - - -	33.27 /lcy	956	52.40 /lcy 48.03 /lcy	
				Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING Hauling,excavated borrow material,loose cubic yards,20 mile round trip,0.4 load/hr,base wide rate,12 cy truck,highway haulers,excludes loading	6.30 lcy 39.88 lcy	1 8	299 66 582	- 114	-	12 809	-	33.27 /lcy 30.37 /lcy 34.90 /lcy	956 191 1,392	52.40 /lcy 48.03 /lcy 59.15 /lcy	
				Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING Hauling.excavated borrow material,loose cubic yards,20 mile round trip,0.4 loadhr,base wide rate,12 cy truck,highway haulers,excludes loading 31.00.01.01 Trenching, Backfill, and Compaction	6.30 lcy	1 8 53	299 66 582	- 114	-	12	- - - -	33.27 /lcy 30.37 /lcy	956 191	52.40 /lcy 48.03 /lcy 59.15 /lcy	
			33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,excavated borrow material,loose cubic yards,20 mile round trip,0.4 load/hr,base wide rate,12 cy truck,highway haulers,excludes loading 31.00.101 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20" pipe, Di, RJ, excavbkfill not included, 350# E	6.30 lcy 39.88 lcy 102.84 CY 60.00 LF	20	299 66 582 3,623 	114 - 717 7,042	-	12 809 3,234 935	• • • •	33.27 /kcy 30.37 /kcy 34.90 /kcy 73.65 /CY 160.53 /LF	956 191 1,392 7,575 9,632	52.40 /lcy 48.03 /lcy 59.15 /lcy 123.52 /CY 249.79 /LF	
			33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, caushed or screened bank run gravel, PIPE ZONE Image: Conduct of the conduct of th	6.30 lcy 39.88 lcy 102.84 CY 60.00 LF 4.00 ea	20	299 66 582 3,623 	114 - 717 7,042 7,653	- - - - - - - - - - - - - - - - - - -	12 809 3,234 935 1,360	· · · · ·	33.27 /kcy 30.37 /kcy 34.90 /kcy 73.65 /CY 160.53 /LF 2,855.08 /ka	956 191 1,392 7,575 9,632 11,420	52.40 /lcy 48.03 /lcy 59.15 /lcy 123.52 /CY 249.79 /LF 4.475.79 /ea	
			33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Image: Stress of the stress of th	6.30 lcy 39.88 lcy 102.84 CY 60.00 LF 4.00 ea 8.00 ea	20	299 66 582 3,623 	114 - 717 7,042 7,653		12 809 3,234 935	- - - - - - - - - - - - - - -	33.27 /kcy 30.37 /kcy 34.90 /kcy 73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea	956 191 1,392 7,575 9,632	52.40 /lcy 48.03 /lcy 59.15 /lcy 123.52 /CY 249.79 /LF 4.475.79 /ea	
			33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, caushed or screened bank run gravel, PIPE ZONE Image: Conduct of the conduct of th	6.30 lcy 33.88 lcy 102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 if 1.00 ea	20	299 66 582 1,655 2,407 1,003 - 2,006	114 717 7,042 7,653 2,779 52 750	- - - - - - - - - - - - - - - - - - -	12 809 3,234 935 1,360	- - - - - - - - - - - - - - - - - - -	33.27 /kg/ 30.37 /kg/ 34.90 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /ff 3.889.25 /ea	956 191 1,392 7,575 9,632 11,420 4,349	52.40 /kg 48.03 /kg 59.15 /kg 123.52 /CY 249.79 /LF 4.475.79 /ea 855.39 /ea 1.31 /ff 6.44.72 /ea	
			33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,excuaded borrow material.losse cubic yards,20 mile round trip,0.4 load/hr,base wide rate,12 cy truck,highway haulers,excludes loading I 31.00.01.01 Trenching, Backfill, and Compaction I Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excav/bifil not included, 350# I 20' Di, RJ, Ell, 45 I Polywrap, 20' pipe I Add for tie-in to existing (Adjust productivity) I Pipe Marking, ID Tape I	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 lf	20 29 12 24 1	299 66 582 3,523 1,655 2,407 1,003 - 2,006 50	114 717 7,042 7,653 2,779 52 750 8 8	- - - - - - - - - - - - - - - - - - -	12 809 3,234 935 1,360 567 - 1,134	- - - - - - - - - - - - - - - - - - -	33.27 /ky 30.37 /ky 34.90 /ky 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /tf 3,889.25 /ea 0.97 /tf	956 191 1,392 7,575 9,632 11,420 4,349 52 3,889 58	52.40 Apy 48.03 Apy 59.15 Apy 123.52 /CY 249.79 /LF 4.475.79 /ea 855.39 /ea 1.31 M 6.449.72 /ea 1.61 Af	
			33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hulling, securated borrow material, loose cubic yards, 20 mile round trip, 0.4 load/hr, base wide rate, 12 cy truck, highway haulers, excludes loading I 31.00.101 Trenching, Backfill, and Compaction II Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavbkfill not included, 350# I 20' pipe, DI, RJ, Ell, 45 I Megalugs for DI Pipe wi Accessories, 20" I Polywrap, 20' pipe I Add for tie-in to existing (Adjust productivity) I Pipe Marking, ID Tape I 33.00.04.20 Buried Pipe, Ductile Iron, 20" I	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 lf 60.00 lF	20 29 12 24 11 85	299 66 582 3,623 1,655 2,407 1,003 - 2,006 50 7,120	114 717 7,042 7,653 2,779 52 750 8 18,28		12 809 3,234 935 1,360 567 - 1,134 - 3,996	- - - - - - - - - - - - - - - - - - -	33.27 /ky 30.37 /ky 34.90 /ky 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /lf 3.889.25 /ea 0.97 /lf 490.00 /LF	956 191 1.392 9,632 11,420 4,349 52 3,889 58 29,400	52.40 Acy 48.03 Acy 59.15 Acy 123.52 /CY 249.79 /LF 4.475.79 /ea 855.39 /ea 1.31 /lf 6.449.72 /ea 1.61 /lf 772.64 /LF	
			33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, carshed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,excavated borrow material.loose cubic yards, 20 mile round trip,0.4 loadhr,base wide rate,12 cy truck,highway haulers,excludes loading I 31.00_01.01 Trenching, Backfill, and Compaction I Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavbidil not included, 350# I 20' Di RJ, El, II. 45 I Megalugs for DI Pipe w/ Accessories, 20" I Polywrap, 20' pipe Acd for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape I 33.00.04.20 Buried Pipe, Ductile Iron, 20" I	6.30 lcy 39.88 lcy 102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 lf 60.00 LF 60.00 LF	20 20 29 12 24 1 85 138	299 66 582 1,655 2,407 1,003 	114 717 7,042 7,653 2,779 52 750 8 18,284 19,001	- - - - - - - - - - - - - - - - - - -	12 809 3,234 935 1,360 567 - 1,134 - 1,134 - 3,996 7,230	- - - - - - - - - - - - - - - - - - -	33.27 /kg/ 30.37 /kg/ 34.90 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /fl 3.889.25 /ea 0.97 /fl 490.00 /LF 616.24 /LF	956 191 1,392 7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975	52.40 Acy 48.03 Acy 59.15 Acy 249.79 /LF 4.475.79 /ea 855.39 /ea 1.31 /lf 6.449.72 /ea 1.61 /lf 772.64 /LF 984.35 /LF	
			33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hulling, securated borrow material, loose cubic yards, 20 mile round trip, 0.4 load/hr, base wide rate, 12 cy truck, highway haulers, excludes loading I 31.00.101 Trenching, Backfill, and Compaction II Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavbkfill not included, 350# I 20' pipe, DI, RJ, Ell, 45 I Megalugs for DI Pipe wi Accessories, 20" I Polywrap, 20' pipe I Add for tie-in to existing (Adjust productivity) I Pipe Marking, ID Tape I 33.00.04.20 Buried Pipe, Ductile Iron, 20" I	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 lf 60.00 lF	20 29 12 24 11 85	299 66 582 1,655 2,407 1,003 -	114 717 7,042 7,653 2,779 52 750 8 18,284 19,001		12 809 3,234 935 1,360 567 - 1,134 - 3,996	- - - - - - - - - - - - - - - - - - -	33.27 /ky 30.37 /ky 34.90 /ky 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /lf 3.889.25 /ea 0.97 /lf 490.00 /LF	956 191 1.392 9,632 11,420 4,349 52 3,889 58 29,400	52.40 Acy 48.03 Acy 59.15 Acy 249.79 /LF 4.475.79 /ea 855.39 /ea 1.31 At 6.449.72 /ea 1.61 At 772.64 /LF 984.35 /LF 984.35 /LF	
			33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, carshed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Huling,excavled borrow material.loses cubic yards, 20 mile round trip,0.4 loadhr,base wide rate,12 cy truck.highway haulers,excludes loading I 31.00.01.01 Trenching, Backfill, and Compaction I Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavbkill not included, 350# I 20' Di RJ, El, 45 I Megalugs for DI Pipe wit Accessories, 20" I Polywrap, 20' pipe I Add for tie-in to existing (Adjust productivity) I Pipe Marking, ID Tape I 33.00.04.BWWFTW20 20" BWW & FTW I 33.0 Utilities I 33.0 Utilities I	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 1.00 ea 60.00 lF 60.00 LF 60.00 LF 60.00 LF	20 20 29 12 24 1 85 138 138	299 66 582 3,623 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744	114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,001 19,001		12 809 3,234 935 567 - 1,134 - 3,996 7,230 7,230	• • • • • • • • • • • • •	33.27 /ky 30.37 /ky 34.90 /ky 73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /tl 3,889.25 /ea 0.97 /tl 490.00 /LF 616.24 /LF 616.24 /LF	956 191 1,392 7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 36,975	52.40 Apy 48.03 Apy 59.15 Apy 249.79 /LF 4.475.79 /ea 885539 /ea 1.31 Af 6.449.72 /ea 1.61 Af 772.64 /LF 984.35 /LF 59.061.11 /LS	
			33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, carshed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,excavated borrow material.loose cubic yards,20 mile round trip,0.4 loadhr,base wide rate,12 cy truck,highway haulers,excludes I 31.00.01.01 Trenching, Backfill, and Compaction I Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavbibill not included, 350# I 20' or piR, J, El, 45 I Megalugs for DI Pipe w/ Accessories, 20" I Polywrap, 20' pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape I 33.00.04.20 Buried Pipe, Ductile Iron, 20" I 33.00.42.05 Unified Process Pipe, Ductile Iron, 20" I 33.00 Unitities I 33.00 Littities I 21.1 20' BWW & FTW I 04'' BWW & FTW I	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 60.00 LF 1.00 LS	20 29 12 24 1 85 138 138 138	299 66 582 3,623 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744	114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,001 19,001		12 809 3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,230 7,230	- - - - - - - - - - - - - - - - - - -	33.27 /kg/ 30.37 /kg/ 34.90 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /lf 3.889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF	956 191 1,392 9,632 11,420 4,349 52 3,899 58 29,400 36,975 36,975 36,975	52.40 Apy 48.03 Apy 59.15 Apy 249.79 /LF 4.475.79 /ea 885539 /ea 1.31 Af 6.449.72 /ea 1.61 Af 772.64 /LF 984.35 /LF 59.061.11 /LS	
	33.0		33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,exclusted borrow material.loose cubic yards,20 mile round trip,0.4 load/hr,base wide rate,12 cy truck,highway haulers,excludes I Ibauling,exclusted borrow material.loose cubic yards,20 mile round trip,0.4 load/hr,base wide rate,12 cy truck,highway haulers,excludes I 100.01.01 Trenching, Backfill, and Compaction I 20' pipe, Ductile Iron, 20' I 20' pipe, DI, RJ, excavibifil not included, 350# I 20' Di, RJ, Ell, 45 I Megalugs for DI Pipe w/ Accessories, 20' I Polywrap, 20' pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape I 33.00.4.20 Buried Pipe, Ductile Iron, 20'' I 33.00.4.20 Buried Pipe, Ductile Iron, 20'' I 33.00 Littiles I 12.1 20' BWW & FTW I 33.00 Utilities I 12.1 20' BWW & FTW I Vilities I	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 60.00 LF 1.00 LS	20 29 12 24 1 85 138 138 138	299 66 582 3,623 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744	114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,001 19,001		12 809 3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,230 7,230	- - - - - - - - - - - - - - - - - - -	33.27 /kg/ 30.37 /kg/ 34.90 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /lf 3.889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF	956 191 1,392 9,632 11,420 4,349 52 3,899 58 29,400 36,975 36,975 36,975	52.40 Apy 48.03 Apy 59.15 Apy 249.79 /LF 4.475.79 /ea 885539 /ea 1.31 Af 6.449.72 /ea 1.61 Af 772.64 /LF 984.35 /LF 59.061.11 /LS	
	33.0		33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, carshed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,excavated borrow material.loose cubic yards,20 mile round trip,0.4 loadhr,base wide rate,12 cy truck,highway haulers,excludes I 31.00.01.01 Trenching, Backfill, and Compaction I Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavbibill not included, 350# I 20' or piR, J, El, 45 I Megalugs for DI Pipe w/ Accessories, 20" I Polywrap, 20' pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape I 33.00.04.20 Buried Pipe, Ductile Iron, 20" I 33.00.42.05 Unified Process Pipe, Ductile Iron, 20" I 33.00 Unitities I 33.00 Littities I 21.1 20' BWW & FTW I 04'' BWW & FTW I	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 60.00 LF 1.00 LS	20 29 12 24 1 85 138 138 138	299 66 582 3,623 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744	114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,001 19,001		12 809 3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,230 7,230	- - - - - - - - - - - - - - - - - - -	33.27 /kg/ 30.37 /kg/ 34.90 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /lf 3.889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF	956 191 1,392 9,632 11,420 4,349 52 3,899 58 29,400 36,975 36,975 36,975	52.40 Apy 48.03 Apy 59.15 Apy 249.79 /LF 4.475.79 /ea 885539 /ea 1.31 Af 6.449.72 /ea 1.61 Af 772.64 /LF 984.35 /LF 59.061.11 /LS	
			33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, carshed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Huling,excavled borrow material.loses cubic yards, 20 mile round trip,0.4 loadhr,base wide rate,12 cy truck.highway haulers,excludes loading I 31.00.01.01 Trenching, Backfill, and Compaction I Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavbkill not included, 350# I Polywap, 20' pipe I Add for tie-in to existing (Adjust productivity) I Pipe Marking, ID Tape I 33.00.04.BWWFTW20 20' BWW & FTW I 33.0 Utilities I 12.1 20' BWW & FTW I Q4'' BWW & FTW I Utilities I Buried Process Pipe, Ductile Iron I	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 60.00 LF 1.00 LS	20 29 12 24 1 85 138 138 138	299 66 582 3,623 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744	114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,001 19,001		12 809 3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,230 7,230	· · · · · · · · · · · · · · · · · · ·	33.27 /kg/ 30.37 /kg/ 34.90 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /lf 3.889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF	956 191 1,392 9,632 11,420 4,349 52 3,899 58 29,400 36,975 36,975 36,975	52.40 Apy 48.03 Apy 59.15 Apy 249.79 /LF 4.475.79 /ea 885539 /ea 1.31 Af 6.449.72 /ea 1.61 Af 772.64 /LF 984.35 /LF 59.061.11 /LS	
		33.00.04.BWWFT W04	33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, carshed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Huling,excavled borrow material.loses cubic yards, 20 mile round trip,0.4 loadhr, base wide rate, 12 cy truck.highway haulers, excludes loading I 31.00.01.01 Trenching, Backfill, and Compaction I Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavbkill not included, 350# I Polywap, 20' pipe I Add for tien to existing (Adjust productivity) I Pipe Marking, ID Tape I 33.00.04.20 Buried Pipe, Ductile Iron, 20" I 33.00.04.BWWFTW20 20" BWW & FTW I 33.00 Utilities I 12.1 20" BWW & FTW I 04" BWW & FTW	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 LF 60.00 LF 60.00 LF 1.00 LS 60.00 LF	20 29 12 24 1 85 138 138 138	299 66 582 3,623 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744	114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,001 19,001		12 809 3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,230 7,230 7,230		33.27 /kg/ 30.37 /kg/ 34.90 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /tf 3.689.25 /ea 0.97 /tf 4.90.00 /LF 616.24 /LF 616.24 /LF 616.24 /LF	956 191 1,32 7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 36,975 36,975	52.40 Acy 48.03 Acy 59.15 Acy 249.79 /LF 4.475.79 /ea 855.39 /ea 1.61 At 772.64 /LF 984.35 /LF 984.35 /LF 984.35 /LF	
		33.00.04.BWWFT W04	33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, cashed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,excavated borrow material.loose cubic yards,20 mile round trip,0.4 loadhr,base wide rate,12 cy truck,highway haulers,excludes I 31.00.01.01 Trenching, Backfill, and Compaction I Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavbifill not included, 350# I 20' pipe, DI, RJ, excavbifill not included, 350# I 20' pipe, DI, RJ, excavbifill not included, 350# I Add for tie-in to existing (Adjust productivity) I Polywrap, 20' pipe Add for tie-in to existing (Adjust productivity) I Pipe Marking, ID Tape I 33.00.04.20 Buried Pipe, Ductile Iron, 20" I 33.00.04.20 Buried Pipe, Ductile Iron, 20" I 33.00.04.20 Buried Pipe, Ductile Iron I 04" BWW & FTW	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 60.00 LF 60.00 LF 60.00 LF 60.00 LF 5.00 day	20 29 12 24 1 855 138 138 138	299 66 582 1,655 2,407 1,003 -	114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,001 19,001		12 809 3,234 935 567 - 1,134 - 3,996 7,230 7,230 7,230 7,230 7,230 7,230	۱ ۱	33.27 /kcy 30.37 /kcy 34.90 /kcy 73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS 616.24 /LF	956 191 1,32 7,575 9,632 11,420 4,349 52 3,889 29,400 36,975 36,975 36,975 36,975	52.40 Acy 48.03 Acy 59.15 Acy 249.79 /LF 4.475.79 /ea 855.39 /ea 1.31 At 6.449.72 /ea 1.61 At 772.64 /LF 984.35 /LF 984.35 /LF 984.35 /LF	
		33.00.04.BWWFT W04	33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, cashed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,excavated borrow material,losse cubic yards, 20 mile round trip,0.4 loadhr, base wide rate, 12 cy truck,highway haulers,excludes loading I 31.00.01.01 Trenching, Backfill, and Compaction I Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavkhöll not included, 350# I Polywap, 20' pipe I Add for tie-in to existing (Adjust productivity) I Pipe Marking, ID Tape I 33.00.42.00 Buried Pipe, Ductile Iron, 20" I 33.00.42.00 Buried Pipe, Ductile Iron, 20" I 33.00.41.00 Buried Pipe, Ductile Iron, 20" I 33.00 4.80 WWFTW20 20° BWW & FTW I 33.00 4.80 WWFTW20 20° BWW & FTW I 4' BWW & FTW I 04' BWW & FTW I	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 1.00 ea 60.00 LF 60.00 LF 60.00 LF 1.00 LS 60.00 LF 5.00 day 339.98 CY	20 29 12 24 1 85 138 138 138 138	299 66 582 3,623 1.655 2,407 1.003 - 2,006 50 7,120 10,744 10,744 10,744	114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,001 19,001 19,001 		12 809 3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,230 7,230 7,230	- - - - - - - - - - - - - - - - - - -	33.27 /kg/ 30.37 /kg/ 34.90 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.37 /lf 3.889.25 /ea 0.37 /lf 4.90.00 /LF 616.24 /LF 616.24 /LF 616.24 /LF 36.97.462 /LS 616.24 /LF 36.97.462 /LS	996 191 1,32 7,575 9,632 9,632 11,420 4,349 52 3,889 58 29,400 36,975 36,975 36,975 36,975 36,975	52.40 /loy 48.03 /loy 59.15 /loy 249.79 /LF 4.475.79 /ea 855.39 /ea 1.61 /lt 772.64 /LF 984.35 /LF 984.35 /LF 984.35 /LF 984.35 /LF	
		33.00.04.BWWFT W04	33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, cashed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,excavated borrow material.loose cubic yards,20 mile round trip,0.4 loadhr,base wide rate,12 cy truck,highway haulers,excludes I 31.00.01.01 Trenching, Backfill, and Compaction I Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavbifill not included, 350# I 20' D, IRJ, El, 45 I Megalugs for DI Pipe w/ Accessories, 20" I Polywrap, 20' pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape I 33.00.04.20 Buried Pipe, Ductile Iron, 20" I 33.00.04.20 Buried Pipe, Ductile Iron, 20" I 33.00.04.20 Buried Pipe, Ductile Iron I 21.1 20' BWW & FTW I 04" BWW & FTW I Plinet Process Pipe, Ductile Iron I 04" BWW & FTW I Villities	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 60.00 LF 60.00 LF 60.00 LF 60.00 LF 5.00 day	20 29 12 24 1 855 138 138 138	299 66 582 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744 10,744 10,744 - - - - - - - - - - - - -	114 		12 809 3,234 935 567 - 1,134 - 3,996 7,230 7,230 7,230 7,230 7,230 7,230		33.27 /kcy 30.37 /kcy 34.90 /kcy 73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS 616.24 /LF	956 191 1,392 7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 3	52.40 Acy 48.03 Acy 59.15 Acy 249.79 /LF 4.475.79 /ea 855.39 /ea 1.31 At 6.449.72 /ea 1.61 At 772.64 /LF 984.35 /LF 984.35 /LF 984.35 /LF 984.35 /LF	
		33.00.04.BWWFT W04	33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, cashed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,excavled borrow material.loses cubic yards, 20 mile round trip,0.4 loadhr, base wide rate, 12 cy truck, highway haulers, excludes loading I 31.00.01.01 Trenching, Backfill, and Compaction I Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavbkill not included, 350# I Polywrap, 20' pipe I Add for tie-in to existing (Adjust productivity) I Pipe Marking, ID Tape I 33.00.42.02 Buried Pipe, Ductile Iron, 20" I 33.00.04.20 Buried Pipe, Ductile Iron, 20" I 33.00.04.80 WeFTW20 20" BWW & FTW I 24 d' r tie-in to existing (Adjust productivity) I IP the Adjust Process Pipe, Ductile Iron I 33.00 Utilities I 12.1 20" BWW & FTW I Utilities I Buried Process Pipe, Ductile Iron I 04" BWW & FTW I	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 60.00 LF 60.00 LF 5.00 day 339.98 CY 65.34 ecy 248.77 ecy 65.34 locy	20 20 29 12 24 1 85 138 138 138 138 138 138	299 66 562 3,623 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744 10,744 10,744 10,744 - - - - - - - - - - - - -	114 114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,01 19,01 10,01	 	12 809 3,234 935 1,360 567 - - 1,134 - 3,996 7,230 7,230 7,230 7,230 7,230 7,230 7,230 7,230 7,230 7,230 7,230 7,230 7,230		33.27 /kg/ 30.37 /kg/ 34.90 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /fl 3.889.25 /ea 0.97 /fl 4.90.00 /LF 616.24	956 191 1,32 7,575 9,632 9,632 111,420 4,349 52 3,889 58 29,400 36,975	52.40 Acy 48.03 Acy 59.15 Acy 249.79 /LF 4.475.79 /ea 6.55.39 /ea 1.31 Af 6.449.72 /ea 1.61 Af 772.64 /LF 984.35 /LF 984.35 /LF 984.35 /LF 984.35 /LF 203.65 /day 54.87 /CY 39.78 /ecy 11.62 /ecy 52.40 Acy	
		33.00.04.BWWFT W04	33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, carshed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,excavated borrow material.loses cubic yards, 20 mile round trip,0.4 loadhr, base wide rate, 12 cy truck, highway haulers, excludes loading I 31.00_01.01 Trenching, Backfill, and Compaction I Buried Pipe, Ductile Iron, 20" I 20" pipe, DI, RJ, excarybkfill not included, 350# I 20' D, RJ, El, 4.5 I Megalugs for DI Pipe w/ Accessories, 20" I Polywrap, 20" pipe Add for tie-in to existing (Adjust productivity) I Pipe Marking, ID Tape I I 33.00.42.00 Buried Pipe, Ductile Iron, 20" IIII Sa.00.04.20 Buried Pipe, Ductile Iron, 20" IIII Sa.00.04.20 Buried Pipe, Ductile Iron IIII Sa.00.04.20 Buried Pipe, Ductile Iron IIIIIII Sa.00.04.20 Buried Pipe, Ductile Iron IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 60.00	20 20 29 12 24 1 85 138 138 138 138 138 138 2 2 2 2 2 0 20 0 0 0 0 0 0 0 0 0 4	299 66 582 1,655 2,407 1,003 2,006 500 7,120 10,744 10,744 10,744 10,744 10,744 	114 114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,0001 19,0001 19,0001 19,0000 19	 	12 809 3,234 935 1,360 567 7,230		33.27 /kg/ 30.37 /kg/ 34.50 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /l 490.00 /LF 616.24 /	996 191 1,392 7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 3	52.40 Acy 48.03 Acy 59.15 Acy 249.79 /LF 4.475.79 /ea 855.39 /ea 1.31 At 6.449.72 /ea 1.61 At 772.64 /LF 984.35 /LF 984.35 /LF 984.35 /LF 984.35 /LF 203.65 /day 6.487 /CY 39.78 /ecy 11.62 (Acy 6.48.71 /CY 39.78 /ecy 52.40 Acy 48.03 Acy 48.03 Acy	
		33.00.04.BWWFT W04	33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, cashed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,excavled borrow material.loses cubic yards, 20 mile round trip,0.4 loadhr, base wide rate, 12 cy truck, highway haulers, excludes loading I 31.00.01.01 Trenching, Backfill, and Compaction I Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavbkill not included, 350# I Polywrap, 20' pipe I Add for tie-in to existing (Adjust productivity) I Pipe Marking, ID Tape I 33.00.42.02 Buried Pipe, Ductile Iron, 20" I 33.00.04.20 Buried Pipe, Ductile Iron, 20" I 33.00.04.80 WeFTW20 20" BWW & FTW I 24 d' r tie-in to existing (Adjust productivity) I IP the Adjust Process Pipe, Ductile Iron I 33.00 Utilities I 12.1 20" BWW & FTW I Utilities I Buried Process Pipe, Ductile Iron I 04" BWW & FTW I	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 60.00 LF 60.00 LF 5.00 day 339.98 CY 65.34 ecy 248.77 ecy 65.34 locy	20 20 29 12 24 1 85 138 138 138 138 138 138	299 66 582 1,655 2,407 1,003 2,006 500 7,120 10,744 10,744 10,744 10,744 10,744 	114 114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,0001 19,0001 19,0001 19,0000 19	 	12 809 3,234 935 1,360 567 - - 1,134 - 3,996 7,230 7,230 7,230 7,230 7,230 7,230 7,230 7,230 7,230 7,230 7,230 7,230 7,230		33.27 /kg/ 30.37 /kg/ 34.90 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /fl 3.889.25 /ea 0.97 /fl 4.90.00 /LF 616.24	956 191 1,32 7,575 9,632 9,632 111,420 4,349 52 3,889 58 29,400 36,975	52.40 Acy 48.03 Acy 59.15 Acy 249.79 /LF 4.475.79 /ea 855.39 /ea 1.31 At 6.449.72 /ea 1.61 At 772.64 /LF 984.35 /LF 984.35 /LF 984.35 /LF 984.35 /LF 203.65 /day 6.487 /CY 39.78 /ecy 11.62 (Acy 6.48.71 /CY 39.78 /ecy 52.40 Acy 48.03 Acy 48.03 Acy	
		33.00.04.BWWFT W04	33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, caushed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,excavated borrow material,losse cubic yards, 20 mile round trip,0.4 loadhr, base wide rate, 12 cy truck,highway haulers,excludes loading I 31.00.01.01 Trenching, Backfill, and Compaction I Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavkbill not included, 350# I Polywap, 20' pipe I Add for tie-in to existing (Adjust productivity) I Pipe Marking, ID Tape I 33.00.42.00 Buried Pipe, Ductile Iron, 20" I 33.00.42.00 Buried Pipe, Ductile Iron, 20" I 33.00.42.00 Buried Pipe, Ductile Iron I 12.1 20' BWW & FTW I 04' BWW & FTW I 04' BWW & FTW I 04'' BWW & FTW I 04'' BWW & FTW I 04'' BWW & FTW I 12.1 20'' BWW & Store I 13.00 Utilities I 14.1 40'' BWW & FTW I 10.1 40'' BWW & FTW I 14.1 60'' BWW & Store I	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 60.00	20 20 29 12 24 1 85 138 138 138 138 138 138 2 2 2 2 2 0 20 0 0 0 0 0 0 0 0 0 0 0 4	299 66 582 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744 10,744 10,744 - - - - - - - - - - - - -	114 114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,0001 19,0001 19,0001 19,0000 19	 <td>12 809 3,234 935 1,360 567 7,230</td><td></td><td>33.27 /kg/ 30.37 /kg/ 34.50 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /l 490.00 /LF 616.24 /</td><td>996 191 1,392 7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 3</td><td>52.40 Acy 48.03 Acy 59.15 Acy 249.79 /LF 4.475.79 /ea 855.39 /ea 1.31 /lf 6.449.72 /ea 1.61 /lf 772.64 /LF 984.35 /LF 984.35 /LF 984.35 /LF 984.35 /LF 203.65 /day 203.65 /day 203.65 /day 203.65 /day 203.65 /day 203.65 /day 203.65 /day</td><td></td>	12 809 3,234 935 1,360 567 7,230		33.27 /kg/ 30.37 /kg/ 34.50 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /l 490.00 /LF 616.24 /	996 191 1,392 7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 3	52.40 Acy 48.03 Acy 59.15 Acy 249.79 /LF 4.475.79 /ea 855.39 /ea 1.31 /lf 6.449.72 /ea 1.61 /lf 772.64 /LF 984.35 /LF 984.35 /LF 984.35 /LF 984.35 /LF 203.65 /day 203.65 /day 203.65 /day 203.65 /day 203.65 /day 203.65 /day 203.65 /day	
		33.00.04.BWWFT W04	33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, carshed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,excavated borrow material,losse cubic yards, 20 mile round trip,0.4 loadhr, base wide rate, 12 cy truck,highway haulers,excludes loading I 31.00.01.01 Trenching, Backfill, and Compaction I Burried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavbkfill not included, 350# I Polywrap, 20' pipe I Add for tie-in to existing (Adjust productivity) I Pipe Marking, ID Tape I 33.00.42.02 Buried Pipe, Ductile Iron, 20" I 33.00.42.02 Buried Pipe, Ductile Iron, 20" I 33.00.42.02 Buried Pipe, Ductile Iron I 33.00 4.03 Buried Pipe, Ductile Iron I 12.1 20" BWW & FTW I 04" BWW & FTW I	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 1.00 ea 60.00 LF 60.00 LF 60.00 LF 60.00 LF 1.00 LS 60.00 LF 1.00 LS 60.00 LF 2.00 LS 60.00 LF 2.00 day 339.98 CY 9.121 loy 9.121 loy 9.121 loy 9.121 loy	20 20 29 12 24 1 85 138 138 138 138 138 138 138 2 3 20 20 20 10 20 20 20 20 20 20 20 20 20 20 20 20 20	299 66 582 3,623	114 114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,002 1,372 1,372 1,372 1,822	 <td>12 809 3,234 935 1,360 567 7,230 8,247 8,2</td><td></td><td>33.27 /kg/ 30.37 /kg/ 34.90 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.37 /lf 3.889.25 /ea 0.37 /lf 4.90.00 /LF 616.24 /LF 616.24 /LF 616.24 /LF 616.24 /LF 616.24 /LF 36.97.462 /LS 616.24 /LF 616.24 /LF 616</td><td>956 191 1,32 7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 36</td><td>52.40 /loy 48.03 /loy 59.15 /loy 123.52 /CY 249.79 /LF 4.475.79 /ea 1.61 /l 772.64 /LF 984.35 /LF</td><td></td>	12 809 3,234 935 1,360 567 7,230 8,247 8,2		33.27 /kg/ 30.37 /kg/ 34.90 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.37 /lf 3.889.25 /ea 0.37 /lf 4.90.00 /LF 616.24 /LF 616.24 /LF 616.24 /LF 616.24 /LF 616.24 /LF 36.97.462 /LS 616.24 /LF 616.24 /LF 616	956 191 1,32 7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 36	52.40 /loy 48.03 /loy 59.15 /loy 123.52 /CY 249.79 /LF 4.475.79 /ea 1.61 /l 772.64 /LF 984.35 /LF	
		33.00.04.BWWFT W04	33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, carshed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,excavated borrow material.loses cubic yards, 20 mile round trip,0.4 loadhr, base wide rate, 12 cy truck, highway haulers, excludes I Buried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavbkill not included, 350# I Megalags for DI Pipe with Accessories, 20" I Polywap, 20' pipe I Add for tie-in to existing (Adjust productivity) I Pipe Marking, ID Tape I 33.00.04.20 Buried Pipe, Ductile Iron, 20" I 33.00.04.20 Buried Pipe, Ductile Iron I 33.00.04.20 Buried Pipe, Ductile Iron I 33.00 Vilitities I Buried Process Pipe, Ductile Iron I 33.00 Vilitities I Buried Process Pipe, Ductile Iron I 34 WW & FTW I Vilitities I Buried Process Pipe, Ductile Iron I 44' BWW & FTW I Vilitities I Buried Process Pipe, Ductile Iron I 54' BWW & FTW </td <td>6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 60.00 LF 60.00 LF 60.00 LF 5.00 day 339.98 CY 63.34 loy 248.87 loy 248.88 loy 91.21 loy 339.98 CY 20.00 LF</td> <td>20 20 29 12 24 1 85 138 138 138 138 138 138 138 2 3 20 20 20 10 20 20 20 20 20 20 20 20 20 20 20 20 20</td> <td>299 66 582 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744 10,744 10,744 10,744 - - - - - - - - - - - - -</td> <td>114 114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,055 10,055</td> <td> </td> <td>12 809 3,234 935 1,360 567 7,230 7,2</td> <td></td> <td>33.27 /kg/ 30.37 /kg/ 34.90 /kg/ 73.65 /CY/ 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /fl 3.889.25 /ea 0.97 /fl 4.90.00 /LF 616.24 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS 616.24 /LF 32.37 /kg/ 32.37 /kg/ 32.37 /kg/ 32.37 /kg/ 33.37 /kg/ 33.37 /kg/ 33.37 /kg/ 34.90 /kg/ 34</td> <td>956 191 1,32 7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 36</td> <td>52.40 Acy 48.03 Acy 59.15 Acy 249.79 /LF 4.475.79 /ea 855.39 /ea 1.31 /lf 6.449.72 /ea 1.61 /lf 772.64 /LF 984.35 /LF 984.35 /LF 984.35 /LF 984.35 /LF 203.65 /day 203.65 /day</td> <td></td>	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 60.00 LF 60.00 LF 60.00 LF 5.00 day 339.98 CY 63.34 loy 248.87 loy 248.88 loy 91.21 loy 339.98 CY 20.00 LF	20 20 29 12 24 1 85 138 138 138 138 138 138 138 2 3 20 20 20 10 20 20 20 20 20 20 20 20 20 20 20 20 20	299 66 582 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744 10,744 10,744 10,744 - - - - - - - - - - - - -	114 114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,055 10,055	 	12 809 3,234 935 1,360 567 7,230 7,2		33.27 /kg/ 30.37 /kg/ 34.90 /kg/ 73.65 /CY/ 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /fl 3.889.25 /ea 0.97 /fl 4.90.00 /LF 616.24 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS 616.24 /LF 32.37 /kg/ 32.37 /kg/ 32.37 /kg/ 32.37 /kg/ 33.37 /kg/ 33.37 /kg/ 33.37 /kg/ 34.90 /kg/ 34	956 191 1,32 7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 36	52.40 Acy 48.03 Acy 59.15 Acy 249.79 /LF 4.475.79 /ea 855.39 /ea 1.31 /lf 6.449.72 /ea 1.61 /lf 772.64 /LF 984.35 /LF 984.35 /LF 984.35 /LF 984.35 /LF 203.65 /day 203.65 /day	
.2		33.00.04.BWWFT W04	33.00.04.20	Fill by borrow and utility bedding, for pipe and conduit, carshed or screened bank run gravel, PIPE ZONE I Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING I Hauling,excavated borrow material,losse cubic yards, 20 mile round trip,0.4 loadhr, base wide rate, 12 cy truck,highway haulers,excludes loading I 31.00.01.01 Trenching, Backfill, and Compaction I Burried Pipe, Ductile Iron, 20" I 20' pipe, DI, RJ, excavbkfill not included, 350# I Polywrap, 20' pipe I Add for tie-in to existing (Adjust productivity) I Pipe Marking, ID Tape I 33.00.42.02 Buried Pipe, Ductile Iron, 20" I 33.00.42.02 Buried Pipe, Ductile Iron, 20" I 33.00.42.02 Buried Pipe, Ductile Iron I 33.00 4.03 Buried Pipe, Ductile Iron I 12.1 20" BWW & FTW I 04" BWW & FTW I	6.30 loy 39.88 loy 102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 1.00 ea 60.00 LF 60.00 LF 60.00 LF 60.00 LF 1.00 LS 60.00 LF 1.00 LS 60.00 LF 2.00 LS 60.00 LF 2.00 day 339.98 CY 9.121 loy 9.121 loy 9.121 loy 9.121 loy	20 20 29 12 24 1 85 138 138 138 138 138 138 138 2 3 20 20 20 10 20 20 20 20 20 20 20 20 20 20 20 20 20	299 66 582 3,623	114 114 717 7,042 7,653 2,779 52 750 8 18,284 19,001 19,055 10,055	 	12 809 3,234 935 1,360 567 7,230 8,247 8,2		33.27 /kg/ 30.37 /kg/ 34.90 /kg/ 73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.37 /lf 3.889.25 /ea 0.37 /lf 4.90.00 /LF 616.24 /LF 616.24 /LF 616.24 /LF 616.24 /LF 616.24 /LF 36.97.462 /LS 616.24 /LF 616.24 /LF 616	956 191 1,32 7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 36	52.40 Acy 48.03 Acy 59.15 Acy 249.79 /LF 4.475.79 /ea 855.39 /ea 1.61 Al 772.64 /LF 984.35 /LF 984.35 /LF 984.35 /LF 984.35 /LF 203.85 /day 54.87 /CY 39.78 /ecy 11.62 /ecy 54.87 /CY 39.78 /ecy 11.62 /ecy 59.15 Acy 69.15 Acy 69.15 Acy 69.15 Acy 73.61 /LF 680.48 /ea	

