DISCOVERY CLEAN WATER ALLIANCE

RESOLUTION NO. 2018 - 02

A RESOLUTION OF DISCOVERY CLEAN WATER ALLIANCE, ADOPTING THE 2018 CAPITAL PLAN FOR THE DISCOVERY CLEAN WATER ALLIANCE.

WHEREAS, the Board of Directors has determined after various meetings and a public hearing that it is in the best interest of the Alliance to approve the 2018 Capital Plan as proposed; now, therefore

BE IT RESOLVED by the Board of Directors of the Discovery Clean Water Alliance that the 2018 Capital Plan attached to this Resolution is hereby approved and adopted.

ADOPTED by the Board of Directors of Discovery Clean Water Alliance at a regular meeting held on December 21, 2018.

DISCOVERY CLEAN WATER ALLIANCE

Chair, Board of Directors

Laying the foundation
for a vibrant economy
and healthy environment

JOHN MARK PETERSON
STATE OF WASHINGTON
32088
REGISTERED
PROFESSIONAL ENGINEER

12-20-2018

2018 CAPITAL PLAN

Prepared in Support of the 2019-2020 Capital Budget

Discovery Clean
Water Alliance

Core Values

1. *Ensure reliable, predictable service for all customers*
2. *Manage resources responsibly, efficiently and equitably*
3. *Protect public and environmental health*
4. *Optimize use of existing facilities*
5. *Be financially transparent*
6. *Use new technologies to achieve system efficiencies and environmental protection*
7. *Provide a fair, positive and secure work environment for utility employees*
8. *Ensure capacity to support regional land use and economic development decisions*
9. *Invest in improvements that create system-wide benefits*
10. *Make business decisions collaboratively with all partners*

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SECTION 1

Alliance Overview and Capital Plan Introduction

1.1 Alliance History and Formation

The Discovery Clean Water Alliance (Alliance) legally formed on January 4, 2013, representing the culmination of several years of evaluation to determine the optimum long-term framework for delivery of regional wastewater transmission and treatment services to the urban growth areas in the central portion of Clark County, Washington.

The overall Alliance service area represents the majority of the high-growth communities within Clark County. Residents and businesses served by the regional wastewater system value receiving reliable service at an affordable price from the Member agencies. The Alliance therefore is designed to provide a regional collaboration and decision making forum that fosters the ability for Member agencies to influence key policy determinations on how best to make needed capital investments and determine operational level-of-service, while also maintaining competitive rates and charges to the end users of the system.

Having managed the region's growth under other service delivery models prior to formation of the Alliance, the Members determined that regional decisions are best made when all stakeholders participate directly in decisions having a material impact to service levels or costs. To that end, the primary outcomes of the Alliance structure are to:

- provide a direct voice and a vote for agencies affected by regional infrastructure decisions
- align the authority to make decisions with the responsibility to pay for the resulting impacts of those decisions
- provide a forum to determine the appropriate balance between level-of-service and cost-of-service

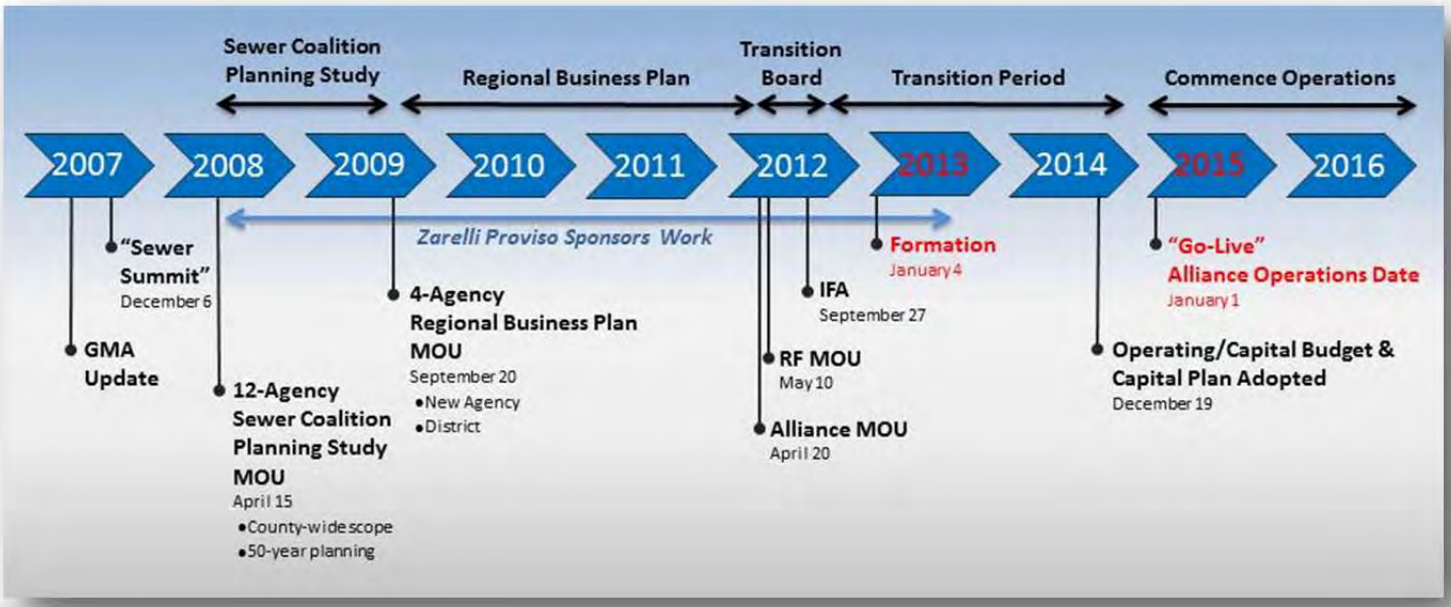
As currently established, the Alliance serves four Member agencies – the City of Battle Ground, Clark County, Clark Regional Wastewater District and the City of Ridgefield. The Members jointly own and jointly manage regional wastewater assets under Alliance ownership through an interlocal framework established under the State of Washington Joint Municipal Utility Services Act (JMUSA) (RCW 39.106).

The JMUSA statute was passed by the Washington State Legislature and signed by the Governor in 2011. The Discovery Clean Water Alliance was the second agency in the state to form under this statute, after the Cascade Water Alliance. While the Alliance is a regional wastewater transmission and treatment utility today, the statute allows for any form of municipal water-related utility service to

be provided and supports any combination of municipal partner agencies as Members. This structure ensures the flexibility to accommodate changing needs of the regional service area over time.

A summary of the transition timeline and process that led to the formation of the Alliance is provided below.

Figure 1.1 – Alliance Formation Timeline



- **<u>Sewer Summit</u>.** In September 2007, Clark County adopted an updated *20-Year Comprehensive Growth Management Plan,* addressing the future needs of the community. This planning process identified the growth potential and related infrastructure needs of several of the urban growth areas within Clark County. As a result, wastewater service providers in Clark County began to discuss the concept of regionalizing wastewater services to support a healthy environment and to provide infrastructure needed to realize the area's economic development potential. These discussions culminated in a "Sewer Summit" on December 6, 2007, where the idea of studying various regional services delivery models was first endorsed by a broad coalition of local agencies.

- **<u>Sewer Coalition Planning Study</u>.** The Sewer Summit discussions resulted in the *Sewer Coalition Planning Study*, started in 2008 and published in November 2009, with twelve local agencies. This study considered a 50-year vision for growth and infrastructure needs in a county-wide context. The study resulted in a *Memorandum of Understanding (MOU) to Develop the Structure for a Regional Wastewater Entity*. Four of the twelve agencies (today, the Members of the Alliance) agreed in the MOU to move forward to form a new regional partnership. The remaining eight coordinating agencies would continue to coordinate with, and stay informed on, the process. A legislative proviso sponsored by State Senator Joseph Zarelli was utilized to provide for this and the subsequent planning and study work.

- **Regional Business Planning.** In 2010 and 2011, the four agencies conducted a regional business planning effort to explore specific options for how a new regional partnership might be structured, what services it might provide, what assets it might own, how it might be governed and how it might be funded.

  This regional business planning effort resulted in a second MOU signed in April 2012, providing agreement-in-principle for the framework of the new partnership. Key elements of the MOU included formation of the new entity under JMUSA (RCW 39.106); use of an asset-based cost allocation model; oversight from a four-member Board of Directors composed of one elected official from each agency; and contracting key administrative and operational responsibilities to the Member agencies best suited to provide those services.