D3718900-04-The Dalles WTP-9_5mgd DAF-tj Property of Jacobs, All Rights Reserved - Copyright 2021

Bid Item	m Wo Pk	ork Trade kg Pkg	WorkActiv	Unit Price	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Amou
				33.00.04.04	Buried Pipe, Ductile Iron, 4"											
					Pipe Marking, ID Tape	20.00 lf	0	17	3	-			- 0.97 /lf	19	1.61 /lf	
					33.00.04.04 Buried Pipe, Ductile Iron, 4"	20.00 LF	43	3,595	2,349		1,896		392.01 /LF	7,840	642.13 /LF	1
					33.00.04.BWWFTW04 04" BWW & FTW	20.00 LF	197	14,254	4,172		10,373		1,439.90 /LF	28,798	2,400.98 /LF	48
					33.02 Buried Process Pipe, Ductile Iron	20.00 LF	197	14,254	4,172		10,373		1,439.90 /LF	28,798	2,400.98 /LF	48
					33.0 Utilities	1.00 LS	197	14,254	4,172		10,373		28,798.07 /LS	28,798		4
					12.2 04" BWW & FTW	20.00 LF	197	14,254	4,172		10,373		1,439.90 /LF	28,798	2,400.98 /LF	48
12.3					04" Combined Recycle BW & EDB											
	33.0				Utilities											
		33.02			Buried Process Pipe, Ductile Iron											
			33.00.04.BWEDE	04	04" Combined Recycle BW & EDB											
				31.00.01.01	Trenching, Backfill, and Compaction											
					Rent trench box, 8000 lb., 8' x 16'	5.00 day				-	601		- 120.15 /day	601	203.65 /day	
					Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering	21.93 CY	5	349	-	-	361		- 32.37 /CY	710	54.87 /CY	
					Backfill, 6* layers, compaction in layers, hand tamp, PIPE ZONE	4.22 ecy	2	99	-		-		- 23.47 /ecy	99	39.78 /ecy	
-	_				Backfill, 12" layers, compaction in layers, roller compaction with operator walking, ABOVE PIPE ZONE	16.05 ecy		93	-	•	17		- 6.86 /ecy	110		
					Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING	4.22 lcy 1.60 lcy	1	44	89		8		- 33.27 /lcy - 30.37 /lcy	140 49	52.40 /lcy 48.04 /lcy	
1					Hauling,excavated borrow material,loose cubic yards,20 mile round trip,0.4 load/hr,base wide rate,12 cy truck,highway haulers,excludes	5.88 lcy	1	86	- 29	•	119		- 34.90 /icy	205		
					loading	5.00 ioy	1 1	00		· · · · ·	119		04.00 /ity	203		
1					31.00.01.01 Trenching, Backfill, and Compaction	21.93 CY	10	688	118		1,109		87.27 /CY	1,914	146.91 /CY	
				33.00.04.04	Buried Pipe, Ductile Iron, 4"						1,100			.,		
					4* pipe, DI, RJ, excav/bkfill not included, 350#	310.00 LF	47	3,931	8,588		1.907		46.53 /LF	14.426	73.61 /LF	
					4* DI, RJ, Ell, 45	8.00 ea	15	1,285	1,468	-	623		422.04 /ea	3,376	680.48 /ea	
					Megalugs for DI Pipe w/ Accessories, 4"	16.00 ea	16	1,353	604	-	656		- 163.30 /ea	2,613	269.61 /ea	
					Polywrap, 4* pipe	310.00 lf		-	99	-	-		- 0.32 /lf	99	0.48 /lf	
					Add for tie-in to existing (Adjust productivity)	1.00 ea	24	2,006	750	-	1,134		- 3,889.25 /ea	3,889	6,449.72 /ea	
					Pipe Marking, ID Tape	310.00 lf	3	259	40	-			- 0.97 /lf	299	1.61 /lf	
					33.00.04.04 Buried Pipe, Ductile Iron, 4"	310.00 LF	105	8,834	11,549		4,319		79.68 /LF	24,702	127.99 /LF	3
					33.00.04.BWEDB04 04" Combined Recycle BW & EDB	310.00 LF	115	9,522	11,667		5,428		85.86 /LF	26,616	138.38 /LF	4
					33.02 Buried Process Pipe, Ductile Iron	310.00 LF	115	9,522	11,667		5,428		85.86 /LF	26,616	138.38 /LF	4:
					33.0 Utilities	1.00 LS	115	9,522	11,667		5,428		26,616.26 /LS	26,616	42,897.43 /LS	42
					12.3 04" Combined Recycle BW & EDB	310.00 LF	115	9,522	11,667		5,428		85.86 /LF	26,616	138.38 /LF	4
90.2					Sitework/Site Electrical/Yard Piping/SCADA Allowance											
	26.0				Electrical Work											
		26.10			Site Electrical											
			26.10.20.0010		Site Electrical Allowance											
				26.10.20.00	Site Electrical, Other											
					Site Electrical Allowance (~15% of Construction Costs)	1.00 ls				-		2,160,000		2,160,000		2,9
					26.10.20.00 Site Electrical, Other	1.00 LS						2,160,000		2,160,000		2,92
					26.10.20.0010 Site Electrical Allowance	1.00 LS						2,160,000		2,160,000		2,9
					26.10 Site Electrical	1.00 LS						2,160,000		2,160,000		2,9
					26.0 Electrical Work	1.00 LS						2,160,000	2,160,000.00 /LS	2,160,000	2,926,763.95 /LS	2,9
	31.0				Earthwork											
		31.00			Site/Civil General Items											
			31.00.01.0010		Sitework Allowance											
				31.00.01.00	Site/Civil, General Conditions											
					Sitework Allowance (~6% construction costs)	1.00 ls						865,000		865,000	1,172,060.56 /ls	1,
					31.00.01.00 Site/Civil, General Conditions	1.00 LS						865,000		865,000		1,1
					31.00.01.0010 Sitework Allowance	1.00 LS						865,000		865,000		1,1
					31.00 Site/Civil General Items	1.00 LS						865,000		865,000		1,1
		-			31.0 Earthwork	1.00 LS						865,000	865,000.00 /LS	865,000	1,172,060.56 /LS	1,1
	40.9				Instrumentation & Controls											
		40.90			Instrumentation & Controls											
			40.90.07.0010		Plant Computer System (SCADA allowance)											
				40.90.07.01												
					SCADA Software Development (~6% of Constuction Costs)	1.00 ls	+					865,000		865,000		
					40.90.07.01 I&C, SCADA	1.00 LS						865,000		865,000		1
					40.90.07.0010 Plant Computer System (SCADA allowance)	1.00 LS	+					865,000		865,000		1,
					40.90 Instrumentation & Controls	1.00 LS						865,000		865,000		1
					40.9 Instrumentation & Controls	1.00 LS						865,000		865,000	1,172,060.56 /LS	1
					90.2 Sitework/Site Electrical/Yard Piping/SCADA Allowance	1.00 LS						3,890,000		3,890,000		5
1		1	1		5.3B CIP 5 - WTP Replacement, Phase 3B	1.00 LS	4,397	218,198	69,818	1,021,930	567,465	18 793 022	2 20,670,433.43 /LS	20 670 433	28,374,588.21 /LS	28,3

Estimate Totals

1,296,639 1,164,240 1,992,880 1,410,080 26,724,938 32,588,777 108,269 406,008 514,277 15,504	32,588,777 33,103,054	*****		4.000	
1,992,880 1,410,080 <u>26,724,938</u> 32,588,777 108,269 <u>406,008</u> 514,277		*****	hrs	4.000	
1,410,080 26,724,938 32,588,777 108,269 406,008 514,277		########	hrs	4.000	
26,724,938 32,588,777 108,269 406,008 514,277		****	hrs	4.000	
32,588,777 108,269 406,008 514,277				4.000	
108,269 406,008 514,277				4.000	
406,008 514,277	33,103,054			4.000	
514,277	33,103,054				%
	33,103,054			15.000	%
15,504					
				1.989	%
				4.947	%
413,630				10.346	%
957,239				15.456	%
5,000,025				23.129	%
6,386,398	39,489,452				
108,735				15.000	%
				15.000	%
				15.000	%
				15.000	%
205.295				15.000	%
				15.000	%
				20.000	%
13,750				25,000	%
				10.000	%
				20.000	
				25.000	%
				18.000	%
				10.000	%
820,684	40.310.136				
4 031 014	,,			10 000	%
	44,341,150				
	,,			12 000	%
	55 426 438			0.000	/
	55,420,450			30.000	9/
	72 054 369			00.000	1
10,027,001					
	957,239 <u>5,000,025</u> 6,386,398 108,735	957,239 5,000,025 6,386,398 108,735 205,295 13,750 128,783 364,121 820,684 40,310,136 40,310,136 40,310,136 40,310,136 40,310,136 13,02,35 11,085,288 55,426,438	957,239 5,000,025 6,366,398 108,735 205,295 13,750 128,783 364,121 820,684 40,310,136 40,310,136 40,310,136 40,310,136 40,310,136 40,310,136 13,0235 11,085,288 55,426,438 16,627,931 16,627,931 72,054,369 72,054,36	957,239 5,000,025 6,386,398 108,735 205,295 13,750 128,783 364,121 820,684 40,310,136 40,310,136 40,310,136 40,310,136 40,310,136 40,310,136 40,310,136 13,0235 11,085,288 55,426,438 16,627,931 16,627,931 72,054,369 72,054,369	413,630 10.346 957,239 15.456 5.000,025 23.129 6,386,398 39,489,452 108,735 15.000 205,295 15.000 205,295 15.000 13,750 25.000 128,783 10.000 364,121 15.000 205,295 15.000 13,750 25.000 128,783 10.000 364,121 15.000 20,000 25.000 10,000 15.000 20,000 25.000 128,783 10.000 364,121 15.000 20,000 25.000 13,000 15.000 4,031,014 40,310,136 4,031,014 10.000 1,30,235 3.000 11,085,288 55,426,438 16,627,931 72,054,369 72,054,369 72,054,369

9/11/202409:58 Page 14

Page 626 of 664

WTP Alternative B: Plate Settlers with GMF Cost Estimate

Detail Report Project Name: The Dalles WTP - 9.5mgd Sed Project Number: D3718900 Design Stage: ROM

Estimator: Jones T Rev No. / Data: R03 - 08/13/2024 Class Estimate: Class 5

a Bid Ite		ork Trade kg Pkg	WorkActiv	Unit Price	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Amo
)		ing ing			CIP 1 - Short Term Wicks WTP Improvements											
04.0					Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor											
_	13.	0 13.01			Special Construction Buildings Complete											
			13.00.01.0400		Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor											
				13.01.99.00	Special Construction, Other Peoless and Appliers Sedium Hussehlarite Tables Track Vice Air Compressor	1.00 ls						59,500	59,500.00 /ls	59,500	68,033.10 /ls	
					Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor 13.01.99.00 Special Construction, Other	1.00 IS						59,500	59,500.00 /LS	59,500		6
					13.00.01.0400 Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor	1.00 LS						59,500	59,500.00 /LS	59,500		6
					13.01 Buildings Complete 13.0 Special Construction	1.00 LS 1.00 LS						59,500 59,500	59,500.00 /LS 59,500.00 /LS	59,500 59,500		6
					04.0 Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor	1.00 LS						59,500	59,500.00 /LS	59,500		6
04.1					Demo Sed Basin Covers, Repair Sed Basin Walls, Replace Plate Settlers											
	13.	0 13.01			Special Construction Buildings Complete		-									
			13.00.01.0410		Demo Sed Basin Covers, Repair Sed Basin Walls, Replace Plate Settlers											
				13.01.99.00	Special Construction, Other Demo Sed Basin Covers, Repair Sed Basin Walls, Replace Plate Settlers	1.00 ls						720,000	720,000.00 /ls	720,000	823,257.60 /ls	
					13.01.99.00 Special Construction, Other	1.00 IS						720,000	720,000.00 /LS	720,000		8
					13.00.01.0410 Demo Sed Basin Covers, Repair Sed Basin Walls, Replace Plate Settlers	1.00 LS						720,000		720,000		8
					13.01 Buildings Complete 13.0 Special Construction	1.00 LS 1.00 LS						720,000 720,000	720,000.00 /LS 720,000.00 /LS	720,000		<u>د</u>
					04.1 Demo Sed Basin Covers, Repair Sed Basin Walls, Replace Plate Settlers	1.00 LS						720,000	720,000.00 /LS	720,000		8
					1.00 CIP 1 - Short Term Wicks WTP Improvements	1.00 LS						779,500	779,500.00 /LS	779,500	891,290.70 /LS	8
					CIP 3 - WTP Replacement, Phase 1A											
00.5		0			Improvements to existing Wicks WTP											
	13.	13.01			Special Construction Buildings Complete											
			13.00.01.0400		Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor											
				13.01.99.00	Special Construction, Other Improvements to existing Wicks WTP	1.00 ls						1,377,000	1,377,000.00 /ls	1,377,000	1,689,556.06 /ls	
					13.01.99.00 Special Construction, Other	1.00 LS						1,377,000	1,377,000.00 /LS	1,377,000		1
					13.00.01.0400 Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor	1.00 LS						1,377,000	1,377,000.00 /LS	1,377,000		1
					13.01 Buildings Complete 13.0 Special Construction	1.00 LS 1.00 LS						1,377,000 1,377,000		<u>1,377,000</u> 1,377,000		1
					00.5 Improvements to existing Wicks WTP	1.00 LS						1,377,000		1,377,000		1
02.1					Install temporary generator											
	26.	26.00			Electrical Work Electrical											
			26.25.07.0010		Generator w/ Enclosure											
				26.25.07.02	Electrical Equipment, Generators - >100 to 200 KW Electrical Wiring and Conduit Allowance	1.00 ls				5,00			5,000.00 /ls	5,000	7,384.92 /ls	
					Generator Enclosure	1.00 ea	16	1,321			-	-	11,321.14 /ea	11,321	16,972.17 /ea	
					Generator set,diesel,3 phase 4 wire,277/480 v,125 kw,incl battery,charger,muffler,automatic transfer switch&day tank,excl conduit,wiring,& concrete	1.00 ea	69	5,714	32,300		- 665	-	38,679.24 /ea	38,679	58,340.65 /ea	
					26.25.07.02 Electrical Equipment, Generators - >100 to 200 KW	1.00 LS	85	7,035	42,300	5,000	665		55,000.38 /LS	55,000	82,697.74 /LS	
					26.25.07.0010 Generator w/ Enclosure	1.00 LS	85	7,035					55,000.38 /LS	55,000		
					26.00 Electrical 26.0 Electrical Work	1.00 LS 1.00 LS	85	7,035					55,000.38 /LS 55,000.38 /LS	<u> </u>		
					02.1 Install temporary generator	1.00 LS	85	7,035					55,000.38 /LS	55,000		
02.2					Reroute electrical feed to Wicks WTP											
	26.	26.10			Electrical Work Site Electrical											
			26.10.20.0010		Site Electrical Allowance											
				26.10.20.00	Site Electrical, Other	4.00 la						014.800	214.000.00 //-	214.000	202.550.02 //-	
					Site Electrical Allowance (~15% of Construction Costs) 26.10.20.00 Site Electrical, Other	1.00 ls 1.00 LS						214,800 214,800	214,800.00 /ls 214,800.00 /LS	214,800 214,800		
					26.10.20.0010 Site Electrical Allowance	1.00 LS						214,800	214,800.00 /LS	214,800	263,556.02 /LS	
					26.10 Site Electrical 26.0 Electrical Work	1.00 LS 1.00 LS						214,800 214,800		214,800 214,800		
					02.2 Reroute electrical feed to Wicks WTP	1.00 LS						214,800		214,800		
					3.1A CIP 3 - WTP Replacement, Phase 1A	1.00 LS	85	7,035	42,300	5,000	665	1,591,800	1,646,800.38 /LS	1,646,800	2,035,809.82 /LS	2
					CIP 3 - WTP Replacement, Phase 1B											
01.1	02.	0			Demolition - Plumbing Building Existing Conditions											
	02.0	02.40			Demolition											
			02.01.02.0010		Demo Strucutral Concrete											
				02.01.02.02	Selective Demolition, Cut-out, Concrete, Slabs Demo Concrete Foundations	25.00 CY	35	2,462	1		- 1,875		173.50 /CY	4,337	271.86 /CY	
					02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs	25.00 CY	35	2,462			1,875		173.50 /CY	4,337		
				02.01.02.99	Selective Demolition, Cut-out, Concrete, Other	0.50.07							000.40.(0)(700	150.11.101	
					Demolition Concrete Other 02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	2.50 CY 2.50 CY	6	410 410			- 313		289.16 /CY 289.16 /CY	723		
					Earthworks, Sitework, Hauling and Dump Fees											
					Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	60.00 ton 3.00 LD	6	- 427	1,800		536	-	30.00 /ton 321.06 /LD	1,800		
					31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	3.00 LD	6	427	1,800		536	1	921.06 /LD	2,763	1,329.28 /LD	
					02.01.02.0010 Demo Strucutral Concrete	27.50 CY	47	3,300	1,800		2,724		284.49 /CY	7,823	433.35 /CY	
			02.01.02.0070		Misc. Demolition Sturcture/Building Demoltion			1								
				52.01.02.00	Building demolition, large urban projects, masonry, includes 20 mile haul, excludes foundation demolition, dump fees	640.00 SF	205	14,183			- 16,364		47.73 /SF	30,546		
				24 20 45 25	02.01.02.00 Sturcture/Building Demoltion	640.00 SF	205	14,183			16,364		47.73 /SF	30,546	74.79 /SF	
				31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	140.00 ton		-	4,200			-	30.00 /ton	4,200	41.31 /ton	
					Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	7.00 LD	14				- 1,251		321.06 /LD	2,247	503.09 /LD	
					31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees 02.01.02.0070 Misc. Demolition	7.00 LD 1.00 LS	219				1,251		921.06 /LD 36,993.88 /LS	<u> </u>		
			02.01.06.0010		Electrical Demolition	1.00 23	219				17,014				01,110.00 720	
				1	Electrical Facility Demolition						1	1				

D3718900-04-The Dalles WTP-9_5mgd Sed-tj Property of Jacobs, All Rights Reserved - Copyright 2021

Detail Report Project Name: The Dalles WTP - 9.5mgd Sed Project Number: D3718900 Design Stage: ROM