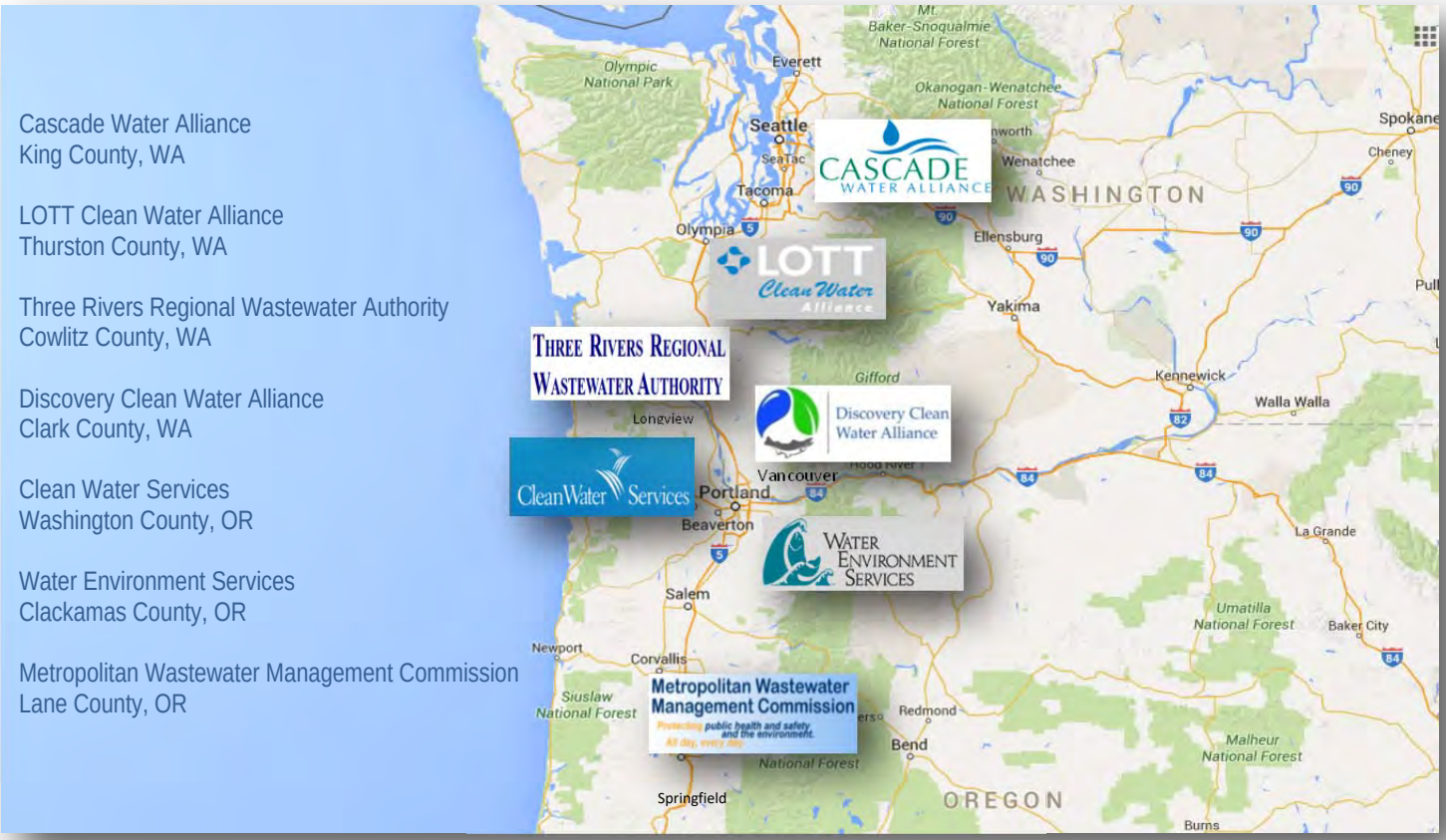
  The asset-based cost allocation model consists of three primary types of costs: (1) operational costs primarily shared by actual flow contributions from the Members; (2) capital costs related to existing facilities by capacity allocation or capacity "ownership" by the Members; and (3) capital costs related to new facilities by incremental purchase of capacity as determined by the Members.

- **Alliance Formation.** Building on the April 2012 MOU, an Interlocal Formation Agreement (IFA) was completed in September 2012, providing the necessary framework elements for the Discovery Clean Water Alliance. The IFA was registered with the Washington State Office of Secretary of State on January 4, 2013, to legally form the Alliance. The Alliance Board of

Directors then met for the first time on January 18, 2013, where a series of initial resolutions were approved to establish the basic operating framework for the new regional authority. Also approved on that date was an initial two-year operating budget to support transition activities in 2013 and 2014. The individuals serving on the Board of Directors at the first official meeting of the Alliance were: Mayor Lisa Walters - City of Battle Ground; Commissioner Tom Mielke - Clark County; Commissioner Neil Kimsey - Clark Regional Wastewater District; and Mayor Ron Onslow - City of Ridgefield. The IFA was amended and restated by resolution on August 15, 2014, to further clarify policies and procedures. The Alliance assumed full operational responsibility for the Regional Assets on January 1, 2015 (the Alliance Operations Date).

The Alliance is one of several regional water and wastewater agencies providing service to large urban areas in western Oregon and Washington. In much the same way that the boundaries of a natural watershed are different than political boundaries of cities and counties, utility systems are often most efficiently managed on a regional scale serving multiple local jurisdictions. While the corporate structures and functional arrangements vary widely, the Alliance is a peer agency in many respects with the following Pacific Northwest regional water and wastewater agencies shown below:

Figure 1.2 – Regional Utility Partnerships Located in Oregon and Washington



1.2 Alliance Name and Organizational Structure

As the Alliance was in its formative stages, it was necessary to establish a clear identity for the new agency. The name **Discovery Clean Water Alliance** was chosen after a review of possible options. Historically, the name "discovery" is tied to the Lewis and Clark expedition which traversed Clark County a little over two hundred years ago and was officially called the "Corp of Discovery". "Discovery" also was the name of the lead ship in George Vancouver's exploration of the North American west coast. This moniker offered historical significance and represented a positive future direction for the modern day explorers charting the future of utility service for Clark County.

A graphical identity was also developed to complement the new entity name. Battle Ground staff offered to coordinate design development utilizing the talents of a local graphic design student. Options were reviewed and a design incorporating a water droplet, leaf and fish graphic was selected. The logo concept was created to contain the following elements represented by the new entity:

- **water droplet** – represents clean water; the color is blue for water
- **leaf** – plants require clean water and help create oxygen, a primary element in water; the color is green for a leaf, and for the official wastewater color used in utility locate functions
- **salmon** – a fish represents the need for wildlife to have clean water, and ties into the local rivers protected by the regional wastewater system

The Alliance Board unanimously approved the logo in 2013, which has since become a recognizable representation of the regional agency. The Alliance Board also provided a Certificate of Appreciation to the Battle Ground art student responsible for the winning entry.

The Member agencies continued their collaborative efforts through the development of the Alliance organizational framework. The framework is structured to foster significant interaction among the Alliance Members in all major operational, financial and infrastructure decisions. A summary of key roles and responsibilities is provided below.

- **Board of Directors and Legal Counsel.** The Board of Directors is composed of one elected official from each of the Member agencies to form a four-person policy and oversight body. The Board then selects from among the four appointed Directors to fill positions for Chair, Vice-Chair and Secretary. The Board has selected Foster Pepper to serve as legal counsel to the Alliance. Board responsibilities and functions are further depicted in the IFA and in a separately adopted resolution of Board Rules and Operating Procedures.

  A "House" and Senate" voting structure mandates a high level of regional consensus for "Significant Decisions" of the Alliance Board. This structure incorporates two voting

mechanisms: (1) majority voting (Directors only) and (2) dual-majority voting (Directors and Treatment Facilities Allocated Capacity). Routine votes per IFA Section IV.F.4 require only a majority vote of Directors present. Significant Decisions, on the other hand, require "dual majority" approval by both the number of Directors present (the "Senate test") and the Directors representing the volume of Treatment Facilities Allocated Capacity (the "House test").

Practically speaking under the current framework, regional consensus among 75% (3 out of 4) is required to form a simple majority for routine votes. 75% is also required to form a dual-majority for Significant Decisions, with the additional requirement that the agency representing the largest customer base (today, the District) must be one of the three approving members (stated another way, the District's vote is required to meet the "House" portion of the test).

The following decisions related to capital planning for Regional Assets are classified as "Significant Decisions" in the IFA and require a Dual Majority Vote: the borrowing of money or issuance of Bonds, a change in the ownership of Regional Assets and the adoption of a Capital Budget.