Estimator: Jones T Rev No. / Data: R03 - 08/13/2024 Class Estimate: Class 5

rea Bid Iter	m Worl Pkg		WorkActiv	Unit Price Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount Other Amo	unt Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Amount
		0 0		02.01.06.01 Electrical Facility Demolition	1.00 LS	40	2,729			1,383	4,112.78 /LS	4,113	6,444.65 /LS	6,445
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	10.00 ton			300			- 30.00 /ton	300	41.31 /ton	413
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	0.50 LD	1	71		-	89	- 321.06 /LD	161	503.08 /LD	252
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees 02.01.06.0010 Electrical Demolition	0.50 LD 1.00 LS	1 41	71 2,801	300 300		89 1,473	921.06 /LD 4,573.31 /LS	461 4,573		665
				02.40 Demolition	1.00 LS	307	21,280	6,300		21,811	49,390.65 /LS	49,391	76,197.31 /LS	76,197
				02.0 Existing Conditions	1.00 LS	307	21,280	6,300		21,811	49,390.65 /LS	49,391	76,197.31 /LS	76,197
01.2	_			01.1 Demolition - Plumbing Building	1.00 LS	307	21,280	6,300		21,811	49,390.65 /LS	49,391	76,197.31 /LS	76,197
01.2	02.0			Demolition - Covered storage area Existing Conditions										
		02.40		Demolition										
			02.01.02.0010	Demo Strucutral Concrete 02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs										
				Demo Concrete Foundations	33.20 CY	46	3,270		-	2,490	- 173.50 /CY	5,761	271.86 /CY	9,027
				02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs	33.20 CY	46	3,270			2,490	173.50 /CY	5,761	271.86 /CY	9,027
				02.01.02.99 Selective Demolition, Cut-out, Concrete, Other Demolition Concrete Other	3.32 CY	8	545			415	- 289.16 /CY	960	453.11 /CY	1,504
				02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	3.32 CY	8	545			415	289.16 /CY	960	453.11 /CY	1,504
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	79.69 ton			2,391			- 30.00 /ton	2,391	41.31 /ton	3,292
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	3.98 LD	8	567		-	712	- 321.06 /LD	1,279	503.09 /LD	2,004
	_	_		31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	3.98 LD	8	567	2,391		712	921.11 /LD	3,670		5,296
			02.01.02.0070	02.01.02.0010 Demo Strucutral Concrete Misc. Demolition	36.52 CY	62	4,383	2,391		3,617	284.49 /CY	10,390	433.35 /CY	15,827
				02.01.02.00 Sturcture/Building Demoltion										
				Building demolition, large urban projects, masonry, includes 20 mile haul, excludes foundation demolition, dump fees 02.01.02.00 Sturcture/Building Demoltion	850.00 SF 850.00 SF	272 272	18,836 18,836	· · ·		21,733 21,733	- 47.73 /SF 47.73 /SF	40,569 40,569		63,572 63,572
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	000.00 0F	212	10,030			21,133	41.13 ISF	40,309	14.13 /0	03,572
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	185.94 ton	10	-	5,578	-	-	- 30.00 /ton	5,578		7,68
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline) 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	9.30 LD 9.30 LD	19 19	1,324 1,324	5,578		1,661 1,661	- 321.06 /LD 921.05 /LD	2,985 8,563	503.09 /LD 1,329.27 /LD	4,67
				02.01.02.0070 Misc. Demolition	1.00 LS	291	20,160	5,578		23,394	49,132.37 /LS	49,132		75,930
			02.01.06.0010	Electrical Demolition 02.01.06.01 Electrical Facility Demolition										
				Electrical Demolition - Med Crew	10.63 hr	53	3,625		-	1,837	- 514.10 /hr	5,462	805.58 /hr	8,559
				02.01.06.01 Electrical Facility Demolition	1.00 LS	53	3,625			1,837	5,462.28 /LS	5,462	8,559.30 /LS	8,559
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	13.28 ton		-	398		-	- 30.00 /ton	398	41.31 /ton	549
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	0.66 LD	1	95		-	119	- 321.05 /LD	213	503.07 /LD	334
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees 02.01.06.0010 Electrical Demolition	0.66 LD 1.00 LS	1 54	95 3,719	398 398		119 1,956	921.10 /LD 6,073.89 /LS	612 6,074		883
				02.40 Demolition	1.00 LS	407	28,262	8,367		28,967	65,596.54 /LS	65,597		101,199
				02.0 Existing Conditions	1.00 LS	407	28,262	8,367		28,967	65,596.54 /LS	65,597		101,199
01.3		_		01.2 Demolition - Covered storage area Demolition - Wicks House	1.00 LS	407	28,262	8,367		28,967	65,596.54 /LS	65,597	101,198.93 /LS	101,199
01.0	02.0			Existing Conditions										
		02.40	00.04.00.0040	Demolition										
			02.01.02.0010	Demo Strucutral Concrete 02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs										
				Demo Concrete Foundations	93.75 CY	131	9,234		-	7,032	- 173.50 /CY	16,265		25,487
				02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs 02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	93.75 CY	131	9,234			7,032	173.50 /CY	16,265	271.86 /CY	25,487
				Demolition Concrete Other	9.38 CY	22	1,539		-	1,172	- 289.16 /CY	2,711	453.11 /CY	4,248
				02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	9.38 CY	22	1,539			1,172	289.16 /CY	2,711	453.11 /CY	4,248
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	225.00 ton			6,750		-	- 30.00 /ton	6,750	41.31 /ton	9,295
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	11.25 LD	23	1,602		-	2,010	- 321.06 /LD	3,612	503.09 /LD	5,660
	_	_		31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees 02.01.02.0010 Demo Strucutral Concrete	11.25 LD 103.13 CY	23 176	1,602 12,374	6,750 6,750		2,010 10,214	921.06 /LD 284.49 /CY	10,362		14,954
			02.01.02.0070	Misc. Demolition			,	0,100			201110 /01	20,000		
				02.01.02.00 Sturcture/Building Demoltion	2,400.00 SF	768	53,185			61,364	- 47.73 /SF	114,549	74.79 /SF	179,497
				Building demolition, large urban projects, masonry, includes 20 mile haul, excludes foundation demolition, dump fees 02.01.02.00 Sturcture/Building Demoltion	2,400.00 SF	768	53,185			61,364	47.73 /SF	114,549		179,497
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees										
	_			Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	525.00 ton 26.25 LD	53	3,738	15,750		4,690	- 30.00 /ton - 321.06 /LD	15,750 8,428		21,687
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	26.25 LD	53	3,738	15,750		4,690	921.06 /LD	24,178	1,329.28 /LD	34,894
			02.01.04.40	02.01.02.0070 Misc. Demolition HVAC Demolition	1.00 LS	821	56,923	15,750		66,054	138,727.04 /LS	138,727	214,390.46 /LS	214,390
			02.01.04.40	02.01.04.40 HVAC Demolition										
				HVAC Demolition - Med Crew	30.00 hr	150	10,235		-	5,188	- 514.10 /hr	15,423		24,167
		_		02.01.04.40 HVAC Demolition 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	1.00 LS	150	10,235			5,188	15,422.91 /LS	15,423	24,167.44 /LS	24,167
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	37.50 ton		-	1,125		-	- 30.00 /ton	1,125		1,549
				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline) 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	1.88 LD 1.88 LD	4	267 267	1,125		335 335	- 321.06 /LD 921.06 /LD	602 1,727		943
				02.01.04.40 HVAC Demolition	1.00 LS	4	10,502	1,125		5,523	17,149.89 /LS	1,727		2,492
			02.01.06.0010	Electrical Demolition										
				02.01.06.01 Electrical Facility Demolition Electrical Demolition - Med Crew	30.00 hr	150	10,235			5,188	- 514.10 /hr	15,423	805.58 /hr	24,16
				02.01.06.01 Electrical Facility Demolition	1.00 LS	150	10,235			5,188	15,422.91 /LS	15,423		24,16
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dum charges, twiced urban city, building construction materials, includes timing fees only	37.50 ton			4.405			- 30.00 /ton	4.07	41.31 /ton	1,54
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	1.88 LD	4	267	1,125		335	- 30.00 /toh - 321.06 /LD	1,125		94
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	1.88 LD	4	267	1,125		335	921.06 /LD	1,727		2,49
				02.01.06.0010 Electrical Demolition 02.40 Demolition	1.00 LS 1.00 LS	154 1,304	10,502 90,302	1,125 24,750		5,523 87,313	17,149.89 /LS 202,364.78 /LS	17,150 202,365		26,66 312,40
				02.0 Existing Conditions	1.00 LS	1,304	90,302	24,750		87,313	202,364.78 /LS 202,364.78 /LS	202,365		312,40
				01.3 Demolition - Wicks House	1.00 LS	1,304	90,302	24,750		87,313	202,364.78 /LS	202,365		312,40
01.6	02.0			Demolition - Generator building Existing Conditions										
	02.0	02.40		Demolition								1		

D3718900-04-The Dalles WTP-9_5mgd Sed-tj Property of Jacobs, All Rights Reserved - Copyright 2021

Detail Report Project Name: The Dalles WTP - 9.5mgd Sed Project Number: D3718900 Design Stage: ROM

Estimator: Jones T Rev No. / Data: R03 - 08/13/2024 Class Estimate: Class 5

Area Bid Item	Work Pkg	Trade Pkg	WorkActiv	Unit Price	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Amount
			02.01.02.0010	02.01.02.02	Demo Strucutral Concrete Selective Demolition, Cut-out, Concrete, Slabs											
					Demo Concrete Foundations	10.00 CY	14	985			. 750	-	173.50 /CY	1,735	271.86 /CY	2,719
				02 01 02 00	02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs Selective Demolition, Cut-out, Concrete, Other	10.00 CY	14	985			750		173.50 /CY	1,735	271.86 /CY	2,719
				02.01.02.99	Demolition Concrete Other	1.00 CY	2	164			125	-	289.16 /CY	289	453.11 /CY	45
				04 00 45 00	02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	1.00 CY	2	164			125		289.16 /CY	289	453.11 /CY	453
				31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	24.00 ton		-	720				30.00 /ton	720	41.31 /ton	99
					Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	1.20 LD	2	171			214	-	321.06 /LD	385	503.09 /LD	60
					31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees 02.01.02.0010 Demo Strucutral Concrete	1.20 LD 11.00 CY	19	171	720		214		921.06 /LD 284.49 /CY	1,105 3,129	1,329.28 /LD 433.35 /CY	1,59
			02.01.02.0070		Misc. Demolition	11.00 01	10	1,020	120		1,000		204.43 /01	0,120	400.00 701	4,10
				02.01.02.00	Sturcture/Building Demoltion	050.00.05		5 070			0.540		17.70 /05	10.010	74.70 (05	
					Building demolition, large urban projects, masonry, includes 20 mile haul, excludes foundation demolition, dump fees 02.01.02.00 Sturcture/Building Demoltion	256.00 SF 256.00 SF	82 82	5,673 5,673			6,546 6,546		47.73 /SF 47.73 /SF	12,219 12,219	74.79 /SF 74.79 /SF	19,14 19,14
				31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees											
					Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	56.00 ton 2.80 LD	6	- 399	1,680	· · · · · · · · · · · · · · · · · · ·			30.00 /ton 321.06 /LD	1,680	41.31 /ton 503.09 /LD	2,31
					31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	2.80 LD	6	399	1,680		500		921.06 /LD	2,579	1,329.28 /LD	3,72
					02.01.02.0070 Misc. Demolition	0.00	88	6,072	1,680		7,046		/LS	14,798	/LS	22,86
			02.01.04.40	02.01.04.40	HVAC Demolition HVAC Demolition											
					HVAC Demolition - Med Crew	3.20 hr	16	1,092			553	-	514.10 /hr	1,645	805.58 /hr	2,57
				21 20 15 00	02.01.04.40 HVAC Demolition	1.00 LS	16	1,092			553		1,645.11 /LS	1,645	2,577.86 /LS	2,57
				51.20.10.00	Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	4.00 ton			120	·	· •	·	30.00 /ton	120	41.31 /ton	16
					Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	0.20 LD 0.20 LD	0	28	120		36 36		321.05 /LD 921.05 /LD	64 184	503.10 /LD 1,329.25 /LD	10
					31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees 02.01.04.40 HVAC Demolition	1.00 LS	16	28 1,120	120		589		1,829.32 /LS	184	2,843.71 /LS	2,844
			02.01.06.0010		Electrical Demolition											
				02.01.06.01	Electrical Facility Demolition Electrical Demolition - Med Crew	3.20 hr	16	1,092			. 553		514.10 /hr	1,645	805.58 /hr	2,578
					02.01.06.01 Electrical Facility Demolition	1.00 LS	16	1,092			553		1,645.11 /LS	1,645	2,577.85 /LS	2,578
				31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees											
					Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	4.00 ton 0.20 LD	0	- 28	120		36		30.00 /ton 321.05 /LD	120	41.31 /ton 503.20 /LD	165
					31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	0.20 LD	0	28	120		36		921.05 /LD	184	1,329.35 /LD	266
					02.01.06.0010 Electrical Demolition 02.40 Demolition	1.00 LS 1.00 LS	16 139	1,120 9,632	120 2,640		589 9,313		1,829.32 /LS 21,585.57 /LS	1,829 21,586	2,843.72 /LS 33,322.64 /LS	2,844
					02.0 Existing Conditions	1.00 LS	139	9,632	2,640		9,313		21,585.57 /LS	21,586	33,322.64 /LS	33,323
					01.6 Demolition - Generator building	1.00 LS	139	9,632	2,640		9,313		21,585.57 /LS	21,586	33,322.64 /LS	33,323
					3.1B CIP 3 - WTP Replacement, Phase 1B	1.00 LS	2,157	149,476	42,057		147,405		338,937.54 /LS	338,938	523,118.62 /LS	523,119
3.1C					CIP 3 - WTP Replacement, Phase 1C											4
03.1	33.0				New 30" filtered water Utilities											
		33.02			Buried Process Pipe, Ductile Iron											
			33.00.04.FW30	04.00.04.04	30" FW - Finished Water											4
				31.00.01.01	Trenching, Backfill, and Compaction Rent trench box, 8000 lb., 8' x 16'	40.00 day		-	-		4,806		120.15 /day	4,806	188.27 /day	7,531
					Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering	1,841.67 CY	409 218	29,298 13,184	-		. 30,318		32.37 /CY	59,616 13,184	50.72 /CY 36.78 /ecy	93,417 20,659
					Backfill, 6" layers, compaction in layers, hand tamp, PIPE ZONE Backfill, 12" layers, compaction in layers, roller compaction with operator walking, ABOVE PIPE ZONE	561.75 ecy 1,023.15 ecy	82	5,943	-		1,074		23.47 /ecy 6.86 /ecy	7,017	10.75 /ecy	10,996
					Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE	561.75 lcy 102.31 lcy	90	5,853 1,066	11,797 1,852		1,038 189		- 33.27 /lcy - 30.37 /lcy	18,688 3,107	48.14 /lcy 44.15 /lcy	27,043
					Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING Hauling,excavated borrow material,loose cubic yards,20 mile round trip,0.4 load/hr,base wide rate,12 cy truck,highway haulers,excludes	818.52 lcy	168	11,954			16,609		34.90 /lcy	28,563	54.68 /lcy	44,75
					loading	4 9 44 97 97		07.000	10.010		54.005		70.00 /0)/	101.001	440.44.70%	
				33.00.04.30	31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 30"	1,841.67 CY	983	67,298	13,649		54,035		73.29 /CY	134,981	113.44 /CY	208,920
					30" pipe, DI, RJ, excav/bkfill not included, 250#	850.00 LF	357	29,834	166,097		16,862	-	250.35 /LF	212,793	355.16 /LF	301,885
					30° DI, RJ, Ell, 45 Megalugs for DI Pipe w/ Accessories, 30°	17.00 ea 43.00 ea	168	14,065 7,187	94,473 46,373		- 7,949 - 4,062		6,852.21 /ea 1,340.06 /ea	116,488 57,622	9,681.42 /ea 1,894.94 /ea	164,584 81,482
					Polywrap, 30" pipe	850.00 lf		-	1,122		-	-	1.32 /lf	1,122	1.82 /lf	1,54
					Add for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape	1.00 ea 850.00 lf	24	2,006 710	750		. 1,134		3,889.25 /ea 0.97 /lf	3,889 821	5,951.88 /ea 1.49 /lf	5,95
					33.00.04.30 Buried Pipe, Ductile Iron, 30"	850.00 LF	644	53,802	308,926		30,007		462.04 /LF	392,735	654.96 /LF	556,714
					33.00.04.FW30 30" FW - Finished Water 33.02 Buried Process Pipe, Ductile Iron	850.00 LF 850.00 LF	1,627	121,101 121,101	<u>322,575</u> 322,575		84,042 84,042		620.84 /LF 620.84 /LF	527,717 527,717	900.75 /LF 900.75 /LF	765,634
					33.0 Utilities	1.00 LS	1,627	121,101	322,575		84,042		527,716.84 /LS	527,717	765,634.31 /LS	765,63
					03.1 New 30" filtered water	1.00 LS	1,627	121,101	322,575		84,042		527,716.84 /LS	527,717	765,634.31 /LS	765,634
03.2	33.0				New 12" BWS Utilities											4
		33.02			Buried Process Pipe, Ductile Iron											
		:	33.00.04.BWS12		New 12" BWS											4
				31.00.01.01	Trenching, Backfill, and Compaction Rent trench box, 8000 lb., 8' x 16'	30.00 day					. 3,605		· 120.15 /day	3,605	188.27 /day	5,64
					Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering	1,527.78 CY	340	24,305	-		25,151	-	32.37 /CY	49,455	50.72 /CY	77,49
					Backfill, 6* layers, compaction in layers, hand tamp, PIPE ZONE Backfill, 12* layers, compaction in layers, roller compaction with operator walking, ABOVE PIPE ZONE	375.43 ecy 1,018.52 ecy	146	8,811 5,916	-				23.47 /ecy 6.86 /ecy	8,811 6,985	36.78 /ecy 10.75 /ecy	13,80
					Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE	375.43 lcy	60	3,912	7,884		694	-	33.27 /lcy	12,490	48.14 /lcy	18,07
					Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING Hauling,excavated borrow material,loose cubic yards,20 mile round trip,0.4 load/hr,base wide rate,12 cy truck,highway haulers,excludes	101.85 lcy 509.26 lcy	16	1,061 7,438	1,843		- 188 - 10,334		30.37 /lcy 34.90 /lcy	3,093 17,771	44.15 /lcy 54.68 /lcy	4,49
					loading											
		+		33.00.04.12	31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 12"	1,527.78 CY	748	51,442	9,728		41,040		66.90 /CY	102,210	103.62 /CY	158,31
				00.00.04.12	12" pipe, DI, RJ, excav/bkfill not included, 350#	1,100.00 LF	275	22,982	55,656		12,989	-	83.30 /LF	91,626	120.91 /LF	133,00
	T	+			12" DI, RJ, EII, 45	20.00 ea 55.00 ea	92 55	7,688 4,596	13,502 6,705		· 4,345 · 2,598		· 1,276.79 /ea · 252.70 /ea	25,536 13,899	1,872.45 /ea 372.82 /ea	37,44 20,50
					Megalugs for DI Pipe w/ Accessories, 12* Polywrap, 12* pipe	1,100.00 lf		-	583				0.53 /lf	583	0.73 /lf	80
	<u> </u>	+			Add for tie-in to existing (Adjust productivity)	1.00 ea	24	2,006 919	750		1,134		3,889.25 /ea	3,889 1,062	5,951.89 /ea	5,95
					Pipe Marking, ID Tape 33.00.04.12 Buried Pipe, Ductile Iron, 12"	1,100.00 lf 1,100.00 LF	457	38,191	77,338	······································	21,066		0.97 /lf 124.18 /LF	1,062	1.49 /lf 181.23 /LF	1,63
					33.00.04.BWS12 New 12" BWS	1,100.00 LF	1,205	89,634	87,066		62,106		217.10 /LF	238,805	325.15 /LF	357,662
					33.02 Buried Process Pipe, Ductile Iron	1,100.00 LF	1,205	89,634	87,066		62,106		217.10 /LF	238,805	325.15 /LF	357,662

D3718900-04-The Dalles WTP-9_5mgd Sed-tj Property of Jacobs, All Rights Reserved - Copyright 2021

ea Bid Item	n Work Trade Pkg Pkg	WorkActiv	Unit Price	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Amount
				33.0 Utilities 03.2 New 12" BWS	1.00 LS 1.00 LS	1,205 1,205	89,634 89,634	87,066 87,066		62,106 62,106		238,805.46 /LS 238,805.46 /LS	238,805 238,805	357,661.70 /LS 357,661.70 /LS	357,66
03.3				Residuals piping	1.00 23	1,203	03,034	07,000		02,100		230,003.40 /23	230,003	337,001.70 723	337,00
	33.0			Utilities											
	33.02	33.00.04.SEDB04		Buried Process Pipe, Ductile Iron 04" Solids & 04" EDB Recycle Lines											
			31.00.01.01	Trenching, Backfill, and Compaction											
				Rent trench box, 8000 lb., 8' x 16' Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering	148.00 day 10,456.79 CY	2,324	- 166,351			17,782 172,142	-	120.15 /day 32.37 /CY	17,782 338,493	188.27 /day 50.72 /CY	27,8
				Backfill, 6" layers, compaction in layers, hand tamp, PIPE ZONE	1,187.26 ecy	461	27,864		-		-	23.47 /ecy	27,864	36.78 /ecy	43,
				Backfill, 12" layers, compaction in layers, roller compaction with operator walking, ABOVE PIPE ZONE	8,641.98 ecy 1,187.26 lcy	691 190	50,194 12,371	- 24,932		9,075	-	6.86 /ecy	59,269 39,498	10.75 /ecy 48.14 /lcy	92,8
				Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING	604.94 lcy	97	6,303	10,949	-	1,118	-	33.27 /lcy 30.37 /lcy	18,371	44.14 /icy 44.15 /icy	26,7
				Hauling, excavated borrow material, loose cubic yards, 20 mile round trip, 0.4 load/hr, base wide rate, 12 cy truck, highway haulers, excludes	1,814.81 lcy	372	26,505		-	36,825	-	34.90 /lcy	63,330	54.68 /lcy	99,2
				loading 31.00.01.01 Trenching, Backfill, and Compaction	10,456.79 CY	4,135	289,589	35,882		239,137		53.99 /CY	564,607	83.96 /CY	877,9
			33.00.04.04	Buried Pipe, Ductile Iron, 4"											
				4" pipe, DI, RJ, excav/bkfill not included, 350# 4* DI, RJ, Ell, 45	7,000.00 LF 140.00 ea	1,050 266	88,773 22,489	193,914 25,690		43,050	-	46.53 /LF 422.04 /ea	325,737 59,085	67.65 /LF 626.46 /ea	473,
_				Megalugs for DI Pipe w/ Accessories, 4"	280.00 ea	280	23,673	10,570		11,480	-	163.30 /ea	45,723	248.71 /ea	69,
				Polywrap, 4* pipe Add for tie-in to existing (Adjust productivity)	7,000.00 lf 4.00 ea	96	- 8,023	2,240		4,534	-	0.32 /lf 3,889.26 /ea	2,240 15,557		3,
				Pipe Marking, ID Tape	7,000.00 lf	70	5,849	910		-	-	0.97 /lf	6,759	1.49 /lf	10,
				33.00.04.04 Buried Pipe, Ductile Iron, 4" 33.00.04.SEDB04 04" Solids & 04" EDB Recycle Lines	7,000.00 LF 7,000.00 LF	1,762 5,897	148,807 438,396	236,324		69,970 309,107		65.01 /LF 145.67 /LF	455,102 1,019,709	95.46 /LF 220.88 /LF	668,2
				33.02 Buried Process Pipe, Ductile Iron	7,000.00 LF	5,897	438,396	272,200		309,107		145.67 /LF	1,019,709		1,546,1
				33.0 Utilities	1.00 LS	5,897	438,396	272,206		309,107		1,019,708.75 /LS	1,019,709		1,546,1
90.1				03.3 Residuals piping Sitework Allowance	1.00 LS	5,897	438,396	272,206		309,107		1,019,708.75 /LS	1,019,709	1,546,147.51 /LS	1,546,1
30.1	31.0			Earthwork											
	31.00			Site/Civil General Items											
_		31.00.01.0010	31 00 01 00	Sitework Allowance Site/Civil, General Conditions											
			31.00.01.00	Sitework Allowance (~6% construction costs)	1.00 ls						226,000	226,000.00 /ls	226,000	277,298.24 /ls	277
				31.00.01.00 Site/Civil, General Conditions	1.00 LS						226,000		226,000	277,298.24 /LS	277,
				31.00.01.0010 Sitework Allowance 31.00 Site/Civil General Items	1.00 LS 1.00 LS						226,000 226,000		226,000 226,000		277, 277,
				31.0 Earthwork	1.00 LS						226,000		226,000		277,
				90.1 Sitework Allowance	1.00 LS						226,000		226,000		277,
				3.1C CIP 3 - WTP Replacement, Phase 1C	1.00 LS	8,729	649,130	681,846		455,255	226,000	2,012,231.05 /LS	2,012,231	2,946,741.76 /LS	2,946,7
A				CIP 4 - WTP Replacement, Phase 2A											
01.7	02.0			Demolition Caustic Soda Building Existing Conditions											
	02.40			Demolition											
		02.01.02.0010		Demo Strucutral Concrete											
			02.01.02.02	Selective Demolition, Cut-out, Concrete, Slabs Demo Concrete Foundations	33.98 CY	48	3,347			2,549		173.50 /CY	5,896	280.73 /CY	9,
				02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs	33.98 CY	48	3,347			2,549		173.50 /CY	5,896	280.73 /CY	9,5
			02.01.02.99	Selective Demolition, Cut-out, Concrete, Other	2.40. CV		550			405		280.4C (C)	983	467.00 (0)/	1,
				Demolition Concrete Other 02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	3.40 CY 3.40 CY	8	558 558			425 425	-	289.16 /CY 289.16 /CY	983	467.88 /CY 467.88 /CY	1,
			31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees											
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	81.56 ton 4.08 LD	8	- 581	2,447	· · ·	- 729		30.00 /ton 321.06 /LD	2,447		3,
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	4.08 LD	8	581	2,447		729		921.07 /LD	3,756	1,376.37 /LD	5,6
_				02.01.02.0010 Demo Strucutral Concrete	37.38 CY	64	4,486	2,447		3,702		284.49 /CY	10,635	447.89 /CY	16,7
		02.01.02.0070	02 01 02 00	Misc. Demolition Sturcture/Building Demoltion											
			02101102100	Building demolition, large urban projects, masonry, includes 20 mile haul, excludes foundation demolition, dump fees	870.00 SF	278	19,280			22,244	-	47.73 /SF	41,524	77.23 /SF	67,
				02.01.02.00 Sturcture/Building Demoltion	870.00 SF	278	19,280			22,244		47.73 /SF	41,524	77.23 /SF	67,
			31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	190.31 ton			5,709			-	30.00 /ton	5,709	42.84 /ton	8
_				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	9.52 LD	19	1,355			1,700	-	321.06 /LD	3,055	519.49 /LD	4,
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees 02.01.02.0070 Misc. Demolition	9.52 LD 1.00 LS	19 297		5,709 5,709		1,700 23,945		921.03 /LD 50,288.51 /LS	8,765 50,289		13,
		02.01.06.0010		Electrical Demolition		231	20,033	5,709		25,545			50,209	00,200,21 720	00,
			02.01.06.01	Electrical Facility Demolition	40									004	
_				Electrical Demolition - Med Crew 02.01.06.01 Electrical Facility Demolition	12.00 hr 1.00 LS	60 60	4,094 4,094		-	2,075 2,075	-	514.10 /hr 6,169.16 /LS	6,169 6,169		9,
			31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees			.,004			2,070					
				Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	10.00 ton 0.50 LD		- 71	300	-	-	-	30.00 /ton 321.06 /LD	300 161		
				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	0.50 LD	1	71	300		89		921.06 /LD	461	1,376.34 /LD	
				02.01.06.0010 Electrical Demolition	1.00 LS	61		300		2,164		6,629.69 /LS	6,630	10,670.41 /LS	10,
				02.40 Demolition	1.00 LS	422		8,456		29,811		67,552.96 /LS 67,552.96 /LS	67,553 67,553		107,
				02.0 Existing Conditions 01.7 Demolition Caustic Soda Building	1.00 LS 1.00 LS	422		8,456 8,456		29,811 29,811		67,552.96 /LS	67,553		107,
01.8				Demolition Sodium Hypochlorite Building											
	02.0 02.40			Existing Conditions Demolition		-									
		02.01.02.0010		Demoittion Demo Strucutral Concrete											
			02.01.02.02	Selective Demolition, Cut-out, Concrete, Slabs											
				Demo Concrete Foundations 02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs	57.42 CY 57.42 CY	80 80	5,655 5,655		-	4,307 4,307	-	173.50 /CY 173.50 /CY	9,962 9,962	280.73 /CY 280.73 /CY	16
			02.01.02.99	Selective Demolition, Cut-out, Concrete, Stabs	57.42 CT	00	0,655			4,307		173.00 /01	9,962	200.73 /01	16
				Demolition Concrete Other	5.74 CY	13	942		-	718	-	289.16 /CY	1,660		2
				02.01.02.99 Selective Demolition, Cut-out, Concrete, Other Earthworks, Sitework, Hauling and Dump Fees	5.74 CY	13	942			718		289.16 /CY	1,660	467.88 /CY	2
			51.20.15.00	Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	137.81 ton			4,134	-			30.00 /ton	4,134	42.84 /ton	
_				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	6.89 LD	14	981			1,231	-	321.06 /LD	2,212	519.49 /LD	3
_				31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees 02.01.02.0010 Demo Strucutral Concrete	6.89 LD 63.16 CY	14 108	981 7,579	4,134 4,134		1,231 6,255		921.11 /LD 284.49 /CY	6,346 17,969		9,4
			1		03.10 01	100	1,019	4,104							20,

D3718900-04-The Dalles WTP-9_5mgd Sed-tj Property of Jacobs, All Rights Reserved - Copyright 2021

Detail Report Project Name: The Dalles WTP - 9.5mgd Sed Project Number: D3718900 Design Stage: ROM

Estimator: Jones T Rev No. / Data: R03 - 08/13/2024 Class Estimate: Class 5

	Work Pkg	Trade Pkg WorkActiv	Unit Price Description		Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total A
			02.01.02.00 Sturcture/Building Demoltion Building demolition, large urban projects, masonry, includes 20 mile haul, exclu	des foundation demolition, dump fees	1,470.00 SF	470	32,576	-	-	37,586	-	47.73 /SF	70,161	77.23 /SF	
			02.01.02.00 Sturcture/Building Demoltion	· · ·	1,470.00 SF	470	32,576			37,586		47.73 /SF	70,161	77.23 /SF	
			31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees Selective demolition dump charges typical urban city, building construction m	starials includes tinning fees only	321.56 ton			9,647				30.00 /ton	9,647	42.84 /ton	
			Selective demolition, dump charges, typical urban city, building construction m Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load)		16.08 LD	32	2,290	5,047		2,873		321.06 /LD	5,162	519.50 /LD	
			31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees		16.08 LD		2,290	9,647		2,873		921.02 /LD	14,809	1,376.29 /LD	
		02.01.06.0010	02.01.02.0070 Misc. Demolition Electrical Demolition		0.00	503	34,866	9,647		40,458		/LS	84,971	/LS	
			02.01.06.01 Electrical Facility Demolition												
			Electrical Demolition - Med Crew		24.00 hr	120	8,188		-	4,150	-	514.10 /hr	12,338	831.85 /hr	
			02.01.06.01 Electrical Facility Demolition 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees		1.00 LS	120	8,188			4,150		12,338.33 /LS	12,338	19,964.44 /LS	
			Selective demolition, dump charges, typical urban city, building construction m	aterials, includes tipping fees only	20.00 ton		-	600	-	-	-	30.00 /ton	600	42.84 /ton	
			Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load)	10CY/load (neatline)	1.00 LD	2	142	C00	-	179	-	321.06 /LD	321	519.49 /LD	
			31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees 02.01.06.0010 Electrical Demolition		1.00 LD 1.00 LS		<u> </u>	600 600		4,329		921.06 /LD 13,259.39 /LS	921 13,259	1,376.35 /LD 21,340.79 /LS	
			02.40 Demolition		1.00 LS		50,775	14,381		51,043		116,198.68 /LS	116,199	185,286.71 /LS	
			02.0 Existing Conditions		1.00 LS		50,775	14,381		51,043		116,198.68 /LS	116,199	185,286.71 /LS	
5.0			01.8 Demolition Sodium Hypochlorite Building		1.00 LS	732	50,775	14,381		51,043		116,198.68 /LS	116,199	185,286.71 /LS	
	3.0		Construct new finished water chem building Special Construction												
		13.01	Buildings Complete												
		13.00.01.0401	Construct new finished water chem building												
			13.00.01.02 Buildings, Operations Building Complete - Chamical Building		3,125.00 SF				843,750		-	270.00 /SE	843,750	385.58 /SF	
			Building Complete - Chemical Building 13.00.01.02 Buildings, Operations		3,125.00 SF 3,125.00 SF				843,750 843,750	-		270.00 /SF 270.00 /SF	843,750 843,750	385.58 /SF 385.58 /SF	
			13.00.01.0401 Construct new finished water chem building		1.00 LS				843,750			843,750.00 /LS	843,750	1,204,945.32 /LS	
			13.01 Buildings Complete		1.00 LS				843,750			843,750.00 /LS	843,750	1,204,945.32 /LS	
			13.0 Special Construction 05.0 Construct new finished water chem building		1.00 LS 1.00 LS				843,750 843,750			843,750.00 /LS 843,750.00 /LS	843,750 843,750	1,204,945.32 /LS 1,204,945.32 /LS	
.1			On-Site Hypo Generation System		1.00 LS				043,730			040,100.00 /LO	043,750	1,204,343.32 /23	
	1.0		Commercial Equipment												
		11.00	Equipment			_									
		11.00.99.0011	Equipment Costs from Replica 11.00.99.00 Equipment, Other												
			On-Site Sodium Hypo: Hypo - 11 - Equipment		1.00 ls				-	-	912,066	912,065.94 /ls	912,066	1,165,696.29 /ls	
			11.00.99.00 Equipment, Other		1.00 LS						912,066	912,065.94 /LS	912,066	1,165,696.29 /LS	
			11.00.99.0011 Equipment Costs from Replica		1.00 LS 1.00 LS						912,066 912,066	912,065.94 /LS 912,065.94 /LS	912,066 912,066	1,165,696.29 /LS 1,165,696.29 /LS	
			11.00 Equipment 11.0 Commercial Equipment		1.00 LS						912,066	912,065.94 /LS	912,066	1,165,696.29 /LS	
2	26.0		Electrical Work									,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		,,	
	:	26.00	Electrical												
		26.00.99.0016	Electrical Costs from Replica												
			26.00.99.00 Electrical, Other On-Site Sodium Hypo: Hypo - 16 Electrical		1.00 ls				-	-	75,753	75,752.98 /ls	75,753	96,818.63 /ls	
			26.00.99.00 Electrical, Other		1.00 LS						75,753	75,752.98 /LS	75,753	96,818.63 /LS	
			26.00.99.0016 Electrical Costs from Replica		1.00 LS						75,753	75,752.98 /LS	75,753	96,818.63 /LS	
			26.00 Electrical 26.0 Electrical Work		1.00 LS 1.00 LS						75,753 75,753	75,752.98 /LS 75,752.98 /LS	75,753 75,753	96,818.63 /LS 96,818.63 /LS	
4	10.0		Process Pipe		1.00 20						10,100	10,102.00 /20	10,100	30,010.00 720	
	-	40.19	Process Pipe, Other												
		40.00.99.0015	Mechanical Costs from Replica												
			40.00.99.01 Process Pipe, Other On-Site Sodium Hypo: Hypo - 15 Mechanical		1.00 ls				-	-	151,506	151,505.97 /ls	151,506	193,637.25 /ls	
			40.00.99.01 Process Pipe, Other		1.00 LS						151,506	151,505.97 /LS	151,506	193,637.25 /LS	
			40.00.99.0015 Mechanical Costs from Replica		1.00 LS						151,506	151,505.97 /LS	151,506	193,637.25 /LS	
			40.19 Process Pipe, Other 40.0 Process Pipe		1.00 LS 1.00 LS						151,506 151,506	151,505.97 /LS 151,505.97 /LS	151,506 151,506	193,637.25 /LS 193,637.25 /LS	
4	10.9		Instrumentation & Controls		1.00 L3						151,500	151,505.97 /L3	151,500	193,037.23 713	
		40.90	Instrumentation & Controls												
		40.90.99.0013	Special Construction from Replica												
			40.90.99.01 I&C, Other On-Site Sodium Hypo: Hypo - 13 Special Construction		1.00 ls						75,753	75,752.98 /ls	75,753	96,818.62 /ls	
			40.90.99.01 I&C, Other		1.00 LS				-		75,753	75,752.98 /LS	75,753		
			40.90.99.0013 Special Construction from Replica		1.00 LS						75,753	75,752.98 /LS	75,753	96,818.62 /LS	
			40.90 Instrumentation & Controls		1.00 LS 1.00 LS						75,753 75,753	75,752.98 /LS 75,752.98 /LS	75,753 75,753		
			40.9 Instrumentation & Controls 05.1 On-Site Hypo Generation System		1.00 LS 1.00 LS						1,215,078		75,753 1,215,078		
2			Fluoride Storage/Equipment								.,	, .,	.,,		
1	1.0		Commercial Equipment												
		11.00 11.00.99.0011	Equipment Equipment Costs from Replica												
		11.00.33.0011	11.00.99.00 Equipment, Other												
			Dry Chemical: Fluoride - 11 - Equipment		1.00 ls				-	-	391,491	391,491.42 /ls	391,491	500,358.66 /ls	
			11.00.99.00 Equipment, Other		1.00 LS						<u>391,491</u> 391,491	391,491.42 /LS 391,491.42 /LS	391,491	500,358.66 /LS	
			11.00.99.0011 Equipment Costs from Replica 11.00 Equipment		1.00 LS 1.00 LS						391,491	391,491.42 /LS 391,491.42 /LS	<u>391,491</u> 391,491	500,358.66 /LS 500,358.66 /LS	
			11.0 Commercial Equipment		1.00 LS						391,491	391,491.42 /LS	391,491	500,358.66 /LS	
2	26.0		Electrical Work												
		26.00	Electrical							I					
		26.00.99.0016	Electrical Costs from Replica 26.00.99.00 Electrical, Other			+									
			Dry Chemical: Fluoride - 16 Electrical		1.00 ls				-	-	86,055	86,055.39 /ls	86,055	109,985.97 /ls	
			26.00.99.00 Electrical, Other		1.00 LS						86,055	86,055.39 /LS	86,055	109,985.97 /LS	
			26.00.99.0016 Electrical Costs from Replica		1.00 LS						86,055	86,055.39 /LS	86,055		
			26.00 Electrical 26.0 Electrical Work		1.00 LS 1.00 LS						86,055 86,055	86,055.39 /LS 86,055.39 /LS	86,055 86,055		
4	10.0		Process Pipe		1.00 L3						00,000	00,000.03 /E0	00,000		
		40.19	Process Pipe, Other												
			Mechanical Costs from Replica												

D3718900-04-The Dalles WTP-9_5mgd Sed-tj Property of Jacobs, All Rights Reserved - Copyright 2021

Bid Item Work Pkg		WorkActiv Unit Price	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Amount
	_	40.00.99.01	Process Pipe, Other Dry Chemical: Fluoride - 15 Mechanical	1.00 ls						35,149	35,149.38 /ls	35,149	44,923.83 /ls	44,5
			40.00.99.01 Process Pipe, Other	1.00 LS					-	35,149	35,149.38 /LS	35,149	44,923.83 /LS	44,9
			40.00.99.0015 Mechanical Costs from Replica	1.00 LS						35,149	35,149.38 /LS	35,149	44,923.83 /LS	44,9
			40.19 Process Pipe, Other 40.0 Process Pipe	1.00 LS 1.00 LS						35,149 35,149	35,149.38 /LS 35,149.38 /LS	35,149 35,149	44,923.83 /LS 44,923.83 /LS	44,9
40.9			Instrumentation & Controls								00,110100 720			
	40.90		Instrumentation & Controls											
		40.90.99.0013 40.90.99.01	Special Construction from Replica											
			Dry Chemical: Fluoride - 13 Special Construction	1.00 ls						13,333	13,332.53 /ls	13,333	17,040.09 /ls	17,
			40.90.99.01 I&C, Other 40.90.99.0013 Special Construction from Replica	1.00 LS 1.00 LS						13,333 13,333	13,332.53 /LS 13,332.53 /LS	13,333 13,333	17,040.09 /LS 17,040.09 /LS	17,0
	-		40.90 Instrumentation & Controls	1.00 LS						13,333	13,332.53 /LS	13,333	17,040.09 /LS	17,0
			40.9 Instrumentation & Controls	1.00 LS						13,333	13,332.53 /LS	13,333	17,040.09 /LS	17,0
.3			05.2 Fluoride Storage/Equipment Caustic Storage/Equipment	1.00 LS						526,029	526,028.72 /LS	526,029	672,308.55 /LS	672,
11.0			Commercial Equipment											
	11.00		Equipment											
		11.00.99.0011 11.00.99.00	Equipment Costs from Replica Equipment, Other											
		11.00.00.00	Liquid Chemical: Caustic - 11 - Equipment	1.00 ls						28,483	28,483.12 /ls	28,483	36,403.80 /ls	36
	_		11.00.99.00 Equipment, Other	1.00 LS						28,483	28,483.12 /LS	28,483	36,403.80 /LS	36,
			11.00.99.0011 Equipment Costs from Replica 11.00 Equipment	1.00 LS 1.00 LS						28,483 28,483	28,483.12 /LS 28,483.12 /LS	28,483 28,483	36,403.80 /LS 36,403.80 /LS	36,
			11.0 Commercial Equipment	1.00 LS						28,483	28,483.12 /LS	28,483		36,
26.0	20.00		Electrical Work Electrical											
	26.00	26.00.99.0016	Electrical Costs from Replica											
		26.00.99.00	Electrical, Other											
			Liquid Chemical: Caustic - 16 Electrical 26.00.99.00 Electrical, Other	1.00 ls 1.00 LS						5,454 5,454	5,454.00 /ls 5,454.00 /LS	5,454 5,454	6,970.66 /ls 6,970.66 /LS	6
			26.00.99.0016 Electrical Costs from Replica	1.00 LS						5,454	5,454.00 /LS	5,454	6,970.66 /LS	6
			26.00 Electrical	1.00 LS						5,454	5,454.00 /LS	5,454	6,970.66 /LS	6,
40.0			26.0 Electrical Work Process Pipe	1.00 LS						5,454	5,454.00 /LS	5,454	6,970.66 /LS	6
40.0	40.19		Process Pipe, Other											
		40.00.99.0015	Mechanical Costs from Replica											
		40.00.99.01	Process Pipe, Other Liquid Chemical: Caustic - 15 Mechanical	1.00 ls						13,332	13,332.00 /ls	13,332	17,039.40 /ls	1
			40.00.99.01 Process Pipe, Other	1.00 LS						13,332	13,332.00 /LS	13,332	17,039.40 /LS	17
	_		40.00.99.0015 Mechanical Costs from Replica	1.00 LS						13,332	13,332.00 /LS	13,332	17,039.40 /LS	17
			40.19 Process Pipe, Other 40.0 Process Pipe	1.00 LS 1.00 LS						13,332 13,332	13,332.00 /LS 13,332.00 /LS	13,332 13,332	17,039.40 /LS 17,039.40 /LS	17,
40.9			Instrumentation & Controls							10,002	10,002100 720		,000110 /20	,
	40.90		Instrumentation & Controls											
		40.90.99.0013 40.90.99.01	Special Construction from Replica I&C, Other											
			Liquid Chemical: Caustic - 13 Special Construction	1.00 ls						58,782	58,782.00 /ls	58,782	75,128.30 /ls	75
			40.90.99.01 I&C, Other 40.90.99.0013 Special Construction from Replica	1.00 LS 1.00 LS						58,782 58,782	58,782.00 /LS 58,782.00 /LS	58,782 58,782	75,128.30 /LS 75,128.30 /LS	75,
			40.90 Instrumentation & Controls	1.00 LS						58,782	58,782.00 /LS	58,782	75,128.30 /LS	75
			40.9 Instrumentation & Controls	1.00 LS						58,782	58,782.00 /LS	58,782	75,128.30 /LS	75
l .			05.3 Caustic Storage/Equipment Polyphosphate Storage/Equipment	1.00 LS						106,051	106,051.12 /LS	106,051	135,542.16 /LS	135
11.0			Commercial Equipment											
	11.00		Equipment											
		11.00.99.0011 11.00.99.00	Equipment Costs from Replica Equipment, Other											
		11.00.55.00	Liquid Chemical: PolyPhos - 11 - Equipment	1.00 ls						28,483	28,483.12 /ls	28,483	36,403.80 /ls	3
	_		11.00.99.00 Equipment, Other	1.00 LS						28,483	28,483.12 /LS	28,483	36,403.80 /LS	36
	+		11.00.99.0011 Equipment Costs from Replica 11.00 Equipment	1.00 LS 1.00 LS						28,483 28,483	28,483.12 /LS 28,483.12 /LS	28,483 28,483	36,403.80 /LS 36,403.80 /LS	36
			11.0 Commercial Equipment	1.00 LS						28,483	28,483.12 /LS	28,483		36
26.0	26.00		Electrical Work											
	26.00	26.00.99.0016	Electrical Electrical Costs from Replica			<u> </u>								
		26.00.99.00	Electrical, Other											
			Liquid Chemical: PolyPhos - 16 Electrical	1.00 ls 1.00 LS						4,848 4,848	4,848.00 /ls 4,848.00 /LS	4,848 4,848	6,196.16 /ls 6,196.16 /LS	6
			26.00.99.00 Electrical, Other 26.00.99.0016 Electrical Costs from Replica	1.00 LS						4,848	4,848.00 /LS	4,848	6,196.16 /LS	
	_		26.00 Electrical	1.00 LS						4,848	4,848.00 /LS	4,848	6,196.16 /LS	6
40.0			26.0 Electrical Work Process Pipe	1.00 LS						4,848	4,848.00 /LS	4,848	6,196.16 /LS	6
40.0	40.19		Process Pipe, Other											
		40.00.99.0015	Mechanical Costs from Replica											
		40.00.99.01	Process Pipe, Other Liquid Chemical: PolyPhos - 15 Mechanical	1.00 ls						12,726	12,726.00 /ls	12,726	16,264.88 /ls	
			40.00.99.01 Process Pipe, Other	1.00 LS						12,726	12,726.00 /LS	12,726	16,264.88 /LS	16
			40.00.99.0015 Mechanical Costs from Replica	1.00 LS						12,726	12,726.00 /LS	12,726	16,264.88 /LS	16
			40.19 Process Pipe, Other 40.0 Process Pipe	1.00 LS 1.00 LS						12,726 12,726	12,726.00 /LS 12,726.00 /LS	12,726 12,726		16
40.9			Instrumentation & Controls							,	,			
	40.90	40.00.00.0042	Instrumentation & Controls											
		40.90.99.0013 40.90.99.01	Special Construction from Replica I&C. Other											
		+0.00.001	Liquid Chemical: PolyPhos - 13 Special Construction	1.00 ls						53,934	53,934.00 /ls	53,934	68,932.15 /ls	6
			40.90.99.01 I&C, Other	1.00 LS						53,934	53,934.00 /LS	53,934		6
			40.90.99.0013 Special Construction from Replica 40.90 Instrumentation & Controls	1.00 LS 1.00 LS						53,934 53,934	53,934.00 /LS 53,934.00 /LS	53,934 53,934	68,932.15 /LS 68,932.15 /LS	68
			40.9 Instrumentation & Controls	1.00 LS	1					53,934		53,934		

D3718900-04-The Dalles WTP-9_5mgd Sed-tj Property of Jacobs, All Rights Reserved - Copyright 2021

Estimator: Jones T Rev No. / Data: R03 - 08/13/2024 Class Estimate: Class 5

	ade Pkg	WorkActiv Unit Price	Description	Takeoff Quantity Labor	Hours Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Amo
			05.4 Polyphosphate Storage/Equipment	1.00 LS					99,991	99,991.12 /LS	99,991	127,796.99 /LS	12
.5			Phosphoric Acid Storage/Equipment										
11.0	00		Commercial Equipment Equipment										
		00.99.0011	Equipment Costs from Replica										
			Equipment, Other										
			Liquid Chemical: PhosAcid - 11 - Equipment	1.00 ls					28,483	28,483.12 /ls	28,483	36,403.80 /ls	
			11.00.99.00 Equipment, Other	1.00 LS					28,483	28,483.12 /LS	28,483	36,403.80 /LS	
			11.00.99.0011 Equipment Costs from Replica	1.00 LS					28,483	28,483.12 /LS	28,483	36,403.80 /LS	
			11.00 Equipment 11.0 Commercial Equipment	1.00 LS 1.00 LS					28,483 28,483	28,483.12 /LS 28,483.12 /LS	28,483 28,483	36,403.80 /LS 36,403.80 /LS	
26.0			Electrical Work	1.00 23					20,403	20,403.12 /113	20,403	30,403.00 723	`
26.0	.00		Electrical										
		00.99.0016	Electrical Costs from Replica										
		26.00.99.00	Electrical, Other										
			Liquid Chemical: PhosAcid - 16 Electrical 26.00.99.00 Electrical, Other	1.00 ls 1.00 LS					4,242 4,242	4,242.00 /ls 4,242.00 /LS	4,242 4,242	5,421.63 /ls 5,421.63 /LS	
			26.00.99.0016 Electrical Costs from Replica	1.00 LS					4,242	4,242.00 /LS	4,242	5,421.63 /LS	
			26.00 Electrical	1.00 LS					4,242	4,242.00 /LS	4,242	5,421.63 /LS	
			26.0 Electrical Work	1.00 LS					4,242	4,242.00 /LS	4,242	5,421.63 /LS	
40.0			Process Pipe										
40.1			Process Pipe, Other										
	40.0	00.99.0015 40.00.99.01	Mechanical Costs from Replica Process Pipe, Other										
		40.00.99.01	Liquid Chemical: PhosAcid - 15 Mechanical	1.00 ls					11,514	11,514.00 /ls	11,514	14,715.86 /ls	
			40.00.99.01 Process Pipe, Other	1.00 LS					11,514	11,514.00 /LS	11,514	14,715.86 /LS	
			40.00.99.0015 Mechanical Costs from Replica	1.00 LS					11,514	11,514.00 /LS	11,514	14,715.86 /LS	
			40.19 Process Pipe, Other	1.00 LS					11,514		11,514	14,715.86 /LS	
40.0			40.0 Process Pipe	1.00 LS					11,514	11,514.00 /LS	11,514	14,715.86 /LS	
40.9	90		Instrumentation & Controls Instrumentation & Controls										
40.3		90.99.0013	Special Construction from Replica										
		40.90.99.01											
			Liquid Chemical: PhosAcid - 13 Special Construction	1.00 ls			-		52,116	52,116.00 /ls	52,116	66,608.59 /ls	
			40.90.99.01 I&C, Other	1.00 LS					52,116	52,116.00 /LS	52,116	66,608.59 /LS	
			40.90.99.0013 Special Construction from Replica	1.00 LS					52,116	52,116.00 /LS	52,116	66,608.59 /LS	
			40.90 Instrumentation & Controls 40.9 Instrumentation & Controls	1.00 LS 1.00 LS					52,116 52,116	52,116.00 /LS 52,116.00 /LS	52,116 52,116	66,608.59 /LS 66,608.59 /LS	
			05.5 Phosphoric Acid Storage/Equipment	1.00 LS					96,355	96,355.12 /LS	96,355	123,149.88 /LS	
			Construct new backwash supply pump station										
11.0			Commercial Equipment										
11.0	.00		Equipment										
	11.0	00.99.0011	Equipment Costs from Replica										
		11.00.99.00	Equipment, Other Filter BW PS: BWS - 11 - Equipment	1.00 ls					149,076	149,076.00 /ls	149,076	190,531.54 /ls	
			11.00.99.00 Equipment, Other	1.00 LS					149,076	149,076.00 /LS	149,076	190,531.54 /LS	
			11.00.99.0011 Equipment Costs from Replica	1.00 LS					149,076	149,076.00 /LS	149,076	190,531.54 /LS	
			11.00 Equipment	1.00 LS					149,076	149,076.00 /LS	149,076	190,531.54 /LS	
			11.0 Commercial Equipment	1.00 LS					149,076	149,076.00 /LS	149,076	190,531.54 /LS	
13.0	04		Special Construction										
13.0		00.01.0401	Buildings Complete Construct new finished water chem building										
			Building Complete - Pump Station Building	360.00 SF			97,200			270.00 /SF	97,200	385.58 /SF	
			13.00.01.02 Buildings, Operations	360.00 SF			97,200			270.00 /SF	97,200	385.58 /SF	
			13.00.01.0401 Construct new finished water chem building	1.00 LS			97,200			97,200.00 /LS	97,200	138,809.70 /LS	
			13.01 Buildings Complete 13.0 Special Construction	1.00 LS 1.00 LS			97,200			97,200.00 /LS 97,200.00 /LS	97,200 97,200	138,809.70 /LS 138,809.70 /LS	
26.0			Electrical Work	1.00 L3			97,200			97,200.00 /L3	97,200	130,009.70 713	
26.0	.00		Electrical										
	26.0	00.99.0016	Electrical Costs from Replica										
		26.00.99.00	Electrical, Other										
			Filter BW PS: BWS - 16 Electrical 26.00.99.00 Electrical, Other	1.00 ls 1.00 LS					76,962 76,962	76,962.00 /ls 76,962.00 /LS	76,962 76,962	98,363.86 /ls 98,363.86 /LS	
			26.00.99.0016 Electrical Costs from Replica	1.00 LS					76,962	76,962.00 /LS	76,962	98,363.86 /LS	
			26.00 Electrical	1.00 LS					76,962		76,962		
			26.0 Electrical Work	1.00 LS					76,962		76,962	98,363.86 /LS	
40.0			Process Pipe										
40.1	.19		Process Pipe, Other										
	40.0	00.99.0015	Mechanical Costs from Replica										
		40.00.99.01	Process Pipe, Other Filter BW PS: BWS - 15 Mechanical	1.00 ls					127,866	127,866.00 /ls	127,866	163,423.40 /ls	
			40.00.99.01 Process Pipe, Other	1.00 LS					127,866	127,866.00 /LS	127,866	163,423.40 /LS	
			40.00.99.0015 Mechanical Costs from Replica	1.00 LS					127,866	127,866.00 /LS	127,866	163,423.40 /LS	
			40.19 Process Pipe, Other	1.00 LS					127,866	127,866.00 /LS	127,866		
			40.0 Process Pipe	1.00 LS					127,866	127,866.00 /LS	127,866	163,423.40 /LS	
40.9			Instrumentation & Controls										
40.3	.90	90.99.0013	Instrumentation & Controls Special Construction from Replica										
	40.3	40.90.99.01											
			Filter BW PS: BWS - 13 Special Construction	1.00 ls				· ·	41,208		41,208		
			40.90.99.01 I&C, Other	1.00 LS					41,208	41,208.00 /LS	41,208	52,667.26 /LS	
			40.90.99.0013 Special Construction from Replica	1.00 LS					41,208		41,208	52,667.26 /LS	
			40.90 Instrumentation & Controls	1.00 LS					41,208	41,208.00 /LS	41,208	52,667.26 /LS	
			40.9 Instrumentation & Controls 06.0 Construct new backwash supply pump station	1.00 LS			07 000		41,208	41,208.00 /LS 492,312.00 /LS	41,208		
				1.00 LS	1 154 00 001		97,200		395,112		492,312		4-
			4.2A CIP 4 - WTP Replacement, Phase 2A	1.00 LS	1,154 80,060	22,837	940,950	80,854	2,438,616	3,563,317.59 /LS	3,563,318	4,753,495.81 /LS	4,7
			CIP 4 - WTP Replacement, Phase 2B										
13.0			Construct new admin building Special Construction										

D3718900-04-The Dalles WTP-9_5mgd Sed-tj Property of Jacobs, All Rights Reserved - Copyright 2021

9/11/202409:58 Page 7

Bid Item Work Trade	e WorkActiv	Unit Price	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total
	13.01.99.0013	42.04.00.00	Administration Building (RS Means 1-Story Office)											
		13.01.99.00	Special Construction, Other Administration Building (RS Means 1-Story Office)	4,000.00 SF						1,320,000	330.00 /SF	1,320,000	421.77 /SF	
			13.01.99.00 Special Construction, Other	1.00 LS						1,320,000	1,320,000.00 /LS	1,320,000	1,687,070.01 /LS	
			13.01.99.0013 Administration Building (RS Means 1-Story Office)	4,000.00 SF						1,320,000	330.00 /SF	1,320,000	421.77 /SF	
			13.01 Buildings Complete	1.00 LS						1,320,000	1,320,000.00 /LS	1,320,000	1,687,070.01 /LS	
			13.0 Special Construction	1.00 LS						1,320,000	1,320,000.00 /LS	1,320,000	1,687,070.01 /LS	
			07.0 Construct new admin building	1.00 LS						1,320,000	1,320,000.00 /LS	1,320,000	1,687,070.01 /LS	
0.2			Sitework/Site Electrical/Yard Piping/SCADA Allowance											
26.0			Electrical Work											
26.10			Site Electrical											
	26.10.20.0010		Site Electrical Allowance											
		26.10.20.00	Site Electrical, Other Site Electrical Allowance (~15% of Construction Costs)	4.00 k						700.000	700.000.00 /m	700.000	000.000.04 //-	
			26.10.20.00 Site Electrical, Other	1.00 ls 1.00 LS						730,000 730,000	730,000.00 /ls 730,000.00 /LS	730,000 730,000	933,000.84 /ls 933,000.84 /LS	_
			26.10.20.0010 Site Electrical Allowance	1.00 LS						730,000	730,000.00 /LS	730,000	933,000.84 /LS	
			26.10 Site Electrical	1.00 LS						730,000	730,000.00 /LS	730,000	933,000.84 /LS	
			26.0 Electrical Work	1.00 LS						730,000	730,000.00 /LS	730,000	933,000.84 /LS	
31.0			Earthwork											
31.00			Site/Civil General Items											
	31.00.01.0010		Sitework Allowance											
		31.00.01.00	Site/Civil, General Conditions											
			Sitework Allowance (~6% construction costs)	1.00 ls						290,000	290,000.00 /ls	290,000	370,644.17 /ls	
			31.00.01.00 Site/Civil, General Conditions	1.00 LS						290,000	290,000.00 /LS	290,000	370,644.17 /LS	
			31.00.01.0010 Sitework Allowance	1.00 LS						290,000	290,000.00 /LS	290,000	370,644.17 /LS	
			31.00 Site/Civil General Items	1.00 LS						290,000	290,000.00 /LS	290,000	370,644.17 /LS	
40.0			31.0 Earthwork	1.00 LS					+	290,000	290,000.00 /LS	290,000	370,644.17 /LS	
40.9			Instrumentation & Controls						1					
40.90			Instrumentation & Controls						+ +					
	40.90.07.0010	40 00 07 04	Plant Computer System (SCADA allowance) I&C, SCADA		+									
	-	40.30.07.01	SCADA Software Development (~6% of Constuction Costs)	1.00 ls						290,000	290,000.00 /ls	290,000	370,644.17 /ls	
			40.90.07.01 I&C, SCADA	1.00 LS	1 1					290,000	290,000.00 /LS	290,000	370,644.17 /LS	
			40.90.07.0010 Plant Computer System (SCADA allowance)	1.00 LS						290,000	290,000.00 /LS	290,000	370,644.17 /LS	
			40.90 Instrumentation & Controls	1.00 LS						290,000	290,000.00 /LS	290,000	370,644.17 /LS	
			40.9 Instrumentation & Controls	1.00 LS						290,000	290,000.00 /LS	290,000	370,644.17 /LS	
			90.2 Sitework/Site Electrical/Yard Piping/SCADA Allowance	1.00 LS						1,310,000	1,310,000.00 /LS	1,310,000	1,674,289.18 /LS	
			4.2B CIP 4 - WTP Replacement, Phase 2B	1.00 LS							2,630,000.00 /LS		3,361,359.19 /LS	
			CIP 5 - WTP Replacement, Phase 3A							,,	,,	,,	-,,	
4			Demolition - Conference room											
02.0			Existing Conditions											
02.40			Demolition											
02.40	02.01.02.0010		Demo Strucutral Concrete											
	0210110210010	02.01.02.02												
		02101102102	Demo Concrete Foundations	30.47 CY	43	3,001			- 2,285	-	173.50 /CY	5,286	294.04 /CY	
			02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs	30.47 CY	43	3,001			2,285		173.50 /CY	5,286	294.04 /CY	
		02.01.02.99	Selective Demolition, Cut-out, Concrete, Other											
			Demolition Concrete Other	3.05 CY	7	500			- 381		289.16 /CY	881	490.07 /CY	
			02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	3.05 CY	7	500			381		289.16 /CY	881	490.07 /CY	
		31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees											
			Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	73.13 ton 3.66 LD	7	- 521	2,194		653	-	30.00 /ton 321.06 /LD	2,194	45.14 /ton 544.13 /LD	
			31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	3.66 LD	7	521	2,194		653		921.10 /LD	3,368	1,447.08 /LD	
			02.01.02.0010 Demo Strucutral Concrete	33.52 CY	57	4,022	2,194		3,319		284.49 /CY	9,535	469.71 /CY	
	02.01.02.0070		Misc. Demolition			.,								
		02.01.02.00	Sturcture/Building Demoltion											
			Building demolition, large urban projects, masonry, includes 20 mile haul, excludes foundation demolition, dump fees	780.00 SF	250	17,285			- 19,943		47.73 /SF	37,229	80.89 /SF	
			02.01.02.00 Sturcture/Building Demoltion	780.00 SF	250	17,285			19,943		47.73 /SF	37,229	80.89 /SF	
		31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees											
			Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	170.63 ton		-	5,119		· ·		30.00 /ton	5,119		
			Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	8.53 LD	17				- 1,524	-	321.06 /LD	2,739	544.13 /LD	
			31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	8.53 LD	17	1,215	5,119		1,524		921.07 /LD	7,858	1,447.05 /LD	
	02.01.04.40		02.01.02.0070 Misc. Demolition	1.00 LS	267	18,500	5,119		21,468		45,086.20 /LS	45,086	75,440.13 /LS	
	02.01.04.40	02 01 04 40	HVAC Demolition HVAC Demolition						1					
		52.01.04.40	HVAC Demolition - Med Crew	9.75 hr	49	3,326			- 1,686	-	514.10 /hr	5,012	871.30 /hr	
	1		02.01.04.40 HVAC Demolition	0.00	49	3,326			1,686	-	/LS	5,012	/LS	
		31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees			0,010			.,			0,012	,	
			Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	12.19 ton		-	366		· •	-	30.00 /ton	366	45.15 /ton	
		_	Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	0.61 LD	1	87			- 109		321.05 /LD	196	544.12 /LD	
			31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	0.61 LD	1	87	366		109		921.44 /LD	561	1,447.62 /LD	
			02.01.04.40 HVAC Demolition	1.00 LS	50	3,413	366		1,795		5,573.61 /LS	5,574	9,376.76 /LS	
	02.01.06.0010		Electrical Demolition											
		02.01.06.01	Electrical Facility Demolition			<u>_</u>						<u>_</u>		
			Electrical Demolition - Med Crew	9.75 hr	49	3,326			- 1,686	-	514.10 /hr	5,012	871.30 /hr	
	+	31 30 45 90	02.01.06.01 Electrical Facility Demolition	1.00 LS	49	3,326			1,686		5,012.45 /LS	5,012	8,495.16 /LS	
		31.20.15.00	Earthworks, Sitework, Hauling and Dump Fees	12.19 ton			366				30.00 /ton	366	45.15 /ton	
		-	Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline)	0.61 LD	1	- 87	366				30.00 /ton 321.05 /LD	366	45.15 /ton 544.11 /LD	
			31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	0.61 LD	1	87	366		103		921.44 /LD	561	1,447.60 /LD	
			02.01.06.0010 Electrical Demolition	1.00 LS	50	3,413	366		1,795		5,573.61 /LS	5,574	9,376.75 /LS	
			02.40 Demolition	1.00 LS	424		8,044		28,377		65,768.25 /LS	65,768	109,936.59 /LS	
			02.0 Existing Conditions	1.00 LS	424	29,348	8,044		28,377		65,768.25 /LS	65,768	109,936.59 /LS	
			01.4 Demolition - Conference room	1.00 LS	424		8,044		28,377		65,768.25 /LS	65,768	109,936.59 /LS	
5			Demolition - Maintenance shed											
02.0			Existing Conditions											
02.40			Demolition											
	02.01.02.0010		Demo Strucutral Concrete		1 1									
		02.01.02.02	Selective Demolition, Cut-out, Concrete, Slabs											
		1	Demo Concrete Foundations	69.06 CY	97	6,802			- 5,180	-	173.50 /CY	11,982	294.04 /CY	
			02.01.02.02 Selective Demolition, Cut-out, Concrete, Slabs	69.06 CY	97	6,802	1		5,180		173.50 /CY	11,982	294.04 /CY	