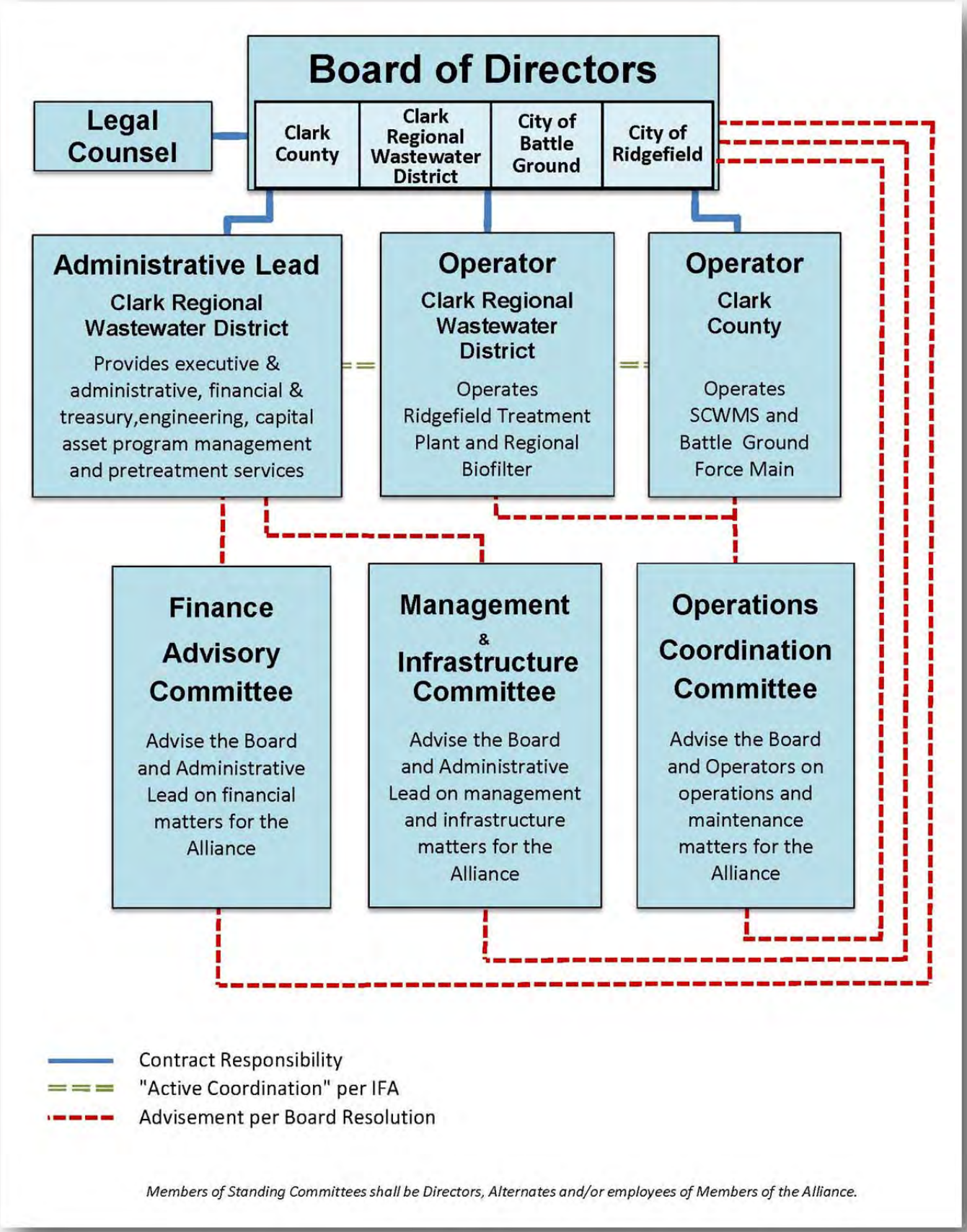
The following decisions related to capital planning for Regional Assets are classified as "Significant Decisions" in the IFA and require a Dual Super-Majority Vote: the adoption of a Capital Plan (including the allocation of costs pursuant to any such Capital Plan) and a change in Allocated Capacity.

- **Member Service Providers.** The Alliance structure relies on contracts with its Members to deliver the majority of services. Clark County and the Clark Regional Wastewater District (District) are contracted with the Alliance to provide operational services for all Alliance Regional Assets. The District is separately contracted with the Alliance as Administrative Lead to provide executive, administrative, financial, treasury, engineering, capital program management and pretreatment services.

- **Standing Committees.** The Alliance has formed three Standing Committees to provide forums for vetting all Alliance issues. The Finance Advisory Committee (FAC) provides for Member input into financial matters for the Alliance. The Management and Infrastructure Committee (MIC) solicits guidance from the Members on management and infrastructure matters for the Alliance. An Operations Coordination Committee (OCC) allows for Member interaction and coordination on operations and maintenance matters for the Alliance.

The interaction among these groups is illustrated in Figure 1.3, Alliance Contractual and Communication Flow Chart. The Standing Committees advise both the Member service providers and the Board of Directors. The Member service providers actively coordinate among themselves, receive input from the Standing Committees and have direct contractual responsibility to the Board of Directors. Legal Counsel works directly for the Board, also through a contractual relationship.

Figure 1.3 – Alliance Contractual and Communication Flow Chart



1.3 Alliance Core Values/Capital Planning Guiding Principles

As a regional wastewater transmission and treatment utility serving nearly 100,000 citizens today and with the potential to serve a population of 250,000 or more over time, it is critical that the Alliance decision making is aligned with the needs and expectations of the community it serves. In order to provide an appropriate context for Alliance decision making, community-supported core values were determined during the regional business planning process through a statistically valid telephone survey of residents in the Alliance service area.

The results of the survey are presented in the following table of the top ten core values along with the percent of residents indicating that they "agree" or "strongly agree" that these values should guide the formation and operation of the Alliance.

Table 1.1 – Alliance Core Values

Core Values	% Who Agree or Strongly Agree
1. Ensure reliable, predictable service for all customers	89%
2. Manage financial resources in a responsible, efficient, equitable manner	86%
3. Operate utility to protect public and environmental health and safety	82%
4. Optimize the use of existing facilities	80%
5. Maintain financial transparency	79%
6. Use new technology to achieve system efficiency, environmental protection	77%
7. Provide fair, positive, secure work environment for future utility employees	71%
8. Ensure capacity to support regional land use, economic development	71%
9. Invest in capital improvements that create system-wide benefits	67%
10. Make business management decisions collaboratively with all partners	64%

The Alliance core values are applied to the Capital Plan work through the following capital planning guiding principles:

Table 1.2 – Alliance Capital Planning Guiding Principles

Guiding Principles
1. Existing Regional Assets will be maintained in good operating condition through an intentional asset management program.
2. New Regional Assets will be planned and constructed ahead of demand to provide adequate capacity for growth in Member service areas, to comply with emerging regulatory requirements and/or to deliver new levels of service where appropriate.
3. Long-range financial planning to support the capital programs will be provided to the Members for incorporation into local (retail) rate and charge planning.
4. Life cycle cost comparisons, considering both capital and operating costs, will be utilized in alternative comparisons for significant projects. Alternatives will also consider non-cost criteria topics such as regulatory compatibility, public and environmental health outcomes, regional (system-wide) benefits and operational characteristics.
5. Decisions related to the Capital Plan will be fully vetted with the Standing Committees, the Board of Directors and affected stakeholders.

1.4 Purpose and Scope of Capital Plan

The Capital Plan presents the plan for the Alliance to meet its infrastructure obligations to its Members for regional wastewater transmission and treatment services. These services are delivered by maintaining existing Regional Assets and through construction of new Regional Assets. In terms of existing Regional Assets, the Capital Plan will depict the repair and replacement (asset management) work needed to keep the assets in good working order. With respect to new Regional Assets, the Capital Plan will establish the infrastructure investments needed to address system capacity, new regulatory obligations or new level-of-service commitments.

The Capital Plan will present all known infrastructure project needs for the Alliance. These projects will be presented for both near-term and long-term. The specific definition of the term **Capital Plan** from the IFA is provided below, along with other relevant IFA definitions pertaining to capital planning work.

Definitions:

Alliance Operations Date – means the date on which the Board has determined that (1) Regional Assets have been transferred to or for the benefit of the Alliance, (2) outstanding wastewater obligations have been retired, defeased, or transferred as necessary, (3) the Alliance is undertaking responsibility for providing service under this Agreement, (4) the Members receiving service from the Alliance become responsible for paying Regional Service Charges. The Alliance Operations Date is January 1, 2015.

Allocated Capacity –The Maximum Monthly Flow of wastewater that a Member may discharge into the Regional Assets, as described in Exhibit B of the IFA and as supplemented or adjusted in a Capital Plan.

Bonds –Bonds, notes or other evidences of indebtedness issued by the Alliance or by another entity (e.g., by a Member) on behalf of the Alliance.

Capital Plan – One or more long-range capital improvement plans for the addition, replacement or improvement of Regional Assets, including an identification of Regional Assets and the allocation of transmission and treatment capacity as they may be supplemented or adjusted from the initial Regional Assets and allocations described in Exhibit B of the IFA.

Capital Budget – One or more capital budgets adopted in consistence with Section VI.A. of the IFA: A periodic Capital Budget will be prepared by Alliance staff or consultants (or, if there is a separate Administrative Lead, then by the staff of or consultants selected by that entity). Similarly, prior to Board action, comprehensive Capital Plans, including a renewal and replacement fund mechanism, will be periodically prepared by Alliance staff (or, if there is an Administrative Lead, by the staff of that entity in cooperation with staff of any Operator).

Dual Majority Vote – A Board vote requiring the affirmative vote of both (1) the Directors representing more than 50% of the Members, and (2) the Directors representing the Members comprising more than 50% of the Treatment Facilities Allocated Capacity for the year in which the vote is taken, as set forth in the then-current Capital Plan.

Dual Super-Majority Vote – Except as provided in section IV.F.3 of the IFA, a Board vote requiring the affirmative vote of both (1) the Directors representing more than 60% of the Members, and (2) the Directors representing the Members comprising more than 60% of the Treatment Facilities Allocated Capacity for the year in which the vote is taken, as set forth in the then-current Capital Plan.

MGD – Million gallons per day, referring to a rate of flow.

Maximum Monthly Flow or MMF – A measure of flow expressed in MGDs and representing the highest average monthly flow, taking into account the total flow of wastewater discharged into the Regional Assets, measured in millions of gallons for any calendar month divided by the total number of days in that month.

Regional Assets – The assets listed in Exhibit B of the IFA, and such additional assets as the Board may later determine to be Regional Assets under Section VII.B. of the IFA.

Regional Service Charges – Charges for service imposed by the Alliance under Section VI.B of the IFA.

Transmission Infrastructure – Transmission lines, force mains, interceptors, pump stations and other facilities required to transfer wastewater from a Member's collection system to a Treatment Facility.

Treatment Facility or Facilities – Treatment plants, outfalls and other facilities required to treat wastewater.

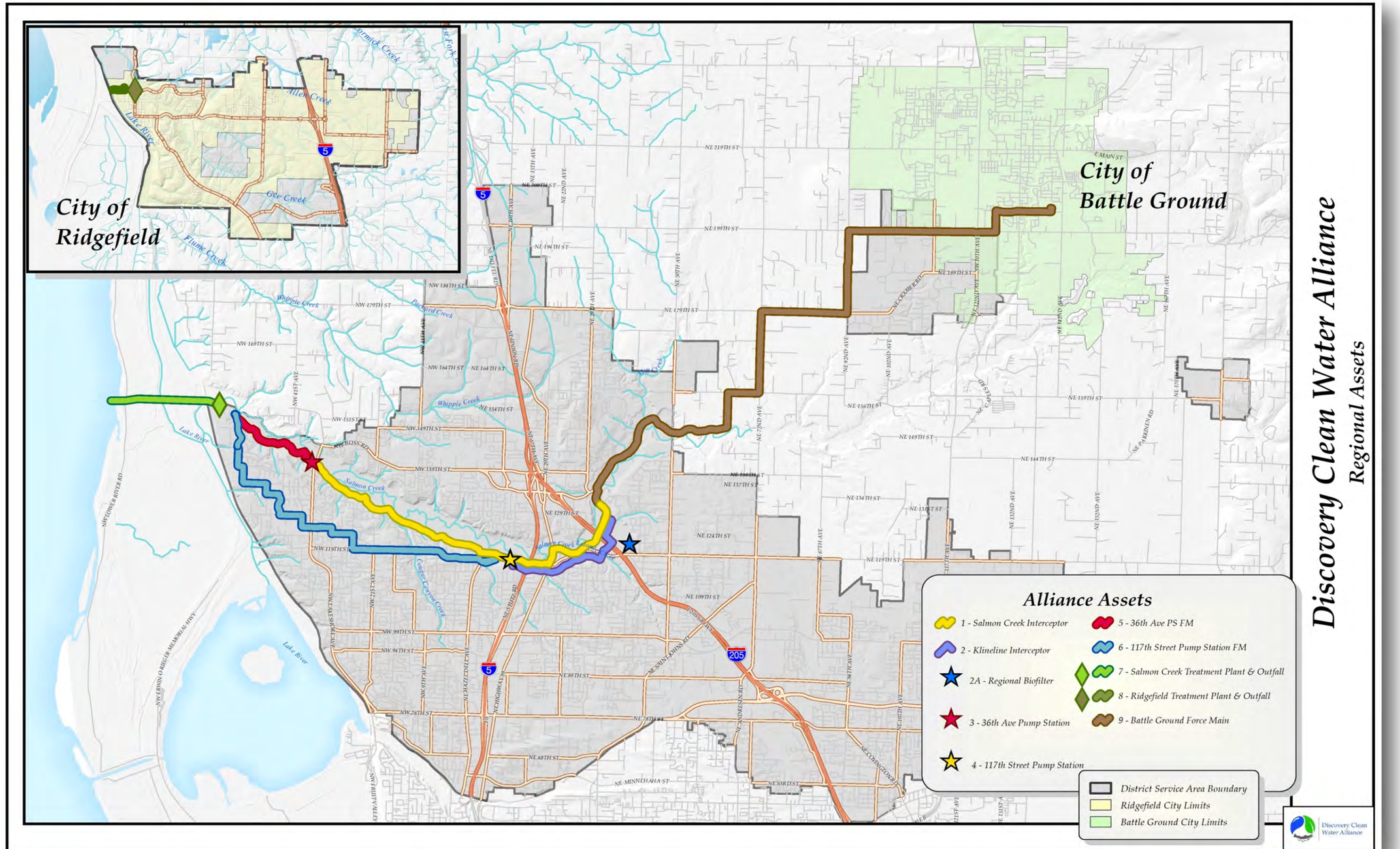
1.5 Alliance Regional Assets

As of the Alliance Operations Date, the Alliance owns, operates and manages nine Regional Assets with an estimated book value (historical cost less depreciation) of approximately $126 million. The Regional Biofilter - Klineline Interceptor Project depicted in the 2016 Capital Plan Update has been completed as of 2018, becoming the tenth Regional Asset. The Regional Assets are depicted in the following Regional Asset Descriptions and Regional Asset Overview Map.

Table 1.3 – Alliance Regional Asset Descriptions

Regional Asset Name	Regional Asset Description
1. Salmon Creek Interceptor	4.6-mile long gravity pipeline located on the south side of the Salmon Creek drainage. The interceptor collects and conveys wastewater from partner agencies to regional pump stations. The pipeline was constructed in segments from the mid to late 1970's (21-41-inch diameter pipe routed from Betts Bridge to 36 Ave).
2. Klineline Interceptor	1.8-mile long gravity pipeline located parallel to the Salmon Creek Interceptor. The pipeline was constructed in segments from 2002 to 2006 (48-inch diameter pipe routed from Salmon Creek Ave & NE 127 to 117 St PS).
2A. Regional Biofilter - Klineline Interceptor	Regional biofilter directly adjacent to the property located at 12401 NE Salmon Creek Avenue in Vancouver WA. The biofilter was regionally sized to manage odors and control corrosion associated with the discharge of the Battle Ground FM and St. Johns Interceptor into the Klineline Interceptor. The biofilter was constructed in 2017-2018.
3. 36 Avenue PS	Raw sewage PS located at 14014 NW 36 Ave in Vancouver, WA. The station pumps wastewater from the Salmon Creek interceptor to SCTP. The pump station was constructed in mid-1970's and remodeled in 1994 and 2005.
4. 117 Street PS (aka Klineline PS)	Raw sewage PS located at 1110 NE 117 St in Vancouver, WA. The station pumps wastewater from Salmon Creek and Klineline interceptors to SCTP. The pump station was constructed in 2008.
5. 36 Ave PS FM	24-inch diameter FM routed from 36 Ave PS to SCTP. The FM runs approximately 1.4 miles along the south side of the Salmon Creek and discharges to SCTP. The pipeline was constructed in mid-1970's.
6. 117 Street PS FM	Dual 30-inch diameter FM routed from 117 St PS to SCTP. The FM runs approximately 4.9 miles along public rights-of-way to SCTP. The pipeline was constructed in segments from 2004 to 2008.
7. Salmon Creek Treatment Plant & Outfall	Secondary treatment plant originally constructed in the mid 1970's, with four major expansion phases. The plant is located at 15100 NW McCann Rd, in Vancouver, WA. The plant outfall is a 30-inch diameter pipeline routed west of the plant 1.3 miles, terminating in the Columbia River between mile 95 and 96. The discharge location is latitude 46º 43' 58" N, longitude 122º 45' 23" W.
8. Ridgefield Treatment Plant & Outfall	Secondary treatment plant originally constructed in 1959 with several upgrades since then. The plant is located on West Cook St in Ridgefield, WA. The plant outfall is a 10-inch diameter pipeline routed west of the plant 0.2 miles, terminating in Lake River. The discharge location is latitude 45º 49' 18" N, longitude 122º 45' 09" W.
9. Battle Ground FM (including odor control system)	9-mile long 16-inch diameter FM (with bioxide chemical dosing/injection facility) routed southwesterly from Battle Ground PS to Klineline interceptor at Salmon Creek Ave. The pipeline was constructed in the early 1990's.