D3718900-04-The Dalles WTP-9_5mgd Sed-tj Property of Jacobs, All Rights Reserved - Copyright 2021

9/11/202409:58 Page 8

Detail Report Project Name: The Dalles WTP - 9.5mgd Sed Project Number: D3718900 Design Stage: ROM

Estimator: Jones T Rev No. / Data: R03 - 08/13/2024 Class Estimate: Class 5

Bid Item	Work Pkg		VorkActiv l	Unit Price	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total A
			02	2.01.02.99	Selective Demolition, Cut-out, Concrete, Other Demolition Concrete Other	6.91 CY	16	1,134			863		289.16 /CY	1.997	490.07 /CY	
					02.01.02.99 Selective Demolition, Cut-out, Concrete, Other	6.91 CY	16	1,134		-	863		289.16 /CY	1,997	490.07 /CY	
			31		Earthworks, Sitework, Hauling and Dump Fees											
					Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	165.75 ton	17	-	4,973	-	- 1,481		30.00 /ton	4,973 2,661	45.14 /ton	
					Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline) 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	8.29 LD 8.29 LD	17	1,180 1,180	4,973		1,481		321.06 /LD 921.02 /LD	7,633	544.13 /LD 1,446.96 /LD	
					02.01.02.0010 Demo Strucutral Concrete	75.97 CY	129	9,116	4,973		7,524		284.49 /CY	21,612	469.72 /CY	
		02.01.	.02.0070		Misc. Demolition											
			02		Sturcture/Building Demoltion Building demolition, large urban projects, masonry, includes 20 mile haul, excludes foundation demolition, dump fees	1,768.00 SF	566	39,180			45,205		47.73 /SF	84,385	80.89 /SF	
					O2.01.02.00 Sturcture/Building Demoltion	1,768.00 SF	566	39,180			45,205		47.73 /SF	84,385	80.89 /SF	
			31		Earthworks, Sitework, Hauling and Dump Fees	,										
					Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	386.75 ton	20	-	11,603	-			30.00 /ton	11,603	45.14 /ton	
					Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline) 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	19.34 LD 19.34 LD	39	2,754 2,754	11,603		3,455 3,455		321.06 /LD 921.04 /LD	6,209 17,811	544.13 /LD 1,446.99 /LD	
					02.01.02.0070 Misc. Demolition	0.00	604	41,933	11,603		48,660		/LS	102,196	/LS	
		02.01.0	.06.0010		Electrical Demolition											
	_		02	2.01.06.01	Electrical Facility Demolition	22.10 hr	111	7,540			3,822		514.10 /hr	11.262	871.30 /hr	
					Electrical Demolition - Med Crew 02.01.06.01 Electrical Facility Demolition	1.00 LS	111	7,540			3,822		11,361.54 /LS	11,362 11,362	19,255.71 /LS	
			31	1.20.15.00	Earthworks, Sitework, Hauling and Dump Fees											
					Selective demolition, dump charges, typical urban city, building construction materials, includes tipping fees only	27.63 ton			829				30.00 /ton	829	45.14 /ton	
	-				Haul Debris to Republic Services Landfill - 60 Miles Round Trip (2hr per load) 10CY/load (neatline) 31.20.15.00 Earthworks, Sitework, Hauling and Dump Fees	1.38 LD 1.38 LD	3	197 197	829	-	247	-	321.06 /LD 921.17 /LD	443 1,272	544.13 /LD 1,447.18 /LD	
					02.01.06.0010 Electrical Demolition	1.00 LS	113	7,736	829		4,068		12,633.67 /LS	12,634	21,254.26 /LS	
					02.40 Demolition	1.00 LS	847	58,786	17,404		60,252		136,441.87 /LS	136,442	227,936.79 /LS	
					02.0 Existing Conditions	1.00 LS	847	58,786	17,404		60,252		136,441.87 /LS	136,442	227,936.79 /LS	
4.0		+			01.5 Demolition - Maintenance shed Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor	1.00 LS	847	58,786	17,404		60,252		136,441.87 /LS	136,442	227,936.79 /LS	
	13.0				Special Construction		+ +									
		13.01			Buildings Complete											
		13.00.0	.01.0400		Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor											
			13		Special Construction, Other Improvements to existing Wicks WTP	1.00 ls						266,000	266,000.00 /ls	266,000	360,380.34 /ls	
					13.01.99.00 Special Construction, Other	1.00 LS					-	266,000		266,000	360,380.34 /LS	
					13.00.01.0400 Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor	1.00 LS						266,000		266,000	360,380.34 /LS	
					13.01 Buildings Complete	1.00 LS						266,000		266,000	360,380.34 /LS	
					13.0 Special Construction 04.0 Replace pH Analyer, Sodium Hypochlorite Tanks, Track Vac Air Compressor	1.00 LS 1.00 LS						266,000 266,000	266,000.00 /LS 266,000.00 /LS	266,000 266,000	360,380.34 /LS 360,380.34 /LS	
0.1					New 24" raw water	1.00 L3						200,000	200,000.00 /L3	200,000	300,380.34 713	
	33.0				Utilities											
		33.02			Buried Process Pipe, Ductile Iron											
		33.00.0	.04.RW24		New 24" raw water											
			31		Trenching, Backfill, and Compaction Rent trench box, 8000 lb., 8' x 16'	34.00 day		-	-	-	4,085	-	120.15 /day	4,085	203.63 /day	
					Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering	1,316.05 CY	292	20,936	-	-	21,665		32.37 /CY	42,601	54.86 /CY	
					Backfill, 6" layers, compaction in layers, hand tamp, PIPE ZONE Backfill, 12" layers, compaction in layers, roller compaction with operator walking, ABOVE PIPE ZONE	252.91 ecy 962.96 ecy	98	5,936		-	- 1,011	-	23.47 /ecy 6.86 /ecy	5,936	39.78 /ecy 11.62 /ecy	
					Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE	252.91 lcy	40	2,635	5,311		467		33.27 /lcy	8,414	52.39 /lcy	
					Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING	96.30 lcy	15	1,003	1,743	-	178	-	30.37 /lcy	2,924	48.03 /lcy	
					Hauling, excavated borrow material, loose cubic yards, 20 mile round trip, 0.4 load/hr, base wide rate, 12 cy truck, highway haulers, excludes loading	353.09 lcy	72	5,157	-	-	7,165		34.90 /lcy	12,322	59.14 /lcy	
					31.00.01.01 Trenching, Backfill, and Compaction	1,316.05 CY	596	41,260	7,054		34,572		62.98 /CY	82,886	105.72 /CY	
			33		Buried Pipe, Ductile Iron, 24"											
					24" pipe, DI, RJ, excav/bkfill not included, 350# 24" DI, RJ, Ell, 45	1,200.00 LF 20.00 ea	432	36,102	189,562 52,850	-	20,405	-	205.06 /LF 3,754.33 /ea	246,069 75,087	317.52 /LF 5,860.81 /ea	
					Megalugs for DI Pipe w/ Accessories, 24"	60.00 ea	120	10,028	28,230		5,668		732.11 /ea	43,926	1,151.39 /ea	
					Polywrap, 24" pipe	1,200.00 lf			1,332	-		-	1.11 //f	1,332	1.67 /lf	
					Add for tie-in to existing (Adjust productivity) Add for tie-in to existing, wet tap by subcontractor	1.00 ea 1.00 ea	24	2,006	750	- 25,000	1,134		3,889.25 /ea 25,000.00 /ea	3,889	6,449.06 /ea 37,620.33 /ea	
					Pipe Marking, ID Tape	1,200.00 lf	12	1,003	156				0.97 /lf	1,159	1.61 /lf	
	_				33.00.04.24 Buried Pipe, Ductile Iron, 24"	1,200.00 LF	758	63,346	272,880	25,000			330.38 /LF	396,461	512.78 /LF	
		+			33.00.04.RW24 New 24" raw water 33.02 Buried Process Pipe, Ductile Iron	1,200.00 LF 1,200.00 LF	1,354 1,354	<u>104,606</u> 104,606	279,934 279,934	25,000 25,000			399.46 /LF 399.46 /LF	479,347 479,347	628.72 /LF 628.72 /LF	
					33.0 Utilities	1.00 LS	1,354	104,606	279,934	25,000			479,347.43 /LS	479,347	754,467.03 /LS	
					10.1 New 24" raw water	1,200.00 LF	1,354	104,606	279,934	25,000	69,807		399.46 /LF	479,347	628.72 /LF	
					5.3A CIP 5 - WTP Replacement, Phase 3A	1.00 LS	2,625	192,740	305,381	25,000	158,436	266,000	947,557.55 /LS	947,558	1,452,720.75 /LS	
					CIP 5 - WTP Replacement, Phase 3B											
3.1					Rapid Mix											
	13.0	13.01			Special Construction Buildings Complete											
			.99.0701		Buildings Complete Flocculation: RM Basin		+ +									
				3.01.99.00	Special Construction, Other											
					Inline Rapid Mix: New_WTP Costs from Replica (Total Costs)	1.00 ls						789,618		789,618	1,069,784.99 /ls	
					13.01.99.00 Special Construction, Other 13.01.99.0701 Flocculation: RM_Basin	1.00 LS 1.00 LS	+					789,618 789,618		789,618 789,618		
		+ +			13.01.99.0701 Pioceulation: RM_Basin 13.01 Buildings Complete	1.00 LS	+ +					789,618		789,618		
					13.0 Special Construction	1.00 LS						789,618	789,618.00 /LS	789,618	1,069,784.99 /LS	
					08.1 Rapid Mix	1.00 LS						789,618	789,618.00 /LS	789,618	1,069,784.99 /LS	
3.2	42.0				Flocculation Special Construction		+									
	13.0	13.01			Special Construction Buildings Complete		+									
	+		99.0702		Flocculation: NewWTP_Sed		+									
				3.01.99.00	Special Construction, Other											
					Flocculation: NewWTP_Sed Costs from Replica (Total Costs)	1.00 ls				-		1,277,448		1,277,448	1,730,703.60 /ls	
					13.01.99.00 Special Construction, Other	1.00 LS						1,277,448		1,277,448 1,277,448	1,730,703.60 /LS 1,730,703.60 /LS	
		+			13.01.99.0702 Flocculation: NewWTP_Sed 13.01 Buildings Complete	1.00 LS 1.00 LS	+ +					1,277,448		1,277,448		
			1				+									
					13.0 Special Construction	1.00 LS						1.277.448	1.2//.448.00 /LS	1.277.448	1./30./03.00 /L5	
					13.0 Special Construction 08.2 Flocculation	1.00 LS 1.00 LS						<u>1,277,448</u> 1,277,448		1,277,448 1,277,448		

D3718900-04-The Dalles WTP-9_5mgd Sed-tj Property of Jacobs, All Rights Reserved - Copyright 2021

	Work Trade Pkg Pkg	WorkActiv	Unit Price	Description	Takeoff Quantity	Labor Hours Labor Amou	: Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Amo
	13.01	13.01.99.0703		Buildings Complete Lamella Clarifier: New WTP										
		10.01.00.0100	13.01.99.00	Special Construction, Other										
				Lamella Clarifier: New_WTP Costs from Replica (Total Costs)	1.00 ls			-		2,145,931	2,145,930.55 /ls	2,145,931	2,907,335.34 /ls	2,9
				13.01.99.00 Special Construction, Other	1.00 LS					2,145,931	2,145,930.55 /LS	2,145,931	2,907,335.34 /LS	2,90
				13.01.99.0703 Lamella Clarifier: New_WTP	1.00 LS 1.00 LS					2,145,931 2,145,931	2,145,930.55 /LS 2,145,930.55 /LS	2,145,931 2,145,931	2,907,335.34 /LS 2,907,335.34 /LS	2,90
				13.01 Buildings Complete 13.0 Special Construction	1.00 LS					2,145,931	2,145,930.55 /LS	2,145,931	2,907,335.34 /LS	2,90
				08.3 Sedimentation Basin	1.00 LS					2,145,931		2,145,931	2,907,335.34 /LS	2,90
08.4				Filtration						,	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
1	13.0			Special Construction										
	13.01			Buildings Complete										
		13.01.99.0704	42.04.00.00	Filters: New_WTP										
			13.01.99.00	Special Construction, Other Filters: New_WTP Costs from Replica (Total Costs)	1.00 ls					5,594,812	5,594,812.44 /ls	5,594,812	7,579,926.53 /ls	7,5
				13.01.99.00 Special Construction, Other	1.00 LS					5,594,812		5,594,812	7,579,926.53 /LS	7,57
				13.01.99.0704 Filters: New_WTP	1.00 LS					5,594,812		5,594,812	7,579,926.53 /LS	7,57
				13.01 Buildings Complete	1.00 LS					5,594,812		5,594,812	7,579,926.53 /LS	7,57
				13.0 Special Construction	1.00 LS					5,594,812		5,594,812	7,579,926.53 /LS	7,57
08.5				08.4 Filtration Shoring	1.00 LS					5,594,812	5,594,812.44 /LS	5,594,812	7,579,926.53 /LS	7,57
	31.0			Earthwork										
	31.16			Earthworks, Sheeting/Shoring & Cofferdams										
		31.16.01.0010		Shoring										
			31.16.01.00	Earthworks, Sheeting and Shoring										
				Shoring, sheet pile, subcontracted	7,370.00 SF	958	· · · ·	- 552,750			75.00 /SF	552,750	101.61 /SF	-
				31.16.01.00 Earthworks, Sheeting and Shoring	7,370.00 SF 7,370.00 SF	958		552,750 552,750			75.00 /SF 75.00 /SF	552,750	101.61 /SF	7
			-	31.16.01.0010 Shoring 31.16 Earthworks, Sheeting/Shoring & Cofferdams	7,370.00 SF 7,370.00 SF	958 958		552,750			75.00 /SF 75.00 /SF	552,750 552,750	101.61 /SF 101.61 /SF	7
				31.0 Earthwork	1.00 LS	958		552,750			552,750.00 /LS	552,750		7
				08.5 Shoring	1.00 LS	958		552,750			552,750.00 /LS	552,750	748,873.08 /LS	7
.6				Dewatering										
3	31.0			Earthwork										
	31.19			Dewatering and Bypass Pumping										
		31.15.02.0010	24.45.02.00	Dewatering Site Dewatering										
			31.15.02.00	Site Preparation, Dewatering Dewatering Wellpoints, Complete System, Mob	1.00 ea	24		- 15,000			15,000.00 /ea	15,000	20,322.20 /ea	
				Dewatering Wellpoints, Complete System, Install	5.00 day	240	15,990		15,203	•	6,238.62 /day	31,193	10,261.37 /day	
				Dewatering Wellpoints, Complete System, Rental, First Month	1.00 mo		-		35,000		35,000.00 /mo	35,000	57,568.46 /mo	
				Dewatering Wellpoints, Complete System, Rental, after first month, Monthly	23.00 mo 24.00 MO	0.100			460,000		20,000.00 /mo 5,873.79 /MO	460,000 140,971	32,896.27 /mo	
				Dewatering Wellpoints, Complete System, Operation - Labor to maintain / check pumps/ fuel and lube Dewatering Wellpoints, Complete System, Removal	5.00 day	2,160 240	15,990		9,975 10,431		5,284.06 /day	26,420	9,661.29 /MO 8,691.30 /day	
				Dewatering Wellpoints, Complete System, Demob	1.00 ea	24		- 10,000	-		10,000.00 /ea	10,000	13,548.14 /ea	
				31.15.02.00 Site Preparation, Dewatering	24.00 MO	2,688 1	2,976	25,000	530,609		29,941.02 /MO	718,584	48,945.30 /MO	1,1
				31.15.02.0010 Dewatering	24.00 MO		2,976	25,000	530,609		29,941.02 /MO	718,584	48,945.30 /MO	1,1
				31.19 Dewatering and Bypass Pumping	24.00 MO		2,976	25,000	530,609		29,941.02 /MO	718,584	48,945.30 /MO	1,1
				31.0 Earthwork 08.6 Dewatering	1.00 LS 1.00 LS		2,976 2,976	25,000 25,000	530,609 530,609		718,584.40 /LS 718,584.40 /LS	718,584 718,584	1,174,687.20 /LS 1,174,687.20 /LS	1,1
9.0				Construct new treatment chem building	1.00 E3	2,000	2,570	23,000	550,005		710,004.40 720	110,304	1,174,007.20 723	
	13.0			Special Construction										
	13.01			Buildings Complete										
		13.00.01.0801		Construct new treatment chem building										
			13.00.01.02	Buildings, Operations										
				Building Complete - Chemical Building 13.00.01.02 Buildings, Operations	1,584.00 SF 1,584.00 SF			427,680 427,680	-		270.00 /SF 270.00 /SF	427,680 427,680	406.30 /SF 406.30 /SF	
				13.00.01.0801 Construct new treatment chem building	1.00 LS			427,680			427,680.00 /LS	427,680	643,578.57 /LS	
				13.01 Buildings Complete	1.00 LS			427,680			427,680.00 /LS	427,680	643,578.57 /LS	
				13.0 Special Construction	1.00 LS			427,680			427,680.00 /LS	427,680	643,578.57 /LS	
				09.0 Construct new treatment chem building	1.00 LS			427,680			427,680.00 /LS	427,680	643,578.57 /LS	
1				Coagulant (ACH)										
1	11.0			Commercial Equipment										
	11.00			Equipment										
		11.00.99.0011	11 00 99 00	Equipment Costs from Replica Equipment, Other										
			11.00.33.00	Liquid Chemical: ACH - 11 - Equipment	1.00 ls			-	-	55,146	55,146.00 /ls	55,146	74,712.54 /ls	
				11.00.99.00 Equipment, Other	1.00 LS					55,146	55,146.00 /LS	55,146	74,712.54 /LS	
				11.00.99.0011 Equipment Costs from Replica	1.00 LS					55,146	55,146.00 /LS	55,146	74,712.54 /LS	
				11.00 Equipment	1.00 LS					55,146	55,146.00 /LS	55,146		
<u> </u>	00.0			11.0 Commercial Equipment	1.00 LS					55,146	55,146.00 /LS	55,146	74,712.54 /LS	
2	26.0			Electrical Work				+						
	26.00	26.00.99.0016		Electrical Electrical Costs from Replica										
			26.00.99.00											
				Liquid Chemical: ACH - 16 Electrical	1.00 ls				-	112,110	112,110.00 /ls	112,110	151,888.12 /ls	
				26.00.99.00 Electrical, Other	1.00 LS					112,110		112,110		
				26.00.99.0016 Electrical Costs from Replica	1.00 LS					112,110		112,110		
				26.00 Electrical	1.00 LS					112,110		112,110		
	40.0			26.0 Electrical Work	1.00 LS					112,110	112,110.00 /LS	112,110	151,888.12 /LS	
4	40.0			Process Pipe Process Pine Other				++						
	40.19	40.00.99.0015		Process Pipe, Other Mechanical Costs from Replica				1						
		.0.00.33.0013	40,00.99 01	Process Pipe, Other				+ +						
				Liquid Chemical: ACH - 15 Mechanical	1.00 ls				-	23,028	23,028.00 /ls	23,028	31,198.64 /ls	
				40.00.99.01 Process Pipe, Other	1.00 LS					23,028		23,028	31,198.64 /LS	
				40.00.99.0015 Mechanical Costs from Replica	1.00 LS					23,028	23,028.00 /LS	23,028	31,198.64 /LS	
				40.19 Process Pipe, Other	1.00 LS					23,028	23,028.00 /LS	23,028		
				40.0 Process Pipe	1.00 LS					23,028	23,028.00 /LS	23,028	31,198.64 /LS	
4	40.9			Instrumentation & Controls		<u> </u>		<u>↓</u> ↓						
	40.90	40.00.00.004.2		Instrumentation & Controls				+						
		40.90.99.0013	40.00.00.04	Special Construction from Replica				++						
	1		40.90.99.01	I&C, Other Liquid Chemical: ACH - 13 Special Construction	1.00 ls	<u> </u>		++		61,812	61,812.00 /ls	61,812	83,743.72 /ls	

D3718900-04-The Dalles WTP-9_5mgd Sed-tj Property of Jacobs, All Rights Reserved - Copyright 2021

^{9/11/202409:58} Page 10

· ·		Trade Pkg WorkActiv	Unit Price Description	Takeoff Quantity	Labor Ho	lours Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Am
			40.90.99.01 I&C, Other	1.00 LS						61,812	61,812.00 /LS	61,812	83,743.72 /LS	
			40.90.99.0013 Special Construction from Replica	1.00 LS						61,812	61,812.00 /LS	61,812	83,743.72 /LS	
			40.90 Instrumentation & Controls	1.00 LS						61,812	61,812.00 /LS	61,812	83,743.72 /LS	
			40.9 Instrumentation & Controls	1.00 LS						61,812	61,812.00 /LS	61,812	83,743.72 /LS	
.2			09.1 Coagulant (ACH) Filter Aid Polymer	1.00 LS						252,096	252,096.00 /LS	252,096	341,543.02 /LS	3
	1.0		Commercial Equipment											
		11.00	Equipment											
		11.00.99.0011	Equipment Costs from Replica											
			11.00.99.00 Equipment, Other											
			Liquid Chemical: FilPolymer - 11 - Equipment	1.00 ls						65,518	65,518.00 /ls	65,518	88,764.66 /ls	
			11.00.99.00 Equipment, Other	1.00 LS						65,518	65,518.00 /LS	65,518	88,764.66 /LS	
			11.00.99.0011 Equipment Costs from Replica	1.00 LS						65,518	65,518.00 /LS	65,518	88,764.66 /LS	
			11.00 Equipment	1.00 LS						65,518	65,518.00 /LS	65,518	88,764.66 /LS	
			11.0 Commercial Equipment	1.00 LS						65,518	65,518.00 /LS	65,518	88,764.66 /LS	
20	6.0	26.00	Electrical Work Electrical		_									
		26.00.99.0016	Electrical Costs from Replica		_									
			26.00.99.00 Electrical, Other											
			Liquid Chemical: FilPolymer - 16 Electrical	1.00 ls					-	4,848	4,848.00 /ls	4,848	6,568.14 /ls	
			26.00.99.00 Electrical, Other	1.00 LS						4,848	4,848.00 /LS	4,848	6,568.14 /LS	
			26.00.99.0016 Electrical Costs from Replica	1.00 LS						4,848	4,848.00 /LS	4,848	6,568.14 /LS	
			26.00 Electrical	1.00 LS						4,848	4,848.00 /LS	4,848	6,568.14 /LS	
			26.0 Electrical Work	1.00 LS					+	4,848	4,848.00 /LS	4,848	6,568.14 /LS	
40	0.0	49.49	Process Pipe	+										
	4	40.19	Process Pipe, Other						+					
		40.00.99.0015	Mechanical Costs from Replica						+					
			40.00.99.01 Process Pipe, Other Liquid Chemical: FilPolymer - 15 Mechanical	1.00 ls						13,332	13,332.00 /ls	13,332	18,062.36 /ls	
			40.00.99.01 Process Pipe, Other	1.00 LS	-					13,332	13,332.00 /LS	13,332	18,062.36 /LS	
			40.00.99.0015 Mechanical Costs from Replica	1.00 LS						13,332	13,332.00 /LS	13,332	18,062.36 /LS	
			40.19 Process Pipe, Other	1.00 LS						13,332	13,332.00 /LS	13,332	18,062.36 /LS	
			40.0 Process Pipe	1.00 LS						13,332	13,332.00 /LS	13,332	18,062.36 /LS	
40	0.9		Instrumentation & Controls											
	4	40.90	Instrumentation & Controls											
		40.90.99.0013	Special Construction from Replica											
			40.90.99.01 I&C, Other							50 700	50 700 00 4	50 700	74 400 47 1	
			Liquid Chemical: FilPolymer - 13 Special Construction	1.00 ls 1.00 LS					· ·	52,722 52,722	52,722.00 /ls 52,722.00 /LS	52,722 52,722	71,428.47 /ls 71,428.47 /LS	
			40.90.99.01 I&C, Other 40.90.99.0013 Special Construction from Replica	1.00 LS						52,722	52,722.00 /LS	52,722	71,428.47 /LS	
			40.90 Instrumentation & Controls	1.00 LS						52,722	52,722.00 /LS	52,722	71,428.47 /LS	
			40.9 Instrumentation & Controls	1.00 LS						52,722	52,722.00 /LS	52,722	71,428.47 /LS	
			09.2 Filter Aid Polymer	1.00 LS						136,420	136,420.00 /LS	136,420	184,823.63 /LS	
.2			New 30" filtered water											
	3.0		Utilities											
	3	33.02	Buried Process Pipe, Ductile Iron											
		33.00.04.FW30	30" FW - Finished Water											
			31.00.01.01 Trenching, Backfill, and Compaction											
			Rent trench box, 8000 lb., 8' x 16' Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering	2.00 day 130.00 CY		29 2			- 240 - 2,140	-	120.15 /day 32.37 /CY	240 4,208	203.63 /day 54.86 /CY	
			Backfill, 6' layers, compaction in layers, hand tamp, PIPE ZONE	39.65 ecy					- 2,140		23.47 /ecy	4,208	39.78 /ecy	
			Backfill, 12" layers, compaction in layers, roller compaction with operator walking, ABOVE PIPE ZONE	72.22 ecy			19 -		- 76	-	6.86 /ecy	495	11.62 /ecy	
			Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE	39.65 lcy		6	13 833		- 73	-	33.27 /lcy	1,319	52.39 /lcy	
			Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING	7.22 lcy			75 131		- 13	-	30.37 /lcy	219	48.03 /lcy	
			Hauling, excavated borrow material, loose cubic yards, 20 mile round trip, 0.4 load/hr, base wide rate, 12 cy truck, high way haulers, excludes loading	s 57.78 lcy		12	-		- 1,172	-	34.90 /lcy	2,016	59.14 /lcy	
			31.00.01.01 Trenching, Backfill, and Compaction	130.00 CY		69 4,	50 963		3,715		72.53 /CY	9,429	121.52 /CY	
			33.00.04.30 Buried Pipe, Ductile Iron, 30"		_		500		5,715		72.00 701	3,423	121.02 /01	
			30° pipe, DI, RJ, excav/bkfill not included, 250#	60.00 LF		25 2	06 11,724		- 1,190		250.35 /LF	15,021	387.16 /LF	
			30" DI, RJ, Ell, 90	1.00 ea		10	6,473		- 468	-	7,767.65 /ea	7,768	11,934.91 /ea	
			Megalugs for DI Pipe w/ Accessories, 30"	4.00 ea		8	69 4,314		- 378		1,340.06 /ea	5,360		
			Polywrap, 30" pipe Add for tie-in to existing (Adjust productivity)	60.00 lf 1.00 ea		24 2	- 79			· ·	1.32 /lf 3,889.25 /ea	79 3,889	1.99 /lf 6,449.05 /ea	
			Pipe Marking, ID Tape	60.00 lf			50 8				0.97 /lf	58	1.61 /lf	
			33.00.04.30 Buried Pipe, Ductile Iron, 30"	60.00 LF		68 5,			3,169		536.25 /LF	32,175	834.91 /LF	
			33.00.04.FW30 30" FW - Finished Water	60.00 LF		137 10,	08 24,311		6,885		693.40 /LF	41,604	1,098.20 /LF	
			33.02 Buried Process Pipe, Ductile Iron	60.00 LF		137 10,			6,885		693.40 /LF	41,604	1,098.20 /LF	
			33.0 Utilities	1.00 LS		137 10,			6,885		41,603.95 /LS	41,604		
			10.2 New 30" filtered water	60.00 LF		137 10,	08 24,311		6,885		693.40 /LF	41,604	1,098.20 /LF	
3	20		New 14" BWS						+					
33	3.0	22.02	Utilities Buried Process Bins, Dustile Iran						+					
	3	33.02 33.00.04.BWS14	Buried Process Pipe, Ductile Iron New 14" BWS	+										
		33.00.04.DW314	31.00.01.01 Trenching, Backfill, and Compaction	+	+									
			Rent trench box, 8000 lb., 8' x 16'	3.00 day			-		- 360	-	120.15 /day	360	203.63 /day	
			Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering	146.71 CY		33 2	- 334		- 2,415		32.37 /CY	4,749	54.86 /CY	
			Backfill, 6* layers, compaction in layers, hand tamp, PIPE ZONE	37.50 ecy		15	- 180		-		23.47 /ecy	880	39.78 /ecy	
			Backfill, 12" layers, compaction in layers, roller compaction with operator walking, ABOVE PIPE ZONE	95.68 ecy					- 100		6.86 /ecy	656	11.62 /ecy	
			Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING.	37.50 lcy			91 788 00 173		- 69		33.27 /lcy 30.37 /lcy	1,248 291	52.39 /lcy 48.03 /lcy	
			Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING Hauling, excavated borrow material, loose cubic yards,20 mile round trip,0.4 load/hr,base wide rate,12 cy truck,highway haulers,excludes	9.57 lcy s 51.03 lcy	+		00 173 745 -		- 18		30.37 /icy 34.90 /icy	1,781	48.03 /icy 59.14 /icy	
			loading			-			.,		,	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
			31.00.01.01 Trenching, Backfill, and Compaction	146.71 CY		73 5,	05 961		3,999		67.92 /CY	9,965	113.87 /CY	
			33.00.04.14 Buried Pipe, Ductile Iron, 14"											
	1		14" pipe, DI, RJ, excav/bkfill not included, 350#	100.00 LF			256 7,235		- 1,275	-	107.67 /LF	10,767	168.73 /LF	
			14" DI, RJ, Ell, 45 Megalugs for DI Pipe w/ Accessories, 14"	1.00 ea 4.00 ea			1,026		- 250		1,719.25 /ea	1,719	2,718.86 /ea	
			I MEGAILIOS TOT LILI PIDE W/ ACCESSOTIES 14"	4.00 ea		0	624		- 283	-	352.11 /ea	1,408		
										I	0.50 /lf	50	0.80 /lf	
			Polywrap, 14" pipe	100.00 lf		24 2	- 59			•	0.59 /lf 3.889.25 /ea	59	0.89 /lf 6.449.05 /ea	
			Polywrap, 14" pipe Add for tie-in to existing (Adjust productivity)				- 59 006 750 84 13		- 1,134	- - -	0.59 /lf 3,889.25 /ea 0.97 /lf	59 3,889 97	0.89 /lf 6,449.05 /ea 1.61 /lf	
			Polywrap, 14" pipe	100.00 lf 1.00 ea			006 750 84 13				3,889.25 /ea	3,889	6,449.05 /ea	