Figure 1.4 – Regional Asset Overview Map



1.6 Governor's 2013 Smart Communities Award

Each of the Alliance Members was recognized by Washington Governor Jay Inslee with a Governor's 2013 Smart Communities Award. The award recognized the value the Alliance provides to its Members and the larger community served by the regional wastewater transmission and treatment system. Following is an excerpt from the official statement provided with the award:

The Governor established these awards to recognize the accomplishments of community leaders to create smart, livable places. The awards are designed to recognize the good work being done in large and small communities all across Washington State. The values and priorities of each community shine through each and every one of the projects nominated for these awards.

As Washington works to further strengthen its position in the global economy, the work of the local governments and their partners in creating vibrant, quality communities is vital to our success. The leadership of Discovery Clean Water Alliance's award winning nomination helps make Washington a great state in which to live and do business.

Discovery Clean Water Alliance, (DCWA) is a partnership between Clark County, Clark Regional Wastewater District, and the Cities of Ridgefield and Battle Ground. DCWA pools the various agencies' resources, funds and talents. By connecting wastewater systems, the partners can meet future service demand without paying for repetitive facilities in each service area.

In summary, at its most fundamental level, the Alliance provides a framework for the Members to jointly own and jointly manage regional wastewater transmission and treatment infrastructure critical to the environmental health and economic well-being of the region. Each Member has a voice and a vote in the decisions made by the Alliance, and together the Members will shape the future of the delivery of this critical urban service for the benefit of the community served.

SECTION 2

2018 Capital Plan

2.1 Capital Plan Introduction

The Alliance is an owner and operator of Regional Assets providing wastewater transmission and treatment services to its Members. As such, one of the most important business functions of the Alliance is to have a well-developed capital program for the management of its assets. This Capital Plan presents the Regional Asset management program for the Alliance, including the work required to repair or replace existing assets and to construct new assets to meet capacity, regulatory or level-of-service requirements.

The formal definition of the Capital Plan as presented in the IFA is "**One or more long-range capital improvement plans** for the **addition, replacement or improvement of Regional Assets**, and including an identification of Regional Assets and the **allocation of transmission and treatment capacity**, as they may be supplemented or adjusted from the initial Regional Assets and allocations described in Exhibit B of the IFA." (emphasis added). This Capital Plan provides for these requirements in the following four sections:

- **One or More Long-Range Capital Improvement Plans.** As noted in Section 2.2, the Alliance has formally adopted the existing long-range capital plans of its Members. These plans have been updated through the regional study process and have been reviewed and approved by the Department of Ecology. The existing Member agency plans have been formally transferred to the Alliance through the asset transfer agreement process.
- **Replacement or Improvement of Regional Assets.** In Section 2.3, the Alliance presents its plan for replacement or improvement of the existing Regional Assets. These plans for existing assets are often called "repair and replacement" or "asset management" programs. These terms are used interchangeably in this document.
- **Addition of Regional Assets.** In Section 2.4, the Alliance presents its plan for addition or construction of new Regional Assets. The need for new Regional Assets is typically driven by the need to increase system capacity for growth in the service area, the requirement to address new regulatory obligations or the policy decision to provide new level-of-service commitments.
- **Allocation of Transmission and Treatment Capacity.** In Section 2.5, the Alliance will address any changes to Allocated Capacity among its Members. Changes in capacity can result from agreements to transfer existing capacity allocations among Members or from new capacity allocations created through the construction of new Regional Assets.

The Capital Plan will depict the programs for existing and new Regional Assets by presenting near-term needs (two-year and six-year projects) as well as long-term needs (20-year projects). Individual Project Profiles for all projects are presented in the following appendices: Appendix A (Existing Assets – Repair and Replacement Project Profiles) and Appendix B (New Assets – Construction/ Acquisition Project Profiles).

Project Cost Threshold and Project Numbering. Per the IFA and as further specified in the Alliance Operator and Administrative Lead agreements, only individual projects valued above a threshold (initially established by the Alliance at $50,000) are presented in this Capital Plan. This threshold value is to be adjusted by a construction cost index over time. Based on the process established in Board Resolution 2014-05, fixing the base year as 2012 and using the Engineering News Record (ENR) Construction Cost Index for Seattle, the threshold value established for this 2018 Capital Plan is $63,000. Projects below this amount are self-performed by the Operators and will be presented in the context of the Alliance Operating Budgets.

A project numbering convention has been established with the following three components: (1) Regional Asset number, (2) anticipated bid year and (3) sequential number. For example, project RA03–19–1 would be for a project for Regional Asset No. 3 (the 36th Avenue Pump Station) where the project was scheduled to bid in 2019 and this is the first project for that asset in that bid year.

Cost Escalation and Estimate Classification. The Capital Plan provides for all the projects defined over time and the corresponding cost estimates have been adjusted to 2018 dollars. A separate process to escalate the project costs from this 2018 baseline to the estimated bid year is determined in the Capital Budget (a separate document).

As specific capital projects are developed from a conceptual level through preliminary design and ultimately to bid-ready plans and specifications, the level of definition of the projects increase throughout the process. It is critical to understand the probable variability of the estimates and to carry appropriate project contingencies. The Alliance approach is summarized in Table 2.1, adapted (in part) from information published through AACE International.

Table 2.1 – Alliance Cost Estimate Classification System

Estimate Classification	Project Design Definition (% Complete)	Typical Purpose/ End Usage	Expected Accuracy Range (L=Low, H=High)	Contingency Level Embedded in Cost Estimate
Class 5	0-2%	Concept Screening	L: -50% H: +100%	40-50%
Class 4	1-15%	Study or Feasibility Review	L: -30% H: +50%	30-40%
Class 3	10-40%	Budget Authorization	L: -20% H: +30%	20-30%
Class 2	30-70%	Budget Control	L: -15% H: +20%	10-20%
Class 1	65-100%	Final Estimate/ Bid Review	L: -10% H: +15%	0-10%

2.2 Member Agency Planning Document Incorporation by Reference

Through the initial adoption of this Capital Plan in 2014, the Alliance also formally adopted the Member agency planning documents listed in Table 2.2. This suite of documents represents the formal planning basis for the Alliance Regional Assets until such time the Alliance prepares an updated and integrated planning document for the Regional Assets.

Table 2.2 – Member Agency Planning Documents Adopted by Alliance

Regional Assets (RA)	Planning Document	Ecology Approval Date	Portion of Plan Adopted by Alliance
Salmon Creek Wastewater Management System (SCWMS), RA 1-7	*Salmon Creek Wastewater Management System Wastewater Facilities Plan / General Sewer Plan Amendment, CH2M HILL, August 2013*	September 4, 2013	Entire plan
	Salmon Creek Wastewater Management System Wastewater Facilities Plan / General Sewer Plan, CH2M HILL, July 2004	March 10, 2005	Entire Plan
Ridgefield Treatment Plant and Outfall (RTPO), RA 8	*City of Ridgefield General Sewer Plan, Gray & Osborne, March 2013*	June 18, 2013	Relevant portion of plan for RTPO
	City of Ridgefield General Sewer and Wastewater Facility Plan, Gray & Osborne, December 2007	October 31, 2008	Relevant portion of plan for RTPO
Battle Ground Force Main (BGFM), RA 9	*City of Battle Ground General Sewer Plan, Wallis Engineering, March 2011.*	September 29, 2011	Relevant portion of plan for BGFM

2.3 Existing Regional Assets – Repair and Replacement (R&R) Program

The initial Alliance Capital Plan (adopted in 2014) and the updated plan (adopted in 2016) incorporated the existing condition assessment reports and asset management programs from the Member agencies involved in the operation of the Regional Assets. That information informed prioritization of several initial repair and replacement projects and was based on a limited review of the assets. This updated Capital Plan incorporates a more thorough and systematic review of primary systems within the Regional Assets. Although not an exhaustive evaluation of every piece of equipment, this plan represents progress toward the ultimate goal to establish a fully sustaining asset management program for all Regional Assets.

The Capital Plan considers project needs greater in value than the established Alliance capital project threshold (established above). Project needs below this threshold are referred to the Alliance Operators for consideration in the establishment of Alliance operating budgets.

Initial Condition and Criticality Assessment (ICCA). In order to inform the Capital Plan and related budget processes, the Alliance sponsored formal assessments for the regional pump stations and

treatment plant assets. The intent of the assessments was to identify the condition and establish a criticality for the primary components. The work was facilitated by an independent consultant experienced in wastewater conveyance and treatment, and supported by operations staff with direct knowledge of the assets.

The ICCA work focused on the primary systems within the Ridgefield and Salmon Creek Treatment Plants, the 117th Street Pump Station, and the 36th Avenue Pump Station. Along with the primary conveyance and treatment systems, evaluations of the facilities considered the condition of buildings and structures as well as any grounds or site improvement needs. For this initial work, only the primary components and systems were considered. For example, structures, building systems, pumps, and valves were evaluated while specific hatches, door hardware, or light switches within a building were not evaluated.

The next Capital Plan update (anticipated for 2020) will be further expanded to include condition and criticality evaluation of additional components such as the following:

- buried pipelines (gravity interceptors, force mains and appurtenances, in-plant buried pipelines)
- treatment plant-wide facility lighting
- treatment plant transformers and power supply systems
- instrumentation and controls systems
- other components as determined through the next condition and criticality assessment

Project Prioritization Process. After combining individual components into logical projects, each project was evaluated. Each project was then systematically scored for the following:

- overall asset condition or "likelihood (risk) of failure" of the asset
- overall asset criticality within the system or "consequence of failure" of the asset

The criteria for scoring condition and criticality are presented in Figure 2.1, Alliance Likelihood of Failure/Consequence of Failure Guidance. This provides for consistency across the various components and systems being considered using industry standards such as cost, staff time spent repairing an asset, obsolescence, safety, and the potential for permit violations. After condition and criticality are determined, those individual scores are multiplied together to determine the overall priority for that particular asset or system.

The condition, criticality and resulting priorities were reviewed with the Alliance Standing Committees during the first half of 2018. All projects with a score of 25 or higher have been carried forward into this Capital Plan update. This represents the most important projects, due to either poor condition, high criticality, or both. The remaining projects will continue to be monitored and may or may not rise to a level of action for the next update.

Figure 2.1 – Alliance Likelihood of Failure / Consequence of Failure Guidance

LIKELIHOOD OF ASSET FAILURE

Category	Negligible = 1	Low = 3	Moderate = 5	High = 7	Very High = 10
Physical Condition	Condition Grade 1 (Very Good) No deficiencies AND Needs no corrective maintenance AND Presently not a safety hazard	Condition Grade 2 (Good) Few minor deficiencies AND/OR Needs minimal amount of corrective maintenance BUT Presently not a safety hazard	Condition Grade 3 (Fair) Several minor deficiencies AND/OR Needs moderate amount of corrective maintenance BUT Presently not a safety hazard	Condition Grade 4 (Poor) Major deficiencies AND/OR Needs substantial amount of corrective maintenance or partial rehabilitation AND/OR Presently a potential safety hazard	Condition Grade 5 (Very Poor) Asset may be unserviceable AND/OR Needs replacement or major rehabilitation AND/OR Presently a safety hazard
Performance	Meets all functional requirements with normal O&M procedures under all demand conditions (e.g., avg and max day flow and peak hour flow; high and low temperatures)	Meets all functional requirements under all demand conditions (e.g., avg and max day flow and peak hour flow; high and low temperatures) but occasionally requires increased attention from O&M staff during extreme conditions AND/OR Inefficient due additional resource requirements (e.g. energy, labor)	Meets functional requirements under most conditions (e.g., avg and max day but not peak hour) AND/OR Occasionally unstable or difficult to operate without increased attention from O&M staff AND/OR Some components are obsolete with spare parts difficult to obtain	Meets functional requirements only under normal conditions (e.g., avg day but not max day or peak hour) AND/OR Frequently unstable or difficult to operate without increased attention from O&M staff AND/OR Most or all components are obsolete with spare parts difficult to obtain	Does not meet functional requirements under normal conditions AND/OR Very unstable or difficult to operate even with increased attention from O&M staff
Maintenance History	Ratio of planned maintenance hours to total maintenance hours is ≥ 70% AND Planned maintenance activities rarely find needed corrective maintenance AND Mean time between failure (MTBF) is acceptable and steady or trending higher	Ratio of planned maintenance hours to total maintenance hours is <70% but ≥60% AND Planned maintenance activities rarely find needed corrective maintenance AND MTBF is acceptable but trending lower	Ratio of planned maintenance hours to total maintenance hours is <60% but ≥40% AND/OR Planned maintenance activities frequently find needed corrective maintenance AND/OR MTBF is unacceptable but trending higher	Ratio of planned maintenance hours to total maintenance hours is <40% but ≥30% AND/OR Planned maintenance activities frequently find needed corrective maintenance AND/OR MTBF is unacceptable but steady	Ratio of planned maintenance hours to total maintenance hours is <30% AND/OR Planned maintenance activities always find needed corrective maintenance AND/OR MTBF is unacceptable and trending lower

CONSEQUENCE OF ASSET FAILURE

	Negligible = 1	Low = 3	Moderate = 5	High = 7	Very High = 10
Regulatory Compliance and Environmental Impact	Full compliance with regulatory requirements and permits	If not addressed, will create potential for permit or regulatory violation	Potential for permit or regulatory violation	Potential for exceedance of permit limits	Permit or regulatory violation, with an exceedance of permit limits
System Reliability	No loss of treatment or system effectiveness Full automated redundancy	No loss of treatment or system effectiveness but need to use redundant systems Manual operation of equipment required Manual redundancy Deviation from standard process	Potentially result in loss of treatment or system effectiveness if action is not taken within the return to service time for the asset Additional staff time required Eventual damage to equipment	Will immediately result in loss of treatment or system effectiveness but with possible mitigation Immediate damage to equipment Flooding / overflows on site	Will immediately result in loss of treatment or system effectiveness and cannot be easily reversed or mitigated No redundancy Flooding / overflow off site
Health and Safety	Routine work not requiring emergency response	Routine work requiring emergency response	Facility employees exposed to increased hazards (i.e. confined space, biohazard, heights >20 ft above ground, > 10 ft deep trench)	Facility employees exposed to multiple increased hazards (i.e. confined space, biohazard, heights >20 ft above ground, > 10 ft deep trench) Safety hazards contained on site	Empoyee exposure to extreme adverse conditions or hazards requiring non-routine activities (i.e. energized power, explosive atmosphere, O_2 deficient atmosphere) Off site public safety hazard

Return on Investment (ROI) Projects. Some projects are based on cost savings over time rather than condition and criticality priority. These types of projects are generally related to new technology or electrical power savings. They are commonly referred to as return on investment, or ROI projects. ROI criteria utilized in the programming process are based on a simple payback calculation (total project capital cost divided by projected annual operating cost savings). Where rebates were applied for documented energy saving programs, the credits were used to offset capital costs in the ROI calculations. Net ROI performance was then prioritized according to the following three tests:

1. Projects with a net ROI of less than five years were prioritized for early delivery, fitting within existing cash flow constraints as soon as practically possible.
2. Projects with a net ROI of less than ten years were programmed into the overall plan, considering practical factors such as bid packaging and other implementation efficiencies.
3. Projects with a net ROI of greater than ten years were not further prioritized from an efficiency standpoint, but may still be considered based on the applicability of other criteria.

Project Programming. The programming effort starts with the listing of projects according to priority, then factoring in other considerations such as available funding, corresponding capital projects, staff work load, and specific project design and permitting schedules. The Standing Committees review and endorse the program prior to presentation to the Alliance Board of Directors.

A total of 15 R&R projects were identified and prioritized through the ICCA process for inclusion in the Capital Plan, of which nine were newly-identified scopes of work and six were previously identified projects. Tables 2.3 and 2.3.1 on the following pages present the Existing Regional Assets - Repair and Replacement Program Summary for R&R projects. As noted in Table 2.3, one project relates to the Klineline Interceptor, one project relates to the RTP, and the remaining 13 projects relate to SCTP, further detailed in table 2.3.1. Appendix A includes a Project Profile for each of these 15 R&R projects, providing a comprehensive overview and describing the overall capital investments necessary to maintain the existing Regional Assets in good working order. Each project profile form lists source documents supporting the project-specific recommendations.

As noted previously, the proposed plan does not evaluate every component or piece of equipment in the system, and defers some evaluations to the next biennium, i.e. gravity interceptors, etc. In order to account for those undefined needs and provide a complete 20-year Capital Plan, the following project allowances are established:

- $125,000 per year for years 1-6
- $1,000,000 per year for years 7-20

All projects related to existing Regional Assets will be carried forward into the Capital Budget to determine appropriate funding mechanisms and the resulting Regional Service Charges.