D3718900-04-The Dalles WTP-9_5mgd Sed-tj Property of Jacobs, All Rights Reserved - Copyright 2021

Bid Item Pkg	rk Trade g Pkg	WorkActiv	Unit Price	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total An
				33.0 Utilities 10.3 New 14" BWS	1.00 LS 100.00 LF	136 136		10,668 10,668		6,941 6,941		27,904.13 /LS 279.04 /LF	27,904 27,904	45,265.46 /LS 452.65 /LF	
11.1				BW EQ Basin	100.00 EI	130	10,233	10,000		0,341		213.04 /11	21,304	432.03 /11	
13.0				Special Construction											
	13.01	42.04.00.4404		Buildings Complete											
		13.01.99.1101	13.01.99.00	Surge Basin-Decanter: BW_EQ Special Construction, Other											
				Surge Basin-Decanter: BW_EQ (Cost from RPD_Residuals Replica Cost Estimate)	1.00 ls						1,044,000	1,044,000.00 /ls	1,044,000	1,414,425.13 /ls	
	_			13.01.99.00 Special Construction, Other	1.00 LS	'					1,044,000	1,044,000.00 /LS	1,044,000	1,414,425.13 /LS	1
				13.01.99.1101 Surge Basin-Decanter: BW_EQ 13.01 Buildings Complete	1.00 LS 1.00 LS	'					1,044,000 1,044,000	1,044,000.00 /LS 1,044,000.00 /LS	1,044,000 1,044,000	1,414,425.13 /LS 1,414,425.13 /LS	1
				13.0 Special Construction	1.00 LS	1					1,044,000	1,044,000.00 /LS	1,044,000	1,414,425.13 /LS	-
				11.1 BW EQ Basin	1.00 LS						1,044,000	1,044,000.00 /LS	1,044,000	1,414,425.13 /LS	
11.2	_			BW Clarifier		'									
13.0	13.01			Special Construction Buildings Complete											
		13.01.99.1102		Package WTP: BW_Clar											
			13.01.99.00	Special Construction, Other											
	_			Package WTP: BW_Clar (Cost from RPD_Residuals Replica Cost Estimate)	1.00 ls 1.00 LS				-	· ·	717,000 717,000	717,000.00 /ls 717,000.00 /LS	717,000 717,000	971,401.16 /ls 971,401.16 /LS	
				13.01.99.00 Special Construction, Other 13.01.99.1102 Package WTP: BW_Clar	1.00 LS						717,000	717,000.00 /LS	717,000	971,401.16 /LS	_
				13.01 Buildings Complete	1.00 LS						717,000	717,000.00 /LS	717,000	971,401.16 /LS	
				13.0 Special Construction	1.00 LS	'					717,000	717,000.00 /LS	717,000	971,401.16 /LS	
1.3				11.2 BW Clarifier	1.00 LS						717,000	717,000.00 /LS	717,000	971,401.16 /LS	
1.3 13.0				Engineered Drying Beds Special Construction		1									
	13.01			Buildings Complete		1									
		13.01.99.1104		Sludge Drying Beds: New											
			13.01.99.00	Special Construction, Other Sludge Drying Beds: New (Cost from RPD_Residuals Replica Cost Estimate)	1.00 ls	+'					1,022,000	1,022,000.00 /ls	1,022,000	1,384,619.24 /ls	
				13.01.99.00 Special Construction, Other	1.00 IS						1,022,000	1,022,000.00 /ls	1,022,000	1,384,619.24 /LS	
				13.01.99.1104 Sludge Drying Beds: New	1.00 LS						1,022,000	1,022,000.00 /LS	1,022,000	1,384,619.24 /LS	
				13.01 Buildings Complete	1.00 LS	+'					1,022,000	1,022,000.00 /LS	1,022,000	1,384,619.24 /LS	
				13.0 Special Construction 11.3 Engineered Drying Beds	1.00 LS 1.00 LS	'					1,022,000 1,022,000	1,022,000.00 /LS 1,022,000.00 /LS	1,022,000	1,384,619.24 /LS 1,384,619.24 /LS	
1.4				EDB Recycle Pump Station	1.00 23						1,022,000	1,022,000.00 /E3	1,022,000	1,304,013.24 /23	
13.0				Special Construction											
	13.01			Buildings Complete											
		13.01.99.1105	13.01.99.00	WPSPS: Recycle Special Construction, Other											
			13.01.33.00	WPSPS: Recycle (Cost from RPD_Residuals Replica Cost Estimate)	1.00 ls						429,000	429,000.00 /ls	429,000	581,214.92 /ls	
				13.01.99.00 Special Construction, Other	1.00 LS						429,000	429,000.00 /LS	429,000	581,214.92 /LS	
				13.01.99.1105 WPSPS: Recycle	1.00 LS	'					429,000	429,000.00 /LS	429,000	581,214.92 /LS	
				13.01 Buildings Complete 13.0 Special Construction	1.00 LS 1.00 LS						429,000 429,000	429,000.00 /LS 429,000.00 /LS	429,000 429,000	581,214.92 /LS 581,214.92 /LS	
				11.4 EDB Recycle Pump Station	1.00 LS						429,000	429,000.00 /LS	429,000	581,214.92 /LS	
2.1				20" BWW & FTW											
33.0				Utilities		'									
	33.02	33.00.04.BWWFT		Buried Process Pipe, Ductile Iron 20" BWW & FTW											
		W20		20 500 4110											
			31.00.01.01	Trenching, Backfill, and Compaction											
				Rent trench box, 8000 lb., 8' x 16' Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering	5.00 day 102.84 CY	23	- 1,636	-	-	601 1,693	-	120.15 /day 32.37 /CY	601 3,329	203.63 /day 54.86 /CY	
				Excavating, there is obtained by the straining of the str	28.73 ecy	11			-	-	-	23.47 /ecy	674	39.78 /ecy	
	_			Backfill, 12" layers, compaction in layers, roller compaction with operator walking, ABOVE PIPE ZONE	62.96 ecy	5	366		-	66	-	6.86 /ecy	432	11.62 /ecy	
				Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING	28.73 lcy 6.30 lcy	1	299	603 114		53	-	33.27 /lcy 30.37 /lcy	956	52.39 /lcy 48.03 /lcy	
				Hauling, excavated borrow material, loose cubic yards, 20 mile round trip, 0.4 load/hr, base wide rate, 12 cy truck, highway haulers, excludes	39.88 lcy	8	582			809					
								· ·	-	003	-	34.90 /lcy	1,392	59.14 /lcy	
	_			loading				-	-					59.14 /lcy	
			33 00 04 20	31.00.01.01 Trenching, Backfill, and Compaction	102.84 CY	53	3,623	717		3,234	-	73.65 /CY	1,392 7,575	59.14 /lcy	
			33.00.04.20	31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20" pipe, DI, RJ, excav/bkfill not included, 350#	102.84 CY 60.00 LF	53 20	3,623	7,042		3,234 935	-	73.65 /CY 160.53 /LF	7,575 9,632	59.14 /lcy 123.50 /CY 249.76 /LF	
			33.00.04.20	31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20' pipe, DI, RJ, excavlokilil not included, 350# 20' DI, RJ, El, 45	102.84 CY 60.00 LF 4.00 ea	29	3,623 1,655 2,407	7,042	-	3,234 935 1,360	-	73.65 /CY 160.53 /LF 2,855.08 /ea	7,575 9,632 11,420	59.14 /lcy 123.50 /CY 249.76 /LF 4,475.31 /ea	
			33.00.04.20	31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20' pipe, DI, RJ, excewlbifill not included, 350# 20' DL RJ, El, 45 Megalugs for DI Pipe w/ Accessories, 20"	102.84 CY 60.00 LF	-	3,623 1,655 2,407	7,042	- - - - - - - -	3,234 935	-	73.65 /CY 160.53 /LF	7,575 9,632	59.14 /lcy 123.50 /CY 249.76 /LF	
				31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20" pipe, Di, R.J., exavlybitiil not included, 350# 20" pipe, Di, R.J., exavlybitiil not included, 350# 20" Di, R.J., Ell, 45 Megalugs for DI Pipe with Accessories, 20" Polywrap, 20" pipe Add for the-in to existing (Adjust productivity)	102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 1.00 ea	29	3,623 1,655 2,407 1,003 - 2,006	7,042 7,663 2,779 52 750	- 	3,234 935 1,360	-	73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea	7,575 9,632 11,420 4,349 52 3,889	59.14 /lcy 123.50 /CY 249.76 /LF 4.475.31 /ea 855.30 /ea 1.31 /lf 6.449.06 /ea	
				31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20° O' pipe, DI, X, Ja, exav/shill not included, 350# 20° D, NJ, Ell, 45 Megalugs for Di Pipe wi Accessories, 20° Polywrap, 20° pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape	102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 1.00 ea 60.00 lf	29 12 24 1	3,623 1,655 2,407 1,003 - 2,006 50	7.042 7.653 2,779 52 750 8	-	3,234 935 1,360 567 - 1,134 -	-	73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /ff 3,889.25 /ea 0.97 /ff	7,575 9,632 11,420 4,349 52 3,889 58	59.14 /lcy 123.50 /CY 249.76 /LF 4.475.31 /ea 855.30 /ea 1.31 /lt 6.449.06 /ea 1.61 /lt	
				31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20" pipe, Di, R.J., exavlybitiil not included, 350# 20" pipe, Di, R.J., exavlybitiil not included, 350# 20" Di, R.J., Ell, 45 Megalugs for DI Pipe with Accessories, 20" Polywrap, 20" pipe Add for the-in to existing (Adjust productivity)	102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 1.00 ea	29 12	3,623 1,655 2,407 1,003 	7,042 7,653 2,779 52 750 8 18,284	- 	3,234 935 1,360 567	- 	73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea	7,575 9,632 11,420 4,349 52 3,889	59.14 /lcy 123.50 /CY 249.76 /LF 4.475.31 /ea 855.30 /ea 1.31 /lf 6.449.06 /ea	
				31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20' pipe, DI, X, Ett, 45. Mgalugs for Di Pipe vi Accessories, 20" Polywrap, 20' pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, Di Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.02 Rufed Process Pipe, Ductile Iron	102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 1.00 ea 60.00 lf 60.00 LF	29 12 24 1 85	3,623 1,655 2,407 1,003 - - 2,006 500 7,120 10,744	7,042 7,653 2,779 52 750 8 18,284 19,001		3,234 935 1,360 567 - 1,134 - 3,996	-	73.65 /CY 160.53 /LF 2.855.08 /ea 543.61 /ea 0.87 /lf 3.889.25 /ea 0.97 /lf 490.00 /LF	7,575 9,632 11,420 4,349 52 3,889 58 88 29,400	59.14 /lcy 123.50 /CY 249.76 /LF 4,475.31 /ea 855.30 /ea 1.31 /lt 6,449.06 /ea 1.61 /lt 772.56 /LF	
				31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20" pipe, DI, A. j. exav/bitli not included, 350# 20" DI, RJ, ERI, 45 Megalugs for DI Pipe w/ Accessories, 20" Polywrap, 20" pipe Polywrap, 20" pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, Io Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.02 Buried Process Pipe, Ductile Iron 33.0 Utilities	102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 1.00 LS	29 12 24 1 1 85 138 138 138	3,623 1,655 2,407 1,003 - - 2,006 50 7,120 10,744 10,744 10,744	7,042 7,653 2,779 552 750 8 18,284 19,001 19,001 19,001		3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,230 7,230		73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS	7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 36,975 36,975	59.14 /kcy 123.50 /CY 249.76 /LF 4.475.31 /ea 855.30 /ea 1.31 /lt 6.449.06 /ea 1.61 /lt 772.56 /LF 984.25 /LF 984.25 /LF 984.25 /LS	
2				31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20' pipe, DL, AL, exav/bhill not included, 350# 20' DI, RJ, La, exav/bhill not included, 350# 20' DI, RJ, Ell, 45 Megalags for DI Pipe W/ Accessories, 20" Polywrap, 20' pipe Add for the-in to existing (Adjust productivity) Pipe Marking, ID Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00 Littler 33.0 Utilities 12.1 20" BWW & FTW	102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 1.00 ea 60.00 LF 60.00 LF 60.00 LF	29 12 24 1 85 138 138	3,623 1,655 2,407 1,003 - - 2,006 50 7,120 10,744 10,744 10,744	7,042 7,653 2,779 552 750 8 18,284 19,001 19,001 19,001		3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,230		73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF	7,575 9,632 11,420 11,420 4,349 52 3,889 58 29,400 36,975 36,975	59.14 /lcy 123.50 /CY 249.76 /LF 4.475.31 /ea 855.30 /ea 1.31 /l 6.449.06 /ea 1.61 /lf 772.56 /LF 984.25 /LF 984.25 /LF	
.2				31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20" pipe, DI, A. j. exav/bitli not included, 350# 20" DI, RJ, ERI, 45 Megalugs for DI Pipe w/ Accessories, 20" Polywrap, 20" pipe Polywrap, 20" pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, Io Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.02 Buried Process Pipe, Ductile Iron 33.0 Utilities	102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 1.00 LS	29 12 24 1 1 85 138 138 138	3,623 1,655 2,407 1,003 - - 2,006 50 7,120 10,744 10,744 10,744	7,042 7,653 2,779 552 750 8 18,284 19,001 19,001 19,001		3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,230 7,230		73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS	7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 36,975 36,975	59.14 /kcy 123.50 /CY 249.76 /LF 4.475.31 /ea 855.30 /ea 1.31 /lt 6.449.06 /ea 1.61 /lt 772.56 /LF 984.25 /LF 984.25 /LF 984.25 /LS	
	33.02			31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20' pipe, DL, AL, sexaVbitill not included, 350# 20' Di, RJ, Ell, 45 Megalags for DI Pipe w/ Accessories, 20" Polywrap, 20' pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.42 Buried Process Pipe, Ductile Iron 33.00 Utilities 12.1 20" BWW & FTW 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron Buried Process Pipe, Ductile Iron	102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 1.00 LS	29 12 24 1 1 85 138 138 138	3,623 1,655 2,407 1,003 - - 2,006 50 7,120 10,744 10,744 10,744	7,042 7,653 2,779 552 750 8 18,284 19,001 19,001 19,001		3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,230 7,230		73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS	7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 36,975 36,975	59.14 /kcy 123.50 /CY 249.76 /LF 4.475.31 /ea 855.30 /ea 1.31 /lt 6.449.06 /ea 1.61 /lt 772.56 /LF 984.25 /LF 984.25 /LF 984.25 /LS	
		33.00.04.BWWFT		31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20" pipe, DI, A., exav/bitli not included, 350# 20" DI, RJ, Ell, 45 Megalugs for DI Pipe w/ Accessories, 20" Polywrap, 20" pipe Polymap, 20" pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, Io Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.04.8WWFTW20 20" BWW & FTW 33.02 Utilities 12.1 20" BWW & FTW 04" BWW & FTW Utilities Utilities	102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 1.00 LS	29 12 24 1 1 85 138 138 138	3,623 1,655 2,407 1,003 - - 2,006 50 7,120 10,744 10,744 10,744	7,042 7,653 2,779 552 750 8 18,284 19,001 19,001 19,001		3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,230 7,230		73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS	7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 36,975 36,975	59.14 /kcy 123.50 /CY 249.76 /LF 4.475.31 /ea 855.30 /ea 1.31 /lt 6.449.06 /ea 1.61 /lt 772.56 /LF 984.25 /LF 984.25 /LF 984.25 /LS	
		33.00.04.BWWFT W04		31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20' pipe, DL, A., excav/bitli not included, 350# 20' DI, RJ, ERI, 45 Megalugs for DI Pipe w/ Accessories, 20" Polywrap, 20' pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.04.80 WWFTW20 20" BWW & FTW 33.00 Utilities 12.1 20" BWW & FTW 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 04" BWW & FTW 04" BWW & FTW 04" BWW & FTW	102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 1.00 LS	29 12 24 1 1 85 138 138 138	3,623 1,655 2,407 1,003 - - 2,006 50 7,120 10,744 10,744 10,744	7,042 7,653 2,779 552 750 8 18,284 19,001 19,001 19,001		3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,230 7,230		73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS	7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 36,975 36,975	59.14 /kcy 123.50 /CY 249.76 /LF 4.475.31 /ea 855.30 /ea 1.31 /lt 6.449.06 /ea 1.61 /lt 772.56 /LF 984.25 /LF 984.25 /LF 984.25 /LS	
				31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20' pipe, DL, AL, sexaVbitill not included, 350# 20' Di, RJ, Ell, 45 Megalags for DI Pipe w/ Accessories, 20" Polywrap, 20' pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.42 Buried Process Pipe, Ductile Iron 33.00 Utilities 12.1 20" BWW & FTW 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron Buried Process Pipe, Ductile Iron	102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 1.00 LS	29 12 24 1 85 138 138 138	3,623 1,655 2,407 1,003 - - 2,006 50 7,120 10,744 10,744 10,744	7,042 7,653 2,779 552 750 8 18,284 19,001 19,001 19,001		3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,230 7,230		73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS	7,575 9,632 11,420 4,349 52 3,889 58 29,400 36,975 36,975 36,975	59.14 /kcy 123.50 /CY 249.76 /LF 4.475.31 /ea 855.30 /ea 1.31 /lt 6.449.06 /ea 1.61 /lt 772.56 /LF 984.25 /LF 984.25 /LF 984.25 /LS	
				31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20' pipe, DI, A., exav/bitli not included, 350# 20' DI, RJ, Eil, 45 Megalugs for DI Pipe w/ Accessories, 20" Polywrap, 20' pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.04.80 WWFTW20 20" BWW & FTW 33.00.04.80 WWFTW20 20" BWW & FTW 33.00.04.80 WWFTW20 20" BWW & FTW 04" BWW & FTW Uillities Buried Process Pipe, Ductile Iron 04" BWW & FTW Uillities Buried Process Pipe, Ductile Iron 04" BWW & FTW Uillities Buried Process Pipe, Ductile Iron 04" BWW & FTW Uillities Buried Process Pipe, Ductile Iron 04" BWW & FTW Uillities Buried Process Fipe, Ductile Iron 04" BWW & FTW Uillities Buried Process Fipe, Ductile Iron 04" BWW & FTW Excernating, Irench oz, 8000 lb., 8' x 16' Exceravating, Irench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excevator, 4' to 6'	102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 60.00 LF 1.00 LS 60.00 LF 5.00 day 339.98 CY	29 12 24 11 85 138 138 138 138	3,623 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744 10,744	7,042 7,653 2,779 52 750 8 18,284 19,001 19,001 19,001 19,001		3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,230 7,230 7,230 7,230		73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea 0.97 /lf 616.24 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS 616.24 /LF 120.15 /day 32.37 /CY	7,575 9,632 11,420 4,349 52 3,889 56 29,400 36,975 36,975 36,975 36,975 36,975 36,975 36,975	59.14 /kcy 123.50 /CY 249.76 /LF 4,475.31 /ea 855.30 /ea 1.31 /lt 6,449.06 /ea 1.61 /lt 772.56 /LF 984.25 /LF 984.25 /LF 984.25 /LF 2984.25 /LF 203.63 /day 54.86 /CY	
			31.00.01.01	31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20' pipe, DL, RJ, excav/bitill not included, 350# 20' DI, RJ, Ell, 45 Megalags for DI Pipe w/ Accessories, 20" Polywrap, 20' pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.42 Buried Process Pipe, Ductile Iron 33.00.41 EWW FTW Vilities 12.1 20" BWW & FTW 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 04" BWW & FTW Excavating, tench box, 8000 B., 8'x 16' Excavating, tench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering Backfill, f' layers, compaction in layers, hand tamp, PIPE ZONE	102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 LF 60.00 LF 60.00 LF 60.00 LF 1.00 LS 60.00 LF 5.00 day 339.98 CY 65.34 ecy	29 12 24 138 138 138 138 138 138	3,623 1,655 2,407 1,003 - 2,006 500 7,120 10,744 10,744 10,744 10,744 - - 5,409 1,533	7,042 7,653 2,779 52 750 8 18,284 19,001 19,001 19,001 19,001	 	3,234 935 1,380 567 - 1,134 - 3,996 7,230 7,230 7,230 7,230 7,230 7,230 7,230 7,230 7,230		73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS 616.24 /LF 120.15 /day 22.37 /CY 23.47 /CY	7,575 9,632 11,420 4,349 52 3,889 29,400 36,975 36,975 36,975 36,975 36,975 36,975 36,975 36,975 36,975 36,975 36,975	59.14 /kcy 123.50 /CY 249.76 /LF 4.475.31 /ea 855.30 /ea 1.31 /lt 6.449.06 /ea 1.61 /lt 772.26 /LF 984.25 /LF 984.25 /LF 984.25 /LF 203.63 /LS 984.25 /LF	
			31.00.01.01	31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20' pipe, DI, A., exav/bitli not included, 350# 20' DI, RJ, Eil, 45 Megalugs for DI Pipe w/ Accessories, 20" Polywrap, 20' pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.04.80 WWFTW20 20" BWW & FTW 33.00.04.80 WWFTW20 20" BWW & FTW 33.00.04.80 WWFTW20 20" BWW & FTW 04" BWW & FTW Uillities Buried Process Pipe, Ductile Iron 04" BWW & FTW Uillities Buried Process Pipe, Ductile Iron 04" BWW & FTW Uillities Buried Process Pipe, Ductile Iron 04" BWW & FTW Uillities Buried Process Pipe, Ductile Iron 04" BWW & FTW Uillities Buried Process Fipe, Ductile Iron 04" BWW & FTW Uillities Buried Process Fipe, Ductile Iron 04" BWW & FTW Excernating, Irench oz, 8000 lb., 8' x 16' Exceravating, Irench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excevator, 4' to 6'	102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 60.00 LF 60.00 LF 60.00 LF 60.00 LF 1.00 LS 60.00 LF 5.00 day 339.98 CY	29 12 24 11 85 138 138 138 138	3,623 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744 10,744 10,744 - - - - - - - - - - - - - - - - - -	7,042 7,653 2,779 52 750 8 18,284 19,001 19,001 19,001 19,001		3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,230 7,230 7,230 7,230 7,230 7,230		73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea 0.97 /lf 616.24 /LF 616.24 /LF 616.24 /LF 616.24 /LF 120.15 /day 32.37 /CY 23.47 /ecy 6.86 /ecy	7,575 9,632 11,420 4,349 52 3,889 56 29,400 36,975 36,975 36,975 36,975 36,975 36,975 36,975 36,975	59.14 /kcy 123.50 /CY 249.76 /LF 4.475.31 /ea 855.30 /ea 1.31 /lt 6.449.06 /ea 1.31 /lt 772.56 /LF 984.25 /LF 984.25 /LF 59,054.83 /LS 984.25 /LF 203.63 /day 54.86 /CY 39.78 /ecy 11.62 /ecy	
			31.00.01.01	31.0.0.1.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20" pipe, DI, R. J., exav/bill not Included, 350# 20" DI, R.J., Ell, 45 Megalugs for DI Pipe vi Accessories, 20" Polywrap, 20" pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, DI Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.04.20 Utilities 12.1 20" BWW & FTW 0.4" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 0.4" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 0.4" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 0.4" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 0.4" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 0.4" BWW & FTW Excavating, trench or continuous footing, Nar Existing Utilities, 1-1/2 C.Y. excavator, 4" to 6" deep, excludes sheeting or dewatering Backfill, 1 "Jayers, compaction in Jayers, and tamp, PIPE ZONE Backfill, 12" layers, compaction in Jayers, roller compaction with operator wa	102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 LF 60.00 LF 60.00 LF 60.00 LF 1.00 LS 60.00 LF 5.00 day 339.98 CY 65.34 ecy 248.87 ecy 65.34 lcy	29 12 24 11 85 138 138 138 138 76 25 25 20 20 10 10	3,623 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744 10,744 10,744 10,744 10,744 10,744 10,744 10,744 10,744 2,007 1,533 1,445 681 2,599 2,599 2,599 2,599 2,599 1,533 1,533 1,545 1,549 2,599 1,549 1	7,042 7,653 2,779 52 750 8 18,284 19,001 19,001 19,001 19,001 19,001 19,001 19,001		3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,200 7,230		73.65 /CY 160.53 /LF 2,85.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS 616.24 /LF 120.15 /day 23.27 /CY 23.47 /ecy 8.86 /ecy 30.27 /ky 30.37 /ky 30.37 /ky	7,575 9,632 11,420 11,420 14,349 52 3,889 36,975 36	59.14 /kcy 123.50 /CY 249.76 /LF 4.475.31 /ea 855.30 /ea 1.31 /lt 6.449.06 /ea 1.31 /lt 984.25 /LF 984.25 /LF 59,054.83 /LS 984.25 /LF 203.63 /day 54.86 /CY 39.78 /ecy 11.62 /ecy 48.03 /kcy 48.03 /kcy	
			31.00.01.01	31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20" Pipe, DI, K. J., exav/bitli not included, 350# 20" DI, R.J., Ell, 45 Megalugs for DI Pipe w/ Accessories, 20" Polywrap, 20" pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape 33.00_04.20 Buried Pipe, puctile Iron, 20" 33.00_04.20 Buried Pipe, Ductile Iron, 20" 33.00_04.8WWFTW20.20" BWW & FTW 33.00_04.BWWFTW20.20" BWW & FTW 33.00_04.BWWFTW20.20" BWW & FTW 33.00_Utilities 12.1.20" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 44" BWW & FTW Utilities Rev trench box, 8000 lb., 8" x 16" Exavating, Itemch or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4" to 6" deep, excludes sheeting or dewatering Backfill, 6" layers, compaction in layers, Indler compaction Reint trench box, 8000 lb., 8" x 16" Exavating, Itemch or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4" to 6" deep, excludes sheeting or dewatering Backfill, 6" layers, compaction in layers, Indler compaction Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE	102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 1.00 ea 60.00 LF 60.00 LF 60.00 LF 60.00 LF 5.00 LF 5.00 day 339.98 CY 65.34 ecy 248.77 ecy 65.34 lcy	29 12 24 11 85 138 138 138 138 138 76 25 20	3,623 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744 10,744 10,744 10,744 10,744 10,744 10,744 10,744 10,744 2,007 1,533 1,445 681 2,599 2,599 2,599 2,599 2,599 1,533 1,533 1,545 1,549 2,599 1,549 1	7,042 7,653 2,779 52 750 8 18,284 19,001 19,001 19,001 19,001 19,001 19,001 19,001		3,234 935 1,360 - 1,134 - 3,996 7,230		73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS 616.24 /LF 120.15 /day 32.37 /CY 23.47 /ecy 6.86 /ecy 33.27 /cy	7,575 9,632 111,420 4,349 52 3,889 29,400 36,975	59.14 /lcy 123.50 /CY 249.76 /LF 4,475.31 /ea 855.30 /ea 1.31 /lt 6,449.06 /ea 1.61 /lt 772.56 /LF 984.25 /LF 984.25 /LF 984.25 /LF 203.63 /day 54.86 /CY 39.78 /ecy 11.62 /ecy 52.39 /lcy	
			31.00.01.01	31.0.0.1.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20" pipe, DI, R. J., exav/bill not Included, 350# 20" DI, R.J., Ell, 45 Megalugs for DI Pipe vi Accessories, 20" Polywrap, 20" pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, DI Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.04.20 Utilities 12.1 20" BWW & FTW 0.4" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 0.4" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 0.4" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 0.4" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 0.4" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 0.4" BWW & FTW Excavating, trench or continuous footing, Nar Existing Utilities, 1-1/2 C.Y. excavator, 4" to 6" deep, excludes sheeting or dewatering Backfill, 1 "Jayers, compaction in Jayers, and tamp, PIPE ZONE Backfill, 12" layers, compaction in Jayers, roller compaction with operator wa	102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 LF 60.00 LF 60.00 LF 60.00 LF 1.00 LS 60.00 LF 5.00 day 339.98 CY 65.34 ecy 248.87 ecy 65.34 lcy	29 12 24 11 85 138 138 138 138 76 25 25 20 20 10 10	3,623 1,655 2,407 1,003 - 2,006 500 7,120 10,744 10,745 10,744 10,7	7,042 7,653 2,779 52 750 8 18,284 19,001 19,001 19,001 19,001 19,001 		3,234 935 1,360 567 - 1,134 - 3,996 7,230 7,200 7,230 7,220		73.65 /CY 160.53 /LF 2,85.08 /ea 543.61 /ea 0.87 /lf 3,889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS 616.24 /LF 120.15 /day 23.27 /CY 23.47 /ecy 8.86 /ecy 30.27 /ky 30.37 /ky 30.37 /ky	7,575 9,632 11,420 11,420 14,349 52 3,889 36,975 36	59.14 /kcy 123.50 /CY 249.76 /LF 4.475.31 /ea 855.30 /ea 1.31 /lt 6.449.06 /ea 1.31 /lt 984.25 /LF 984.25 /LF 59,054.83 /LS 984.25 /LF 203.63 /day 54.86 /CY 39.78 /ecy 11.62 /ecy 48.03 /kcy 48.03 /kcy	
			31.00.01.01	31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20' Pipe, DI, A., exav/bifil not included, 350# 20' D, RJ, Ell, 4. Megalugs for DI Pipe w/ Accessories, 20" Polywrap, 20' pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, Di Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.04.80 WWFTW20 20" BWW & FTW 33.00.04.80 WWFTW20 20" BWW & FTW 33.00.04.80 WWFTW20 20" BWW & FTW 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 04" BWW & FTW Utilities Backfill, 1, and Compaction Rent trench box, 8000 lb., 8' x 16' Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering Backfill, 6' layers, compaction in layers, IPE ZONE Fill by borrow and utility bedding, for pipe and conduit, crushed	102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 1.00 ea 60.00 LF 60.00 LF 60.00 LF 60.00 LF 1.00 LS 60.00 LF 2.00 day 339.98 CY 248.77 ecy 65.34 lcy 248.77 ecy 339.98 CY	29 12 24 138 138 138 138 138 238 138 238 20 20 20 10 4 19	3,623 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744 10,744 10,744 - - - - - - - - - - - - -	7,042 7,653 2,779 52 750 8 18,284 19,001 19,001 19,001 19,001 19,001 		3,234 935 1,360 567 - 1,134 - 3,996 7,230 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,997 8,997 8,996 8,996 8,996 8,996 8,997 8,997 8,997 8,997 8,997 8,997 8,996 8,997		73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lt 3,889.25 /ea 0.97 /lt 490.00 /LF 616.24 /LF 616.24 /LF 616.24 /LF 616.24 /LF 120.15 /day 32.37 /CY 23.47 /ecy 6.86 /ecy 33.27 /cy 34.30 /cy 61.64 /CY	7,575 9,632 111,420 4,349 52 3,889 36,975 36	59.14 /kcy 123.50 /CY 249.76 /LF 4,475.31 /ea 855.30 /ea 1.31 /lt 6,449.06 /ea 1.61 /lt 772.56 /LF 984.25 /LF 984.25 /LF 984.25 /LF 203.63 /day 54.86 /CY 39.78 /ecy 11.62 /ecy 52.39 /kcy 53.14 /kcy 53.14 /kcy	Image: Constraint of the sector of
2.2 33.0			31.00.01.01	31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20' pipe, DI, RJ, exavbkill on included, 350# 20' DI, RJ, Ell, 45 Magalugs for Di Pipe vi Accessories, 20" Polywrap, 20' pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, ID Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.04.20 Buried Process Pipe, Ductile Iron 33.02 Buried Process Pipe, Ductile Iron 33.02 Buried Process Pipe, Ductile Iron 4' BWW & FTW Utilities Buried Process Pipe, Ductile Iron 4' BWW & FTW Utilities Buried Process Pipe, Ductile Iron 04' BWW & FTW Trenching, Backfill, and Compaction Rent trench box, 8000 b., 8' x 16' Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering Backfill, 12' layers, compaction in layers, nell tamp, IPPE ZONE Fill by borrow and utility bedding, for pipe and conduit, rushed or tarke BEDDINO Hauling-excavated borrow material,losee cubic yards.20 mile round trip.0.4 load/hr.base wide rate, 12 ty truck.highway	102.84 CY 60.00 LF 4.00 ea 60.00 lf 1.00 ea 60.00 LF 60.00 LF 60.00 LF 60.00 LF 1.00 LS 60.00 LF 5.00 day 339.98 CY 65.34 ecy 248.77 ecy 65.34 lcy 91.21 lcy 339.98 CY 24.88 lcy 91.21 lcy 20.00 LF	29 12 24 138 138 138 138 138 238 138 238 20 20 20 10 4 19	3,623 1,655 2,407 1,003 - 2,006 500 7,120 10,744 10,745 10,745 10,745 10,746 10,746 10,746 10,746 10,744 10,746 10,756 10,7	7,042 7,653 2,779 52 750 8 18,284 19,001 19,0000 19,0000000000	• • • •	3,234 935 1,360 567 - 1,134 - 3,996 7,230		73.65 /CY 160.53 /LF 2,85.08 /ea 543.61 /ea 0.87 /lf 3.889.25 /ea 0.97 /lf 490.00 /LF 616.24 /LF 616.24 /LF 616.24 /LF 36,974.62 /LS 616.24 /LF 120.15 /day 23.37 /CY 23.47 /ecy 30.37 /ky 34.90 /ky 61.64 /CY 46.53 /LF	7,575 9,632 11,420 4,349 52 3,889 29,400 36,975 36,	59.14 /kcy 123.50 /CY 249.76 /LF 4,475.31 /ea 855.30 /ea 1.31 /lt 6,449.06 /ea 1.61 /lt 772.56 /LF 984.25 /LF 984.25 /LF 984.25 /LF 203.63 /day 203.63 /day 54.86 /CY 39.78 /ecy 11.62 /ecy 59.14 /kcy 103.46 /CY 73.60 /LF	
			31.00.01.01	31.00.01.01 Trenching, Backfill, and Compaction Buried Pipe, Ductile Iron, 20" 20' Pipe, DI, A., exav/bifil not included, 350# 20' D, RJ, Ell, 4. Megalugs for DI Pipe w/ Accessories, 20" Polywrap, 20' pipe Add for tie-in to existing (Adjust productivity) Pipe Marking, Di Tape 33.00.04.20 Buried Pipe, Ductile Iron, 20" 33.00.04.80 WWFTW20 20" BWW & FTW 33.00.04.80 WWFTW20 20" BWW & FTW 33.00.04.80 WWFTW20 20" BWW & FTW 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 04" BWW & FTW Utilities Buried Process Pipe, Ductile Iron 04" BWW & FTW Utilities Backfill, 1, and Compaction Rent trench box, 8000 lb., 8' x 16' Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering Backfill, 6' layers, compaction in layers, IPE ZONE Fill by borrow and utility bedding, for pipe and conduit, crushed	102.84 CY 60.00 LF 4.00 ea 8.00 ea 60.00 lf 1.00 ea 60.00 LF 60.00 LF 60.00 LF 60.00 LF 1.00 LS 60.00 LF 2.00 day 339.98 CY 248.77 ecy 65.34 lcy 248.77 ecy 339.98 CY	29 12 24 138 138 138 138 138 238 138 238 20 20 20 10 4 19	3,623 1,655 2,407 1,003 - 2,006 50 7,120 10,744 10,744 10,744 10,744 - - - - - - - - - - - - -	7,042 7,653 2,779 52 750 8 18,284 19,001 19,0000 19,0000000000		3,234 935 1,360 567 - 1,134 - 3,996 7,230 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,996 8,997 8,997 8,996 8,996 8,996 8,996 8,997 8,997 8,997 8,997 8,997 8,997 8,996 8,997		73.65 /CY 160.53 /LF 2,855.08 /ea 543.61 /ea 0.87 /lt 3,889.25 /ea 0.97 /lt 490.00 /LF 616.24 /LF 616.24 /LF 616.24 /LF 616.24 /LF 120.15 /day 32.37 /CY 23.47 /ecy 6.86 /ecy 33.27 /cy 34.30 /cy 61.64 /CY	7,575 9,632 111,420 4,349 52 3,889 36,975 36	59.14 /kcy 123.50 /CY 249.76 /LF 4,475.31 /ea 855.30 /ea 1.31 /lt 6,449.06 /ea 1.61 /lt 772.56 /LF 984.25 /LF 984.25 /LF 984.25 /LF 203.63 /day 54.86 /CY 39.78 /ecy 11.62 /ecy 52.39 /kcy 53.14 /kcy 53.14 /kcy	

D3718900-04-The Dalles WTP-9_5mgd Sed-tj Property of Jacobs, All Rights Reserved - Copyright 2021

			1			1 1			r r	1					
Area Bid Item Worl	k Trade Pkg	WorkActiv	Unit Price	Description	Takeoff Quantity	Labor Hours	Labor Amount	Material Amount	Sub Amount	Equip Amount	Other Amount	Total Cost/Unit	Total Amount	Grand Total Price	Grand Total Amount
	_		33.00.04.04	Buried Pipe, Ductile Iron, 4"											
				Pipe Marking, ID Tape	20.00 lf	0	17	3	-			0.97 /lf	19	1.61 /lf	3
				33.00.04.04 Buried Pipe, Ductile Iron, 4"	20.00 LF	43	3,595	2,349		1,896		392.01 /LF	7,840	642.06 /LF	12,84
				33.00.04.BWWFTW04 04" BWW & FTW	20.00 LF	197	14,254	4,172		10,373		1,439.90 /LF	28,798	2,400.74 /LF	48,01
				33.02 Buried Process Pipe, Ductile Iron	20.00 LF	197	14,254	4,172		10,373		1,439.90 /LF	28,798	2,400.74 /LF	48,01
				33.0 Utilities	1.00 LS	197	14,254	4,172		10,373		28,798.07 /LS	28,798	48,014.76 /LS	48,01
				12.2 04" BWW & FTW	20.00 LF	197	14,254	4,172		10,373		1,439.90 /LF	28,798	2,400.74 /LF	48,01
12.3				04" Combined Recycle BW & EDB											
33.0				Utilities											
	33.02			Buried Process Pipe, Ductile Iron											
		33.00.04.BWEDB04	k l	04" Combined Recycle BW & EDB											
			31.00.01.01	Trenching, Backfill, and Compaction											
				Rent trench box, 8000 lb., 8' x 16'	5.00 day				-	601		120.15 /day	601	203.63 /day	1,01
				Excavating, trench or continuous footing, Near Existing Utilities, 1-1/2 C.Y. excavator, 4' to 6' deep, excludes sheeting or dewatering	21.93 CY	5	349	-	-	361		32.37 /CY	710	54.86 /CY	1,20
				Backfill, 6* layers, compaction in layers, hand tamp, PIPE ZONE	4.22 ecy	2	99	-	-			23.47 /ecy	99	39.77 /ecy	16
				Backfill, 12* layers, compaction in layers, roller compaction with operator walking, ABOVE PIPE ZONE	16.05 ecy	1	93	-	-	17		6.86 /ecy	110	11.62 /ecy	
				Fill by borrow and utility bedding, for pipe and conduit, crushed or screened bank run gravel, PIPE ZONE	4.22 lcy	1	44	89	-	8	•	33.27 /lcy	140	52.39 /lcy	22
				Fill by borrow and utility bedding, for pipe and conduit, sand, dead or bank, BEDDING	1.60 lcy	0	17	29		3		30.37 /lcy	205	48.03 /lcy	34
				Hauling,excavated borrow material,loose cubic yards,20 mile round trip,0.4 load/hr,base wide rate,12 cy truck,highway haulers,excludes loading	5.88 lcy	'	00	-	-	119	•	34.90 /lcy	205	59.14 /lcy	34
				31.00.01.01 Trenching, Backfill, and Compaction	21.93 CY	10	688	118		1,109		87.27 /CY	1,914	146.90 /CY	3,22
	+ +		33 00 04 04	Buried Pipe, Ductile Iron, 4"	21.00 01	10	000	110		1,100		01.27 701	1,014	140.30 /01	0,22
	+ +		33.00.04.04	4" pipe, DI, RJ, excav/bkfill not included, 350#	310.00 LF	47	3,931	8,588	-	1,907		46.53 /LF	14,426	73.60 /LF	22,81
				4" DI, RJ, Ell, 45	8.00 ea	15	1,285	1,468		623		422.04 /ea	3,376	680.41 /ea	5,44
				Megalugs for DI Pipe w/ Accessories, 4*	16.00 ea	16	1,353	604		656		163.30 /ea	2,613	269.58 /ea	4,31
				Polywrap, 4* pipe	310.00 lf		-	99	-	-		0.32 /lf	99	0.48 /lf	14
				Add for tie-in to existing (Adjust productivity)	1.00 ea	24	2,006	750	-	1,134		3,889.25 /ea	3,889	6,449.05 /ea	6,44
				Pipe Marking, ID Tape	310.00 lf	3	259	40	-			0.97 /lf	299	1.61 /lf	50
				33.00.04.04 Buried Pipe, Ductile Iron, 4"	310.00 LF	105	8,834	11,549		4,319		79.68 /LF	24,702	127.97 /LF	39,67
				33.00.04.BWEDB04 04" Combined Recycle BW & EDB	310.00 LF	115	9,522	11,667		5,428		85.86 /LF	26,616	138.36 /LF	42,89
				33.02 Buried Process Pipe, Ductile Iron	310.00 LF	115	9,522	11,667		5,428		85.86 /LF	26,616	138.36 /LF	42,89
				33.0 Utilities	0.00	115	9,522	11,667		5,428		/LS	26,616	/LS	42,89
				12.3 04" Combined Recycle BW & EDB	310.00 LF	115	9,522	11,667		5,428		85.86 /LF	26,616	138.36 /LF	42,89
90.2				Sitework/Site Electrical/Yard Piping/SCADA Allowance											
26.0				Electrical Work											
	26.10			Site Electrical											
		26.10.20.0010		Site Electrical Allowance											
			26.10.20.00	Site Electrical, Other											
				Site Electrical Allowance (~15% of Construction Costs)	1.00 ls						2,432,000	2,432,000.00 /ls	2,432,000	3,294,906.05 /ls	3,294,90
				26.10.20.00 Site Electrical, Other	1.00 LS						2,432,000	2,432,000.00 /LS	2,432,000	3,294,906.05 /LS	3,294,90
				26.10.20.0010 Site Electrical Allowance	1.00 LS						2,432,000	2,432,000.00 /LS	2,432,000	3,294,906.05 /LS	3,294,90
				26.10 Site Electrical	1.00 LS						2,432,000	2,432,000.00 /LS	2,432,000	3,294,906.05 /LS	3,294,90
				26.0 Electrical Work	1.00 LS						2,432,000	2,432,000.00 /LS	2,432,000	3,294,906.05 /LS	3,294,90
31.0				Earthwork											
	31.00			Site/Civil General Items											
	-	31.00.01.0010		Sitework Allowance											
			31.00.01.00	Site/Civil, General Conditions											
	+ +			Sitework Allowance (~6% construction costs)	1.00 ls						973,000	973,000.00 /ls	973,000	1,318,233.38 /ls	1,318,23
				31.00.01.00 Site/Civil, General Conditions	1.00 LS	ļ					973,000	973,000.00 /LS	973,000	1,318,233.38 /LS	1,318,23
				31.00.01.0010 Sitework Allowance	1.00 LS	ļ					973,000	973,000.00 /LS	973,000	1,318,233.38 /LS	1,318,23
				31.00 Site/Civil General Items	1.00 LS						973,000	973,000.00 /LS	973,000	1,318,233.38 /LS	1,318,23
				31.0 Earthwork	1.00 LS						973,000	973,000.00 /LS	973,000	1,318,233.38 /LS	1,318,23
40.9				Instrumentation & Controls											
	40.90			Instrumentation & Controls											
	-	40.90.07.0010		Plant Computer System (SCADA allowance)											
	I T		40.90.07.01	I&C, SCADA											
				SCADA Software Development (-6% of Constuction Costs)	1.00 ls						973,000	973,000.00 /ls	973,000	1,318,233.38 /ls	1,318,2
				40.90.07.01 I&C, SCADA	1.00 LS						973,000	973,000.00 /LS	973,000	1,318,233.38 /LS	1,318,2
				40.50.07.01 RC, SCADA	1100 20										
				40.90.07.0010 Plant Computer System (SCADA allowance)	1.00 LS						973,000	973,000.00 /LS	973,000	1,318,233.38 /LS	1,318,2
											<u>973,000</u> 973,000	973,000.00 /LS 973,000.00 /LS	973,000 973,000	1,318,233.38 /LS 1,318,233.38 /LS	1,318,2
				40.90.07.0010 Plant Computer System (SCADA allowance)	1.00 LS										1,318,2
				40.90.07.0010 Plant Computer System (SCADA allowance) 40.90 Instrumentation & Controls	1.00 LS 1.00 LS						973,000	973,000.00 /LS 973,000.00 /LS	973,000	1,318,233.38 /LS	1

Estimate Totals

Description	Amount	Totals	Hours		Rate	
Labor	1,296,639		########	hrs		
Material	1,164,240					
Subcontract	1,976,380					
Equipment	1,410,080		########	hrs		
Other	25,718,241					
Subtotal Raw Costs	31,565,580	31,565,580				
Location Adj. Factor	108,269				4.000	%
Productivity Adjustment	406,008				15.000	%
Subtotal Adj. Factors	514,277	32,079,857				
Escalation CIP 1 - April 2025	15,504				1.989	%
Escalation CIP 2 - April 2026					4.947	%
Escalation CIP 3 - January 2028	413,630				10.346	%
Escalation CIP 4 - August 2029	957,239				15.456	%
Escalation CIP 5 - November 2031	4,763,370				23.129	%
Subtotal Escalation	6,149,743	38,229,600				
Existing Conditions I,OH&P	108,735				15.000	%
Concrete Work I,OH&P					15.000	%
Masonry Work I,OH&P					15.000	%
Metals Work I,OH&P					15.000	%
Architectural (Div 6-12) OH&P					15.000	%
Special Construction I,OH&P	205,295				15.000	%
Conveying Equipment I,OH&P					15.000	%
Mechanical Work I,OH&P					20.000	%
Electrical Work I,OH&P	13,750				25.000	%
Site/Civil OH&P	69,358				10.000	%
Buried Piping I,OH&P	364,121				15.000	%
Tank Construction I,OH&P					20.000	%
Process Piping I,OH&P					25.000	%
Instruments & Controls I,OH&P					18.000	%
Material Handling I,OH&P					10.000	%
Process Equipment I,OH&P					15.000	%
Subtotal Subcontractor I,OH&P	761,259	38,990,859				
Total Cost To Prime Contractor		38,990,859				
General Conditions	3,899,086				10.000	%
Subtotal Indirect Costs	3,899,086	42,889,945				
Prime Contractor Home OfficeOH	5,146,793				12.000	%
Prime Contractor Profit	4,288,995				10.000	
Mobilization/Demobilization	1,286,698				3.000	
Subtotal OH&P	10,722,486	53,612,431				
Design Contingency	16,083,730				30.000	%
Subtotal Contingency	16,083,730	69,696,161				
Total Prime Contractor Costs		69,696,161				
Total		69,696,161				

9/11/202409:58 Page 14

Page 641 of 664

Project Element	DAF with GMF	Plate Settlers with GMF
Rapid Mix	\$81,000	\$81,000
Flocculation	\$196,000	\$270,000
Dissolved Air Flotation	\$2,194,000	N/A
Sedimentation Basin with Plate Settlers	N/A	\$949,000
Filters	\$896,000	\$896,000
Filter Backwash Supply Pump Station	\$231,000	\$231,000
ACH	\$89,000	\$89,000
Filter Aid Polymer	\$280,000	\$280,000
Phosphoric Acid	\$56,000	\$56,000
Polyphosphates	\$59,000	\$59,000
Caustic Soda	\$242,000	\$242,000
On-Site Sodium Hypochlorite Generation	\$1,343,000	\$1,343,000
Fluoride	\$320,000	\$320,000
Backwash EQ Basin and Recycle Pump Station	\$138,000	\$138,000
Backwash Clarifier	\$704,000	\$704,000
Engineered Drying Beds	\$1,043,000	\$1,043,000
EDB Decant Pump Station	\$110,000	\$110,000
Additional WTP O&M	\$3,237,000	\$3,237,000
WTP O&M Labor	\$12,724,000	\$12,724,000
20-Year O&M Costs	\$23,943,000	\$22,772,000

AACE Class 5 Cost Estimate (Accuracy range: -20% to -50% to +30% to +100%)

Attachment F MODA Scoring

Table F-1. Evaluation Scores for the Treatment Alternatives

Evaluation Criterion	DAF with GMF	Plate Settlers with GMF		
Construction				
Footprint	10,260 sf	12,502 sf		
Constructability	3	3		
Expansion complexity	5	5		
Operation				
Winter capacity	80	60		
Chemical use	4	3		
Level of automation	4	3		
Ease of operation	4	3		
Maintenance requirements	3	4		
Solids production	4	3		
Production Efficiency	97%	96%		
Water Quality				
Microbial removal and turbidity reduction	4	4		
Ability to mitigate future taste and odor and cyanotoxin concerns	4	3		

Table F-2. Project Team Consensus Weights

Evaluation Criterion	Weight
Construction	35%
Footprint	9%
Constructability	15%
Expansion complexity	10%
Operation	31%
Winter capacity	6%
Chemical use	3%
Level of automation	4%
Ease of operation	5%
Maintenance requirements	4%
Solids production	4%
Production Efficiency	5%
Water Quality	35%
Microbial removal and turbidity reduction	19%
Ability to mitigate future taste and odor and cyanotoxin concerns	16%

Note: Totals may not add up to 100% due to rounding.



AGENDA STAFF REPORT

AGENDA LOCATION: Action Item #10B

MEETING DATE:	December 9, 2024
TO:	Honorable Mayor and City Council
FROM:	Joshua Chandler Community Development Director
<u>ISSUE</u> :	Adoption of General Ordinance No. 24-1407B, a general ordinance amending The Dalles Municipal Code Chapter 8.02 (<i>Short-Term Rental License</i>)

BACKGROUND: *This item is a continuation from the October 14 and November 25, 2024, Council meetings.*

Following a series of Council discussions from summer 2023 and 2024 regarding the management and regulation of the City's short-term rental (**STR**) ordinance, Staff is following through on Council's direction to implement various amendments to the City's STR Program.

On October 14, 2024, Staff presented a set of proposed amendments to the ordinance. After a detailed discussion including input from community stakeholders, Council directed staff to make several revisions and bring them back for consideration at a future meeting.

On November 25, 2024, Staff presented an updated proposal with two ordinance options for review incorporating input from the community, Staff, and the October 14, 2024, discussions. After deliberation, Council approved an amended version of General Ordinance No. 24-1407B. Following the Council's approval, Staff made the required substantive amendments to the ordinance, as directed, in accordance with Section 2(c) of the Council Rules and included them for final consideration at tonight's meeting,

This Staff Report addresses modifications to previously proposed amendments from the November 25, 2024 Council meeting. Key revisions include:

- Vicinity requirements for new STRs. During Council discussions, Staff considered proposals to limit new STR licenses to areas at least 300' and 500' from existing STRs in residential zones. After further discussion, Council determined the 300' vicinity adequately addresses previous community concerns. In addition to residential vicinity requirements, a 100' buffer for commercial zones would be applied to new STRs.
- Expanded notification area for licensing. In addition to the mandatory vicinity requirement for new STRs, Staff proposes extending the licensing notification area for new STRs at the time of initial license approval or when an STR changes operators. Initially this notification area was designed to be consistent with the vicinity requirements outlined above; however, Council chose to establish a 500' notice area for residentially zoned STRs and 100' for non-residentially zoned STRs.
- **Mandatory Posting.** The City currently requires STRs to display their maximum occupancy near the front door. At the November 25 Council meeting, Staff proposed that all STRs display their City-approved license near the front door, visible from the street or public right-of-way. After input from STR operators raising safety concerns of this mandatory posting, the proposed requirement was revised to mandate that licenses be displayed similar to the current ordinance, prominently inside the STR near the front door. The license must include key details such as the license number, year of licensure, operator and City Code Enforcement contact information, and maximum occupancy.

Notifications:

On December 2, 2024, Staff provided all current STR and BBV operators (and many of the community members who have spoken at Council meetings over the last 2 years concerning STR operations) a link to tonight's Council packet and encouraging their comments and participation here.

BUDGET IMPLICATIONS: None.

COUNCIL ALTERNATIVES:

- 1. <u>Staff Recommendation</u>: Move to adopt General Ordinance No. 24-1407B, as presented, by title only.
- 2. Make minor modifications to then move to adopt General Ordinance No. 24-1407B, as amended, by title only.
- 3. Make substantive modifications to then move to adopt General Ordinance No. 24-1407B, as amended, by title only, contingent on a second approval at a future meeting.
- 4. Decline formal action and direct Staff accordingly.

GENERAL ORDINANCE NO. 24-1407B

AN ORDINANCE AMENDING THE DALLES MUNICIPAL CODE CHAPTER 8.02 (*SHORT-TERM RENTAL LICENSE*)

WHEREAS, the City regulates the transient rental of dwelling units and rooms within the City's corporate limits pursuant to the provisions of The Dalles Municipal Code (**TDMC**) Chapter 8.02 (*Short-Term Rental Licenses*);

WHEREAS, recent community feedback, staff administration enhancements, and legal sufficiency review support the City's amendment to certain provisions of TDMC Chapter 8.02;

WHEREAS, at its October 14, 2024, meeting, the City Council considered proposed amendments to the provisions of TDMC Chapter 8.02 as part of an involved and public discussion;

WHEREAS, at its November 25, 2024, meeting, the City Council considered those proposed amendments again, incorporated staff and community feedback from that meeting and the October 14, 2024, discussion, and approved an amended version of this Ordinance;

WHEREAS, following the City Council's November 25, 2024, approval, and consistent with the provisions of Section 2(c) of the City Council Rules, staff made substantive amendments to this Ordinance's provisions as directed; and

WHEREAS, the City Council finds adopting the proposed amendments to TDMC Chapter 8.02 through this Ordinance to support the City's interests and preserve and protect the public health, safety, and welfare.

NOW, THEREFORE, THE COUNCIL OF THE CITY OF THE DALLES ORDAINS AS FOLLOWS:

- Section 1A redline comparison copy of the amendments implemented by this Ordinance's
Section 2 are attached to and made part of this Ordinance as its Exhibit 1.
- <u>Section 2</u> The Dalles Municipal Code Title 8 (*Business*), Chapter 8.02 (*Short-Term Rental License*), shall be revised to read:

Sections:

8.02.010	Purpose.
8.02.020	Definitions.
8.02.030	Licenses.
8.02.040	General Requirements.
8.02.050	License Requirements.
8.02.060	Food Services.
8.02.070	Review Procedures.

8.02.080	Fees.
8.02.090	Public Notice.
8.02.100	Existing Nonconforming Short-Term Rentals.
8.02.110	Complaints Regarding Operation.
8.02.120	Violations.
8.02.130	Revocation.

Chapter 8.02 SHORT-TERM RENTAL LICENSE

8.02.010. Purpose.

This Chapter is intended to authorize, regulate, and govern the transient rental of dwelling units or rooms on property within the City of The Dalles. These standards and requirements shall be in addition to other requirements of The Dalles Municipal Code (including TDMC Chapter 8.04's regulations concerning the City's transient lodging tax) and all other applicable Oregon and federal laws and regulations.

8.02.020. Definitions.

As used in this Chapter, except where the context indicates otherwise, the following terms shall mean:

- A. "Bedroom" means any habitable space in a dwelling unit, excluding kitchens and living rooms, intended for sleeping, and at least 100 square feet in size, with a ceiling height of at least 7 feet. It must be separated from other rooms by a door, accessible to a bathroom without passing through another bedroom, and cannot be the only access to other bedrooms or habitable spaces;
- B. "Council" means the City Council of the City of The Dalles;
- C. "City" means the City of The Dalles, a municipal corporation of the State of Oregon.
- D. "Department" means the City's Community Development Department;
- E. "Director" means the City's Community Development Director;
- F. "License" means a license to operate a short-term rental issued by the City;
- G. "Person" means any individual, firm, partnership, joint venture, limited liability company, corporation, limited liability partnership, association, host, social club, fraternal organization, fraternity, sorority, public or private dormitory, joint stock company, estate, trust, business trust, receiver, trustee, syndicate, or any other group or combination acting as a unit;
- H. "Operator" means the person who is the proprietor of a short-term rental in any capacity;
- I. "Short-term rental" means all accommodations with duration of 30 consecutive days or less;
- J. "Studio" means any self-contained habitable space, at least 220 square feet in size with a

minimum ceiling height of 7 feet, that combines living, sleeping, and kitchen areas into a single open space, with a separate bathroom;

- K. "TDMC" means The Dalles Municipal Code; and
- L. "Transient" means the renting of a dwelling unit or rooms for compensation on less than a month-to-month basis.

8.02.030. Licenses.

- A. <u>Annual License Required</u>. Prior to using any dwelling unit as a short-term rental, the operator of any short-term rental must possess an approved license for each short-term rental they operate. Licenses are valid for the calendar year beginning January 1 and ending December 31. Partial year licensing or prorated licensing fees will not be granted at the time of licensing or license renewal. Licenses shall be non-transferable. Upon transfer of the real property where the short-term rental is located or transfer of the business owning and operating the short-term rental, any existing license held by a transferring operator becomes void and the new operator(s) must apply for a new license before continuing to operate the short-term rental.
- B. <u>Maximum License Cap</u>. The total number of licenses allowed each year shall not exceed one (1%) percent of the City's total housing unit inventory (as provided in the City's current Housing Needs Analysis) when rounded down to the next whole number.
- C. <u>Annual Renewal Process</u>. For license renewals each year, priority will be given to existing licenses seeking renewal so long as the renewal application is delivered to the Department by November 29 (or the next business day if November 29 falls on a day the City is closed). The Department will review each application to ensure each operator and the associated real property is in good-standing with the provisions of this and all other Chapters of The Dalles Municipal Code. All existing violations must be resolved prior to the issuance of a license or renewal of an existing license. If violations are not resolved by January 2, the existing short-term rental's license will be deemed void (and the short-term rental shall lose its status as an existing operation, including the provisions outlined in TDMC 8.02.100 below) and its operator shall be required to apply for a new license to continue using the real property as a short-term rental consistent with this Chapter.
- D. Lottery System. By November 29 (or the next business day if November 29 falls on a day the City is closed) and if additional licenses are available as established in TDMC 8.02.030(B) (after accounting for all license renewals), the City will select new licenses on a lottery basis consistent with the Department's administrative policy. Once an applicant is selected from the lottery list, that applicant will have 15 days to submit all applicable fees and information or forfeit their place on the lottery list, in which case a new applicant will be selected.
- E. Vicinity Requirements.
 - 1. *Residential Zones*. Except as provided in TDMC 8.02.100(B), no short-term rental may be located within 300 feet from any other existing and licensed short-term rental within the Low Density Residential (RL), Medium Density Residential (RM), or High

Density Residential (RH) zoning districts.

- 2. *Nonresidential Zones*. Except as provided in TDMC 8.02.100(B), no short-term rental may be located within 100 feet from any other existing and licensed short-term rental within the Central Business Commercial (CBC), General Commercial (CG), or Recreation Commercial (CR) zoning districts.
- 3. *Measurements*. For purposes of this section, distance is measured consistent with the Department's property notification process for land use and development applications.

8.02.040. General Requirements.

The following general requirements shall apply to all short-term rentals:

- A. <u>License</u>. A license shall be obtained by the operator prior to any transient rental of the property.
- B. Signs.
 - 1. *Residential Zones*. Signage shall be limited to one (1) four square foot flush sign affixed to the primary building. No off-premises signs are permitted.
 - 2. *Nonresidential Zones*. All signage normally allowed by the zone district in which the short-term rental is located shall be allowed.
- C. Length of Stay. The length of stay for guests is limited to 30 consecutive days.
- D. <u>Transient Lodging Tax</u>. Each facility shall be subject to payment of the City's transient lodging tax consistent with the provisions of TDMC Chapter 8.04. As part of the license renewal process, the operator must provide the Department proof of currency with that property's transient lodging tax obligations. Failure to submit proof of past payment shall result in the denial of the current license; however, an operator may apply for re-licensing upon proof of such payment without incurring an additional license fee.
- E. <u>Health and Safety</u>.
 - 1. *Operator's Responsibilities*. It is the operator's responsibility to ensure the facility remains in compliance with this Chapter and all other provisions of The Dalles Municipal Code, with Oregon State Health, Safety, Building, and Fire Codes, and all applicable requirements of the Oregon Revised Statutes.
 - 2. *Safety*. Prior to the issuance of a license, a completed safety checklist as described by Department administrative policy shall be required.