Table 2.3 – Existing Regional Assets - Repair and Replacement Program Summary (all costs in 2018 dollars)

Regional Asset / Project Name	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	PROJECT COST
1 Salmon Creek Interceptor																					
No projects currently programmed																					$ 0
2 Klineline Interceptor																					
Klineline Interceptor Manhole Rehabilitation																					$ 271,000
2A Regional Biofilter - Klineline Interceptor																					
No projects currently programmed																					$ 0
3 36th Avenue Pump Station (PS)																					
No projects currently programmed																					$ 0
4 117th Street Pump Station (PS)																					
No projects currently programmed																					$ 0
5 36th Avenue Pump Station Force Main																					
No projects currently programmed																					$ 0
6 117th Street Pump Station Force Main																					
No projects currently programmed																					$ 0
7 Salmon Creek Treatment Plant (SCTP)																					
SEE NEXT PAGE FOR SCTP PROJECT DETAILS																					$ 12,234,000
8 Ridgefield Treatment Plant (RTP)																					
RTP Aeration Basin Mixer Support/Concrete Repair																					$ 74,000
9 Battle Ground Force Main (BGFM)																					
No projects currently programmed																					$ 0
R&R Program Allowance																					
Years 1-6: $125K/yr Years 7-20: $1M/yr																					$ 14,750,000
																				R&R PROGRAM TOTAL	$ 27,329,000

Table 2.3.1 Existing Regional Assets - Repair and Replacement Program - SCTP Projects Summary

Regional Asset / Project Name	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	PROJECT COST
7 Salmon Creek Treatment Plant (SCTP)																					
SCTP Digester Maintenance and Modifications																					$ 324,000
SCTP SCTP Boiler Exhaust Stack Replacement																					$ 130,000
SCTP Biosolids Cake Transfer Screw Replacement																					$ 390,000
SCTP HVAC Systems Replacement																					$ 1,248,000
SCTP Fire Alarm System Replacement																					$ 1,538,000
SCTP Boiler Gas Boosters																					$ 205,000
SCTP Slope Stabilization for Sludge Blend Tank																					$ 123,000
SCTP Primary Sludge Pump Replacement																					$ 428,000
SCTP Access Road and Asphalt Repair																					$ 286,000
SCTP Fire Pump Controller Replacement																					$ 272,000
SCTP Influent Screen Replacement (Phase 6)																					$ 652,000
SCTP UV System Replacement (Phase 6)																					$ 3,293,000
SCTP Dewatering Equipment Replacement (Phase 6)																					$ 3,345,000
SCTP PROJECTS TOTAL																					$ 12,234,000

2.4 New Regional Assets – Capital Improvement Program

This section of the Capital Plan presents the infrastructure investments needed to address system capacity, new regulatory obligations or new level-of-service commitments over time.

Regional Asset Capacity Assessment - General. The planning basis for individual projects has been established in the Member agency planning documents listed in Section 2.2. The timelines associated with the project recommendations in the planning documents was, in general, based on underlying data from a higher-growth environment prior to the late-2007 to mid-2009 national economic downturn, often referred to as the "Great Recession". If followed as originally outlined, these more aggressive timelines would have indicated additional infrastructure investment during a period when the Member agencies would not have been able to utilize or afford the new capacity.

In order to provide a more practical assessment, this Capital Plan recommends an updated timeline for future capacity investments that is reflective of more current growth measurements, while still being prudently conservative in terms of providing capacity ahead of demand. The dates associated with specific projects are consistent with this updated growth and timeline analysis. This analysis includes above average growth trends for the initial 5-year planning period and then relies on historical growth patterns for the balance of the 20-year planning period.

It is also noted that the project timelines depicted in the Capital Plan are derived from an assessment of total asset capacity, rather than the Allocated Capacity owned by a single Alliance Member. This approach assumes that Members will work cooperatively together to share or lease capacity in order to maximize the use of a Regional Asset and defer future capital investments to the extent possible.

Regional Asset Capacity Assessment – SCTP. To illustrate the updated capacity analysis, information is provided herein for the Salmon Creek Treatment Plant (SCTP). The SCTP is the primary Regional Asset in terms of overall size, complexity and historical cost. In addition, it represents the limiting capacity element in the overall Salmon Creek Wastewater Management System (SCWMS), which includes upstream pipelines and pump stations.

The Department of Ecology (Ecology) requires the Alliance to submit a plan and schedule maintaining adequate capacity in the treatment facilities when one of the following two conditions is met:

- actual flow or actual wasteload reaches 85% of the rated capacity of the facility for three consecutive months; or
- projected flow or projected wasteload will reach the design capacity of the facility within five years

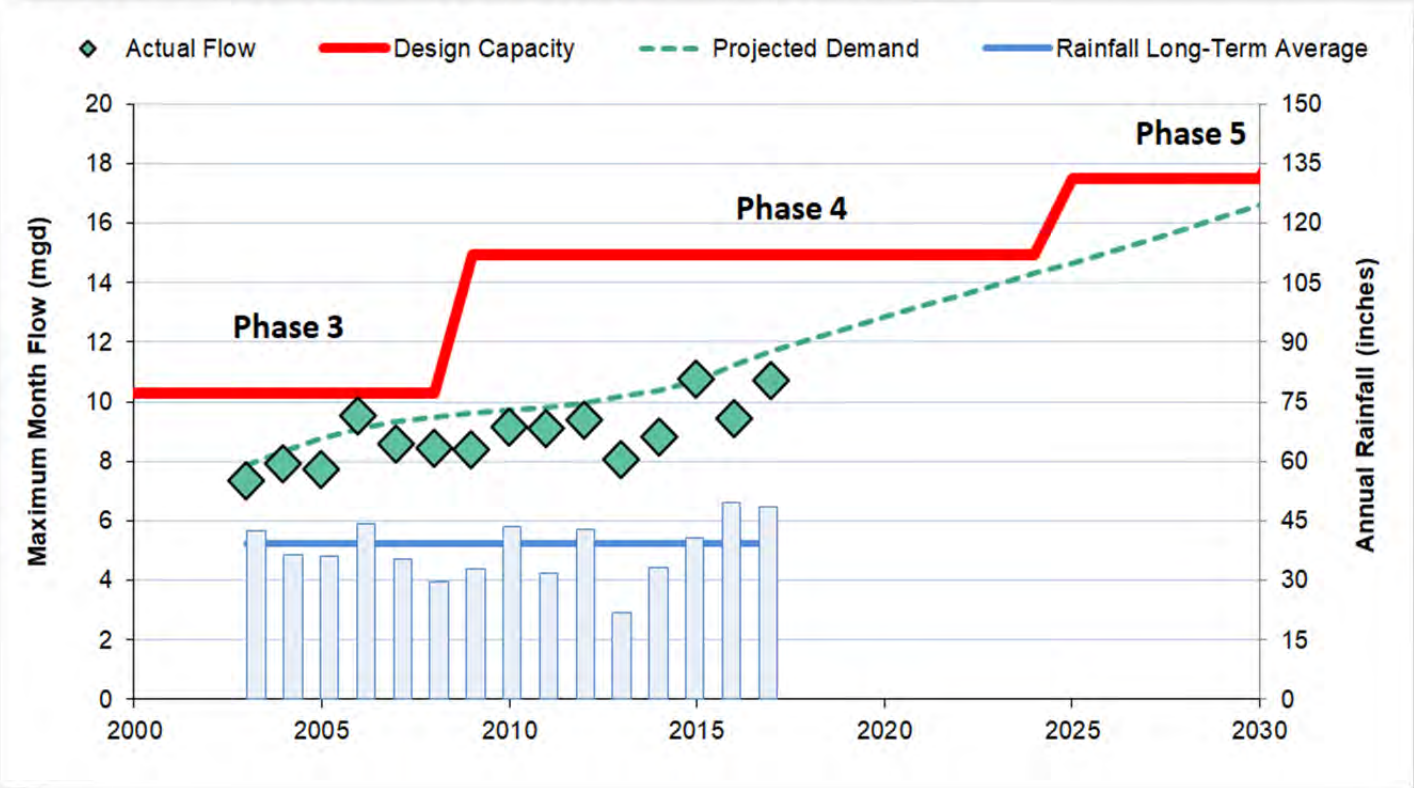
SCTP capacity has been assessed relative to these criteria for both flow and wasteload and the results are summarized herein.

Flow:

In terms of flow-based assessment, SCTP influent flow is presented in Figure 2.2. Flow at a regional treatment plant is influenced by multiple factors such as (1) overall growth in the system, (2) general rainfall patterns that contribute extraneous flows to the plant, termed infiltration and inflow (I/I), and (3) changes in the water use patterns over time in the population represented by the service area.

Taking these factors into consideration, this assessment indicates that capacity in the system needs to be increased approximately by the year 2025. This timeline provides a small capacity buffer which can help address factors that cannot be predicted precisely, such as the potential for wet weather conditions or above-historical-trend growth rates.