8.02.050. License Requirements.

Short-term rental licenses shall be issued when the following provisions have been met:

- A. <u>Dwelling Unit</u>. The facility is a dwelling unit (as defined by TDMC 10.2.030).
- B. <u>No Modifications</u>. The structure containing the facility retains the existing characteristics of

the dwelling unit. No modifications to the structure will be permitted for the benefit of the accommodation's use except those modifications deemed necessary to accommodate current Americans with Disabilities Act requirements. The lot must be landscaped and maintained consistent with the standards imposed on the underlying zoning district by TDMC Title 10.

- C. <u>Screening</u>. The operator must take reasonable precautions to mitigate impacts to the surrounding neighborhood. All short-term rentals with shared yards, common areas, or yards abutting unscreened neighboring yards in the rear or side yards of the property must install or maintain privacy screening pursuant to TDMC 10.6.010.050. This requirement may be waived upon written approval of all adjoining property owners.
- D. <u>Parking</u>. For all short-term rentals, the residential off-street parking requirements of TDMC 10.7.060.010 must be met where the facility is also a primary residence. Except as provided in TDMC 8.02.100(B), all short-term rentals must provide at least one off-street parking space for each guest room.
 - 1. *Historic Resource Exemption.* Properties listed as a historic resource (whether locally, statewide, or federally) or properties eligible for historic designation per TDMC Chapter 11.12 may be granted an exemption from guest room parking requirements if the operator submits a historic resource parking exemption request and documentation confirming the historic significance of the property to the Department at the time of licensing. The Department will verify historic significance with the City's Historic Landmarks Coordinator. All properties not currently designated as an historic resource may be eligible for landmark designation following approval by the Historic Landmarks Commission pursuant to TDMC Chapter 11.12.
- E. <u>Contact Information</u>. All operators must provide the Department with current contact information. The contact person must be available to be contacted by a City representative within 1 hour. Licensees shall notify the Department and submit appropriate documentation 10 calendar days prior to any change in operator, whether it be a permanent or temporary change.
- F. <u>Nuisance Mitigation</u>. All short-term rentals must comply with the provisions of The Dalles Municipal Code regulating and restricting noise, smoke, dust, litter, and odor.
- G. <u>Solid Waste</u>. Weekly solid waste disposal is required and the operator must provide the Department with proof of garbage service.
- H. <u>Special Events</u>. No "special events" shall be conducted at any short-term rental located within the Low Density Residential, Medium Density Residential, or High Density Residential zoning districts during periods of transient rental. "Special events" include, but are not limited to, weddings and wedding receptions, corporate events, commercial functions, and other gatherings that may require separate permits.
- I. <u>Maximum Occupancy</u>. Maximum occupancy is two persons per bedroom or two persons per studio.
- J. <u>Mandatory Posting</u>. All short-term rentals must prominently display the approved City license near the front door. The approved City license must include: the license number, license year, operator contact information, maximum occupancy limit, and contact details for

the City's Code Enforcement Officer.

8.02.060. Food Services.

All short-term rentals proposing food services must obtain a food service license from the Oregon Department of Human Services and provide a copy of such license to the Department. Operators are encouraged to contact the North Central Public Health District for additional information on requirements for obtaining a food service license.

8.02.070. Review Procedures.

All operators shall provide the Department with the following information at the time of application submission or renewal:

- A. <u>Completed Application</u>. License applications shall be prepared by the Department and be available on the Department's page of the City's website.
- B. <u>Site Plan/Floor Plan</u>. A site plan and floor plan (drawn to scale) indicating the location and number of guest rooms, dimensions of guest rooms (width, length, height), location of guest entrances and exits, and location of all off-street vehicle parking spaces.
- C. <u>Checklist</u>. A completed safety checklist as described by Department administrative policy.
- D. <u>Transient Lodging Taxes</u>. For new licenses only, a completed transient lodging tax registration form as described by TDMC 8.04.070. For license renewals, proof of the property's currency with all outstanding TDMC Chapter 8.04 obligations.
- E. Solid Waste. Proof of weekly garbage service.
- F. Food Service License. Proof of a current approved food service license (if applicable).
- G. <u>Screening</u>. Completed privacy screening exemption form, signed by all adjoining property owners (if applicable).
- H. <u>Historic Parking Exemption</u>. Historic resource parking exemption request (if applicable).
- I. Fees. Submission of all required license fees as described in TDMC 8.02.080.

Upon submission of a completed application and associated materials, the Department shall make a determination concerning issuance of the license within 30 days.

8.02.080. Fees.

All short-term rental licensing fees shall be adopted by resolution of the Council. Annual licensing or renewal fees are based on a per guest room basis; provided, however, fees for studios are based on a one guest room basis. For all short-term rentals offering four or more guest rooms, the operator will be charged a "whole house rental" fee. Whole house rental fees will be calculated at, and not to exceed, the cost of four guest rooms.

8.02.090. Public Notice.

Within 10 days after the receipt of a complete initial application, or any change in operator, the City shall provide notice to all property owners within 500 feet of all proposed short-rentals located within the RL, RM, and RH zonings districts, and within 100 feet of all short-term rentals located within the CBC, CG, and CR zoning districts. For purposes of this section, distance is measured consistent with the Department's property notification process for land use and development applications. The list of affected property owners shall be compiled from the most recent property tax assessment roll. Information on the notice shall include the following: operator contact information; license number; number of guest rooms; maximum guest occupancy; and contact information for the City's Code Enforcement Division. The purpose of this notice is to allow adjacent property owners and residents to contact the authorized operator to report and request resolution of problems associated with the operation of the short-term rental. If the authorized operator's contact information changes during the license period, the new information must be mailed or distributed again.

8.02.100. Existing Nonconforming Short-Term Rentals.

- A. <u>Bed and Breakfast and Vacation Rental Permit</u>. Any short-term rental with a previously approved bed and breakfast and vacation rental permit operating within the five-year timeline established at the time of initial land use approval may continue their use as a short-term rental until the expiration date established with the associated bed and breakfast and vacation rental permit. Upon that expiration, the operator may only operate a short-term rental with a valid approved license issued pursuant to the provisions of this Chapter.
- B. <u>Existing Short-Term Rental Licenses</u>. Any existing short-term rental operating with a current and approved short-term rental license prior to January 9, 2025, is exempt from the provisions of this Chapter's vicinity requirement (TDMC 8.02.030(E)) and parking requirements (TDMC 8.02.050(D)). However, in all cases where the facility is also a primary residence, the residential off-street parking standards of TDMC 10.7.060.010 are required.
- C. <u>New Application Required</u>. Any lapse in short-term rental licensure or any operational ban of more than one calendar year shall result in the loss of all nonconforming status for any license and a new application and license shall be required to continue operation as a short-term rental.

8.02.110. Complaints Regarding Operation.

A complaint concerning the operational conduct of a short-term rental shall be submitted in writing or by email to the City's Code Enforcement Division, or submitted through the appropriate portal on the City's Police Department website. All complaints must clearly state the nature of the objection(s) to the facility. The City encourages a comprehensive account of all objection(s), which may include photos, videos, and correspondence with the Operator to determine the extent of all alleged violations. Upon receipt of a complaint, the complaint shall be investigated by the Codes Enforcement Officer to determine if any violations have occurred. If the complaint is determined to be meritorious, the Codes Enforcement Officer shall refer the

matter to the City Attorney, which will result in the filing of a complaint in the municipal court. For all matters of operations posing an immediate threat to public safety, complaints should be directed to 9-1-1 or the City's Police Department.

8.02.120. Violations.

- A. <u>Violations</u>. Violation of any of the provisions of this Chapter is a violation punishable by a fine not to exceed the sum of \$250.00 for each violation thereof. Each day's violations of a provision of this Chapter shall constitute a separate offense.
- B. <u>Operation Without License</u>. If the Director becomes aware of a short-term rental operating without a current license, the Director or designee shall notify the operator or real property owner of their noncompliance with this Chapter's provisions and provide them 15 days to contact the Department to commence the license application process. The operator's failure to contact the Department within that 15-day timeline shall result in an additional late fee imposed on their application at the time of submittal and may also result in a temporary ban on short-term rental operations at that facility for up to one calendar year.

8.02.130. Revocation.

- A. <u>Revocation</u>. A license, once issued, may be revoked upon the following grounds:
 - 1. *Violation*. Evidence establishing the property's violation of any provision of The Dalles Municipal Code, including violations of this Chapter;
 - 2. *Health and Safety*. The operation of the short-term rental facility in a manner the Director or the City's Police Chief determines presents a danger to the public health, safety, and general welfare;
 - 3. *Fraud*. Fraud, misrepresentation, or incorrect statements contained in the license application, the conduct of the licensed accommodation, or with respect to any return remitted or failed to be remitted pursuant to TDMC Chapter 8.04;
 - 4. *Unavailability*. Absence or unavailability by operator for 24-hour contact with the City as described in TDMC 8.02.050(B);
 - 5. *Transient Lodging Tax Obligation*. Failure to register as an operator pursuant to TDMC 8.04.070 and pay any associated obligations imposed by TDMC Chapter 8.04; or
 - 6. *Multiple Violations*. The occurrence of three or more violation convictions within a 12-month period resulting in fines pursuant to TDMC 8.02.120.
- B. <u>Notice of Revocation</u>. If the City orders the revocation of an issued license on grounds pursuant to this subsection, notice of revocation shall be delivered to the licensee or its agent setting forth in writing the grounds thereof by the City Attorney. Notice shall be delivered either personally or by certified mail, return receipt requested, to the current address shown on the City's records. The notice shall advise the operator of their right to file an appeal.
- C. Appeal to City Council. Any licensee aggrieved by the City's revocation decision may appeal

to the Council by filing a notice of appeal with the City Attorney within 10 calendar days of the delivery of the City's decision. The City Attorney shall transmit the notice of appeal, together with the file of said appealed matter, to the Council, which shall fix a time and place for hearing such appeal. The Council shall give the appellant not less than 10 calendar days' written notice of the time and place of hearing of said appealed matter. The appeal shall be treated as a contested case, and the Council shall have the authority to determine the applicable issues to be considered and what testimony and evidence is relevant. The Council's decision shall be final when reduced to writing.

Section 3 This Ordinance shall be effective 30 days after adoption.

PASSED AND ADOPTED THIS 9TH DAY OF DECEMBER, 2024,

Councilors:	
Councilors:	
Councilors:	
Councilors:	
	Councilors: Councilors: Councilors: Councilors:

AND APPROVED BY THE MAYOR THIS 9TH DAY OF DECEMBER, 2024.

Richard A. Mays, Mayor

ATTEST:

Amie Ell, City Clerk

EXHIBIT 1 to GENERAL ORDINANCE NO. 24-1707B

The Dalles Municipal Code Chapter 8.02 SHORT-TERM RENTAL LICENSE

8.02.010. Purpose.

This Article describes standardsChapter is intended to authorize, regulate, and requirements governinggovern the use-transient rental of all permitted residential dwelling units properties for short-term rental use or rooms on property within the <u>City of The</u> Dalles-<u>City Limits</u>. These standards and requirements shall be in addition to other <u>Cityrequirements of The Dalles</u> <u>Municipal</u> Code <u>requirements(including TDMC Chapter 8.04's regulations concerning the City's</u> <u>transient lodging tax)</u> and to Federal all other applicable Oregon and <u>Statefederal</u> laws and regulations.

8.02.020. Definitions.

As used in this Chapter, except where the context indicates otherwise, the following terms shall mean:

A. "Bedroom" means any habitable space in a dwelling unit, excluding kitchens and living rooms, intended for sleeping, and at least 100 square feet in size, with a ceiling height of at least 7 feet. It must be separated from other rooms by a door, accessible to a bathroom without passing through another bedroom, and cannot be the only access to other bedrooms or habitable spaces;

A.B. "Council" means the City Council of the City of The Dalles;

C. ""City" means the City of The Dalles, a municipal corporation of the State of Oregon.

B.D. "Department" means the <u>City's</u> Community Development Department of the <u>City of The Dalles</u>;

C.E. <u>"</u>"Director" means the <u>City's</u> Community Development Director of the City of The Dalles;

- D.F. <u>"</u>"License"" means <u>a license to operate a short-term rental</u> <u>license issued by the</u> <u>City;</u>
- <u>G.</u> "Person" means any individual, firm, partnership, joint venture, limited liability company, corporation, limited liability partnership, association, host, social club, fraternal organization, fraternity, sorority, public or private dormitory, joint stock company, estate, trust, business trust, receiver, trustee, syndicate, or any other group or combination acting as a unit;
- E.<u>H.</u> "Operator" means the person who is the proprietor of a short-term rental in any capacity;

Page 1 of 9

- F.I." Short-term rental" means all accommodations with duration of 30 consecutive days or less;
- J. <u>"Studio" means any self-contained habitable space, at least 220 square feet in size with a</u> <u>minimum ceiling height of 7 feet, that combines living, sleeping, and kitchen areas into a</u> <u>single open space, with a separate bathroom;</u>
- G.K. "TDMC"" means The Dalles Municipal Code; and
- H.L. <u>"</u>"Transient" means the renting of a dwelling unit or rooms for compensation on less than a month-to-month basis.

8.02.030. Licenses.

- A. All-Annual License Required. Prior to using any dwelling unit as a short-term rentals shall be required to obtain a rental, the operator of any short-term rental must possess an approved license from the department prior to operation. for each short-term rental they operate. Licenses are valid for one the calendar year, beginning January 1 and ending December 31-of each year. Partial year licensing or prorated licensing fees will not be granted at the time of licensing or renewing a license renewal. Licenses shall be nontransferable. Upon transfer of the real property the where the short-term rental is located or transfer of the business owning and operating the short-term rental, any existing license held by a transferring operator becomes void- and the new operator(s) must apply for a new license before continuing to operate the short-term rental.
- B. Maximum License Cap. The total number of licenses allowed each year shall not exceed one (1%) percent of the City's total housing unit inventory (as provided in the City's current Housing Needs Analysis) when rounded down to the next whole number.
- C. Annual Renewal Process. For license renewals each year, priority will be given to existing licenses seeking renewal so long as the renewal application is delivered to the Department by November 29 (or the next business day if November 29 falls on a day the City is closed). The Department will review each application to ensure each operator and the associated real property is in good-standing with the provisions of this and all other Chapters of The Dalles Municipal Code. All existing violations must be resolved prior to the issuance of a license or renewal of an existing license. If violations are not resolved by January 2, the existing short-term rental's license will be deemed void (and the short-term rental shall lose its status as an existing operation, including the provisions outlined in TDMC 8.02.100 below) and its operator shall be required to apply for a new license to continue using the real property as a short-term rental consistent with this Chapter.
- D. Lottery System. By November 29 (or the next business day if November 29 falls on a day the City is closed) and if additional licenses are available as established in TDMC 8.02.030(B) (after accounting for all license renewals), the City will select new licenses on a lottery basis consistent with the Department's administrative policy. Once an applicant is selected from the lottery list, that applicant will have 15 days to submit all applicable fees and information or forfeit their place on the lottery list, in which case a new applicant will be selected.

E. Vicinity Requirements.

- 1. *Residential Zones.* Except as provided in TDMC 8.02.100(B), no short-term rental may be located within 300 feet from any other existing and licensed short-term rental within the Low Density Residential (RL), Medium Density Residential (RM), or High Density Residential (RH) zoning districts.
- 2. Nonresidential Zones. Except as provided in TDMC 8.02.100(B), no short-term rental may be located within 100 feet from any other existing and licensed short-term rental within the Central Business Commercial (CBC), General Commercial (CG), or Recreation Commercial (CR) zoning districts.
- **1.**<u>3.</u><u>Measurements</u>. For purposes of this section, distance is measured consistent with the Department's property notification process for land use and development applications.

8.02.040. General Requirements.

The following general requirements shall apply to all short-term rentals:

- A. <u>License</u>. <u>A short term rental</u> license shall be obtained by the operator prior to any transient rental of the property.
- B. Signs.
 - Residential Zones. Signage shall be limited to one (1) four square foot <u>flush</u> sign. The sign may be a wall sign on <u>affixed to</u> the primary building, or a freestanding sign limited to four feet in height (top of sign). If freestanding, the sign area only may be lighted, not to exceed 40 watts. No off-premises signs are permitted.
 - 2. *Nonresidential Zones*. All signage normally allowed by the zone district in which the short-term rental is located shall be allowed.
- C. Length of Stay. The length of stay for guests is limited to 30 consecutive days.
- D. <u>RoomTransient Lodging Tax</u>. Each facility shall be subject to payment of the <u>City's</u> transient roomlodging tax <u>perconsistent with</u> the provisions of <u>TDMC</u> Chapter 8.04. <u>Prior to As part of</u> the <u>annuallicense</u> renewal <u>of a license process</u>, the operator must provide the Department proof of <u>the past year's paidcurrency with that property's</u> transient <u>roomlodging tax obligations</u>. Failure to submit proof of past payment <u>willshall</u> result in the denial of the current license; however, an operator <u>canmay</u> apply for re-licensing upon proof of <u>such</u> payment <u>of any</u> <u>delinquent transient room taxes</u> without incurring an additional license fee.
- E. Health and Safety.
 - Operator's Operator's Responsibilities. It is the operator's operator's responsibility to
 ensure that the facility remains in compliance with this Chapter and all other provisions
 of this and other City Codes The Dalles Municipal Code, with Oregon State Health,
 Safety, Building, and Fire Codes, and Tourist Facilities all applicable requirements inof
 the Oregon Revised Statutes.

2. *Safety*. Prior to the issuance of a license, a completed safety checklist <u>as described by</u> <u>Department administrative policy</u> shall be required.

8.02.050. License Requirements.

Short-term rental licenses shall be issued when the following provisions have been met:

- A. <u>Dwelling Unit</u>. The facility is a dwelling unit (as defined by TDMC, Chapter 10.2 <u>Definitions..030)</u>.
- B. <u>No Modifications.</u> The structure containing the facility retains the existing characteristics of the dwelling unit. No modifications to the structure will be permitted for the benefit of the accommodationaccommodation's use except those modifications deemed necessary to accommodate current Americans with Disabilities Act requirements. The lot must be landscaped and maintained as a permanent residence with landscaped features similar to the surrounding area consistent with the standards imposed on the underlying zoning district by TDMC Title 10.
- C. <u>Screening</u>. The operator must take <u>reasonable</u> precautions to mitigate impacts to the surrounding neighborhood. All <u>unitsshort-term rentals</u> with shared yards-or, common areas, <u>or yards abutting unscreened neighboring yards</u> in the rear or side yards of the property must install or maintain privacy screening pursuant to TDMC, Section 10.6.010.050. This requirement may be waived upon written approval of all adjoining property owners.
- D. Parking. For all short-term rentals, the residential off-street parking requirements of TDMC Section-10.7.060.010 must be met where the facility is also a primary residence. Except as provided in TDMC 8.02.100(B), all short-term rentals offering more than one guest room must provide at least one off-street parking space for each additional guest room.
 - 1. <u>Historic Resource Exemption</u>. Properties listed as a historic resource, (whether locally, statewide, or federally,) or properties eligible for historic designation per TDMC, Chapter 11.12 Historic Resources-may be granted an exemption from guest room parking requirements, if the operator must submits a historic resource parking exemption request, along with and documentation regarding confirming the historic significance of the property, to the Department at the time of licensing. The Department will verify historic significance with the City'sCity's Historic Landmarks Coordinator. All properties not currently designated as an historic resource may be eligible for landmark designation following approval by the Historic Landmarks Commission pursuant to TDMC, Chapter 11.12-Historic Resources.
- **D.**<u>E. Contact Information.</u> All operators must provide the Department with current contact information. The contact person must be available to be contacted by a City representative within 24 hours 1 hour. Licensees shall notify the Department and submit appropriate documentation 10 calendar days prior to any change in operator, whether it be a permanent or temporary change.
- E.F. Nuisance Mitigation. All short-term rentals must comply with City Codes regarding the provisions of The Dalles Municipal Code regulating and restricting noise, smoke, dust, litter,

and odor.

- F.G. Solid Waste. Weekly solid waste disposal is required, and the operator must provide the Department with proof of garbage service.
- G.<u>H. Special Events.</u> No """ special events"" shall be conducted at any short-term rental <u>located</u> within the Low Density Residential, Medium Density Residential, or High Density <u>Residential zoning districts</u> during periods of transient rental. ""Special events" include, but are not limited to, weddings and wedding receptions, corporate events, commercial functions, and other gatherings that may require separate permits.
 - H. The maximum number of occupants per facility shall be determined by the International Code Council. The International Code Council is a member based association, dedicated to developing model codes and standards to be used by U.S. cities and global markets in the design and building process to construct safe, sustainable, affordable, and resilient structures. The maximum number of occupants shall be posted inside near the front door in a conspicuous place. Maximum occupancy is two persons per bedroom.
- I. Maximum Occupancy. Maximum occupancy is two persons per bedroom or two persons per studio.
- J.Mandatory Posting. All short-term rentals must prominently display the approved City
license near the front door. The approved City license must include: the license number,
license year, operator contact information, maximum occupancy limit, and contact details for
the City's Code Enforcement Officer.

8.02.060. Food Services.

This Article pertains to all short-term rentals offering food services. All short-term rentals proposing food services must obtain a food service license with from the Oregon Department of Human Services. Operator is and provide a copy of such license to the Department. Operators are encouraged to contact the North Central Public Health District for additional information on the requirements of for obtaining a food service license.

8.02.070. Review Procedures.

Operator must<u>All operators shall</u> provide the Department with the following information at the time of application submission or renewal:

- A. <u>Completed Application</u>.
- B. Proof of Residency. For verification of primary residency, at least two of <u>License</u> applications shall be prepared by the following items must be provided:

1. A copy of Department and be available on the voter registration;

- 2. A copy of an Oregon Driver's License or Identification Card; or
- C.<u>A.</u> <u>A copy of Federal income tax return from the previous tax year (Department's page 1, only financial data should be redacted).of the City's website.</u>

- D.B. Site Plan/Floor Plan. A site plan and floor plan (drawn to scale) indicating the location and number of guest rooms, <u>dimensions of guest rooms (width, length, height)</u>, location of guest entrances and exits, and location of all off-street vehicle parking spaces.
- E.C. Checklist. A completed safety checklist as described by Department administrative policy.
- F.D. Transient Lodging Taxes. For new licenses only, a completed transient roomlodging tax registration form as described by TDMC 8.04.070. For license renewals, proof of the property's currency with all outstanding TDMC Chapter 8.04 obligations.
- G.E. Solid Waste. Proof of weekly garbage service.
- H.<u>F. Food Service License.</u> Proof of an<u>a current</u> approved food service license (if applicable).
- **I.G.** Screening. Completed privacy screening exemption form, signed by all adjoining property owners (if applicable).
- J.H. Historic Parking Exemption. Historic resource parking exemption request (if applicable).

K. Fees.

I. Fees. Submission of all required license fees as described in TDMC 8.02.080.

Upon submission of a completed application and associated materials, the Department shall make a determination concerning issuance of the license within 30 days.

8.02.080. Fees.

All short-term rental licensing fees shall be adopted by resolution of the Council. Annual licensing or renewal fees are based on a per guest room basis. For all short-term rentals offering four or more guest rooms, the operator will be charged a "-"whole house rental" fee. Whole house rental fees will be calculated at, and not to exceed, the cost of four guest rooms.

8.02.090. Public Notice.

Within 10 days after the receipt of a complete initial application, or any change in operator, the City shall provide notice to all property owners within 100 feet of the subject property.500 feet of all proposed short-rentals located within the RL, RM, and RH zonings districts, and within 100 feet of all short-term rentals located within the CBC, CG, and CR zoning districts. For purposes of this section, distance is measured consistent with the Department's property notification process for land use and development applications. The list of affected property owners shall be compiled from the most recent property tax assessment roll. Information on the notice shall include the following: operator contact information; license number; number of guest rooms;

maximum guest occupancy; and contact information for the <u>City'sCity's</u> Code Enforcement Division. The purpose of this notice is to allow adjacent property owners and residents to contact the authorized operator to report and request resolution of problems associated with the operation of the short-term rental. If the authorized <u>operator'soperator's</u> contact information changes during the license period, the new information must be mailed or distributed again.

8.02.100. Existing Nonconforming Short-Term Rentals.

- A. For the purposes of this section, an existing nonconformingBed and Breakfast and Vacation Rental Permit. Any short-term rental-is a dwelling with a previously approved bed and breakfast and vacation rental permit operating within the five-year timeline established at the time of initial land use approval, pursuant to repealed Article 6.040. Existing nonconforming short-term rentals may continue their use as a short-term rental until the expiration date established with the associated bed and breakfast and vacation rental permit. Upon that expiration, the operator may only operate a short-term rental with a valid approved short-term rental License license issued pursuant to the provisions of this Chapter.
- B. Existing Short-Term Rental Licenses. Any existing short-term rental operating with a current and approved short-term rental license prior to January 9, 2025, is exempt from the provisions of this Chapter's vicinity requirement (TDMC 8.02.030(E)) and parking requirements (TDMC 8.02.050(D)). However, in all cases where the facility is also a primary residence, the residential off-street parking standards of TDMC 10.7.060.010 are required.
- C. New Application Required. Any lapse in short-term rental licensure or any operational ban of more than one calendar year shall result in the loss of all nonconforming status for any license and a new application and license shall be required to continue operation as a short-term rental.

8.02.110. Complaints Regarding Operation.

A complaint concerning the operational conduct of a short-term rental shall be <u>submitted</u> in <u>written form and writing or by email to the City's Code Enforcement Division, or submitted</u> <u>through the appropriate portal on the City's Police Department website. All complaints must</u> clearly state the nature of the objection(s) to the facility. All complaints must be submitted to <u>the City's Code Enforcement Division. The City encourages a comprehensive account of all</u> <u>objection(s), which may include photos, videos, and correspondence with the Operator to</u> <u>determine the extent of all alleged violations</u>. Upon receipt of a <u>written</u> complaint, the complaint shall be investigated by the Codes Enforcement Officer to determine if any violations have occurred. If the complaint is determined to be meritorious, the Codes Enforcement Officer shall refer the matter to the City Attorney, which will result in the filing of a complaint in the municipal court. For all matters of operations posing an immediate threat to public safety, complaints should be directed to 9-1-1 or the City's Police Department.

8.02.120. Violations.

A. <u>Violations</u>. Violation of any of the provisions of this Chapter is an infraction, a violation

punishable by a fine not to exceed the sum of \$250.00 for each violation thereof. Each day's day's violations of a provision of this Chapter shall constitute a separate offense.

B. Operation Without License. If the Director becomes aware of a short-term rental operating without a current license, the Director or designee shall notify the operator or real property owner of their noncompliance with this Chapter's provisions and provide them 15 days to contact the Department to commence the license application process. The operator's failure to contact the Department within that 15-day timeline shall result in an additional late fee imposed on their application at the time of submittal and may also result in a temporary ban on short-term rental operations at that facility for up to one calendar year.

8.02.130. Revocation.

- A. <u>Revocation</u>. A license, once issued, may be revoked upon the following grounds:
 - 1. <u>Violation</u>. Evidence establishing athe property's violation of any municipal ordinanceprovision of The Dalles Municipal Code, including City ordinances which define public nuisances or general offenses, or a violation of State criminal law;
 - 1. Violation of any of the requirements violations of this Chapter;
 - 2. <u>Health and Safety</u>. The operation of the <u>businessshort-term rental facility</u> in a manner presentingthe Director or the City's Police Chief determines presents a danger to the public health, safety, and general welfare;
 - 2. <u>Fraud.</u> Fraud, misrepresentation, or incorrect statements contained in the <u>license</u> application-for, the <u>license</u>;
 - Fraud or misrepresentation in the course of conduct of the licensed accommodation, or with respect to any return remitted or failed to be remitted pursuant to TDMC Chapter 8.04;
 - 4. <u>Unavailability</u>. Absence or unavailability by operator for 24-hour contact with the City<u>; as described in TDMC 8.02.050(B);</u>
 - <u>Transient Lodging Tax Obligation</u>. Failure to register as an operator pursuant to TDMC Section-8.04.070 and pay any associated transient room taxes obligations imposed by TDMC Chapter 8.04; or
 - 6. <u>Multiple Violations</u>. The occurrence of three or more violation convictions within a 12-month period resulting in fines pursuant to <u>SectionTDMC</u> 8.02.120.
- B. <u>Notice of Revocation</u>. If the City orders the revocation of an issued license on grounds pursuant to this <u>sectionsubsection</u>, notice of revocation shall be delivered to the licensee or its agent setting forth in writing the grounds thereof by the City Attorney. Notice shall be delivered either personally or by certified mail, return receipt requested, to the current address shown on the <u>City'sCity's</u> records. The notice shall advise the operator of their right to file an appeal.
- C. Appeal to City Council. Any licensee aggrieved by the City's revocation decision may

appeal to the Council by filing a notice of appeal with the City Attorney within 10 calendar days of the delivery of the <u>City'sCity's</u> decision. The City Attorney shall transmit the notice of appeal, together with the file of said appealed matter, to the Council, which shall fix a time and place for hearing such appeal. The Council shall give the appellant not less than 10 calendar <u>days'days'</u> written notice of the time and place of hearing of said appealed matter. The appeal shall be treated as a contested case, and the Council shall have the authority to determine the applicable issues to be considered, and what testimony and evidence is relevant. The <u>Council'sCouncil's</u> decision shall be <u>final when</u> reduced to writing.

Section 3 This Ordinance shall be effective 30 days after adoption.

PASSED AND ADOPTED THIS 9TH DAY OF DECEMBER, 2024,

Voting Yes Co	ouncilors:
Voting No Co	ouncilors:
Abstaining Co	ouncilors:
Absent Co	ouncilors:

AND APPROVED BY THE MAYOR THIS 9TH DAY OF DECEMBER, 2024.

Richard A. Mays, Mayor

ATTEST:

Amie Ell, City Clerk