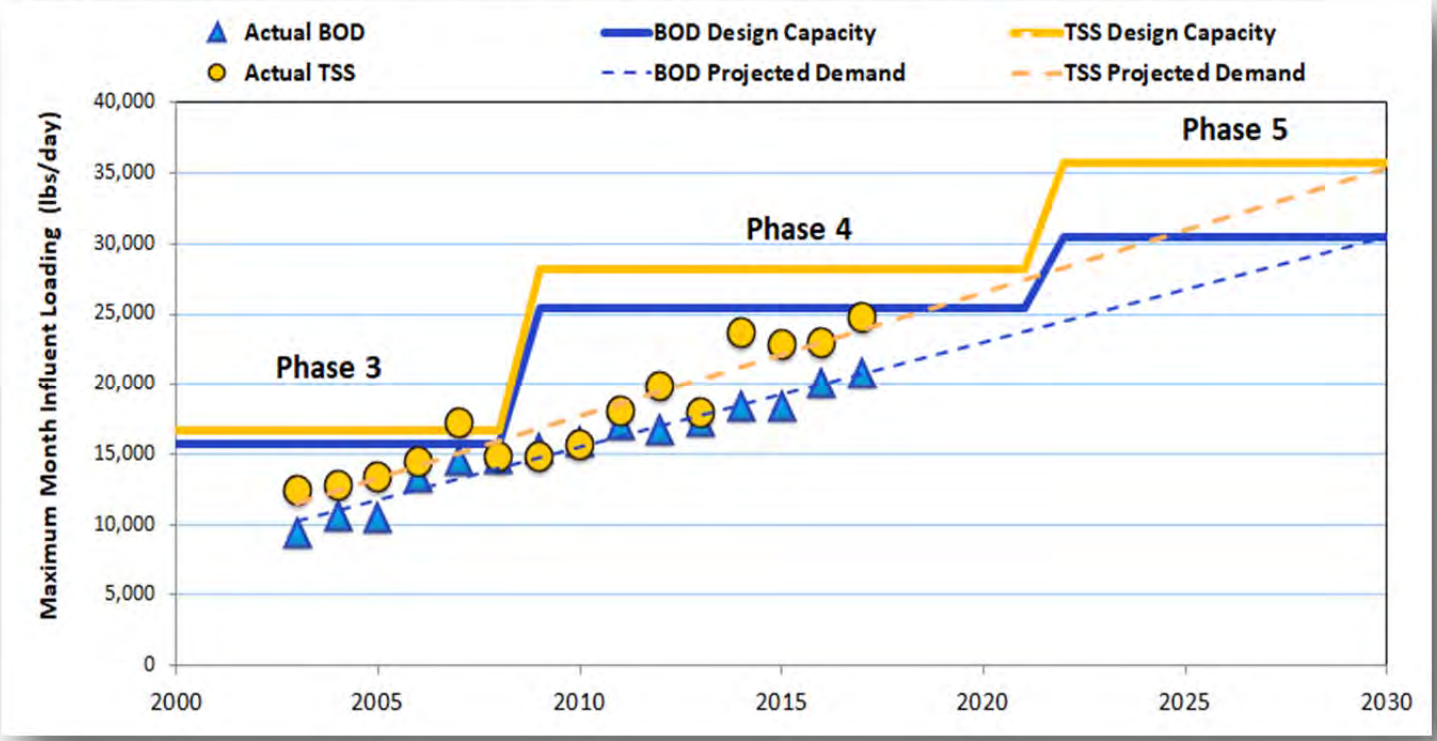
Figure 2.2 Salmon Creek Treatment Plant Capacity Assessment – Influent Flow



Wasteload:

In terms of wasteload-based assessment, SCTP influent wasteload is presented in Figure 2.3. Wasteload is presented for two parameters used by Ecology to track plant capacity: 1) total suspended solids (TSS), and 2) biochemical oxygen demand (BOD). TSS is a measure of particulate solids in the wastewater. BOD is a measure of the wastewater strength based on how biological activity responds to the food sources in the wastewater. Taking these factors into consideration, this assessment indicates capacity in the system would be reached by approximately 2022-2023 for both TSS and BOD.

Figure 2.3 Salmon Creek Treatment Plant Capacity Assessment – Influent Wasteload



The results of the SCTP capacity assessment are summarized as follows:

Table 2.4 – Summary of Salmon Creek Treatment Plant Capacity Assessments

Parameter	Flow (mgd, MMF)	TSS (ppd, maximum month)	BOD (ppd, maximum month)
Design Capacity	14.95	28,200	25,400
Year Design Capacity Reached (projected)	2025	2022-2023	2022-2023
Year Plans for Maintaining Capacity Are Due to Ecology	2020 submittal	2018 submittal	2018 submittal

As Table 2.4 indicates, a plan for maintaining adequate capacity for the SCTP is required to be submitted to Ecology in 2018. The Engineering Reports for two SCTP capital projects, Phase 5A and Phase 5B plant expansions, will be submitted in 2018 to satisfy this requirement.

This 20-year Capital Plan also includes a project to provide an updated General Sewer Plan/Wastewater Facilities Plan in order to appropriately anticipate and meet the permit requirement for plans to maintain adequate capacity. The capacity of the existing system will be evaluated in additional detail within the planning document to confirm the specific cost and timing for future capacity needs.

Table 2.5 New Regional Assets – Capital Improvement Program Summary, found on the following page, provides a summary of the near-term (two-year and six-year) projects and long-term (20-year) projects, representing the investments to construct new Regional Assets in order to adequately meet the projected needs of the regional wastewater system. The individual capital projects are profiled in detail in Appendix B.

The capital project timelines are based on current estimates of service area growth characteristics and current regulatory requirements. These parameters are dynamic and require that the Capital Plan be updated every two to four years to remain current. As a result, the individual capital projects may be revised in scope, schedule and budget from time to time as circumstances dictate. Any changes to the capital projects will be reflected in the next available update of the Alliance Capital Plan.

All capital projects currently represented will be carried forward into the Capital Budget to determine appropriate funding mechanisms for the projects and the resulting Regional Service Charges to the Alliance Members.

Table 2.5 – New Regional Assets – Capital Improvement Program Summary (all costs in 2018 dollars)

Regional Asset / Project Name	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	PROJECT COST
1 Salmon Creek Interceptor																							
No projects currently programmed																							$ 0
2 Klineline Interceptor																							
No projects currently programmed																							$ 0
2A Regional Biofilter - Klineline Interceptor																							
No projects currently programmed																							$ 0
3 36th Avenue Pump Station (PS)																							
No projects currently programmed																							$ 0
4 117th Street Pump Station (PS)																							
117th Street PS Capacity Upgrade																							$ 12,000,000
5 36th Avenue Pump Station Force Main																							
No projects currently programmed																							$ 0
6 117th Street Pump Station Force Main																							
No projects currently programmed																							$ 0
7 Salmon Creek Treatment Plant & Outfall (SCTP, SCTPO)																							
SCTPO Phase 5A (Outfall/Effluent Pipeline) Expansion																							$ 24,500,000
SCTP Phase 5B (Plant) Expansion																							$ 24,000,000
SCTP Phase 6 Expansion																							$ 32,400,000
SCTP Phase 7 Expansion																							$ 34,200,000
SCTP Class A Biosolids Upgrade																							$ 11,700,000
8 Ridgefield Treatment Plant & Outfall (RTPO)																							
RTPO Plant Decommissioning																							$ 3,500,000
9 Battle Ground Force Main (BGFM)																							
BGFM Parallel Force Main																							$ 34,300,000
Planning - All Regional Assets																							
Alliance General Sewer Plan/Wastewater Facilities Plan																							$ 1,500,000
CIP PROGRAM TOTAL																							**$ 178,100,000**

2.5 Change in Allocated Capacity

Allocated Capacity may be changed among Members through a Capital Plan. Allocated Capacity is a critical parameter for Alliance Members because it is the fundamental basis upon which Alliance costs are determined for individual Alliance Members.

There are no capacity changes anticipated in the 2019-2020 budget period. However, both the Phase 5A and Phase 5B projects are currently planned to be completed in the following biennium (2021-2022). After Ecology approval of the Engineering Reports for the respective projects, the projects will be designed and constructed. Pending completion of construction, the Allocated Capacity will be updated as follows through adoption of a future Capital Plan:

Table 2.6 –Future Change in Allocated Capacity

Basis of Allocated Capacity Change	Battle Ground	Clark Regional Wastewater District	Total
Phase 5A Project (Outfall/Effluent Pipeline)	10.10 MGD	28.08 MGD	38.18 MGD
Phase 5B Project (SCTP Improvements)	3.96 MGD	13.54 MGD	17.50 MGD

A brief description of each Regional Asset and the current Capacity Allocation is shown in Table 2.7 on the following page.

Table 2.7 – Regional Assets and Current Capacity Allocations

System Name	No.	Regional Asset Name	Regional Asset Description	Initial Capacity Allocations (MGD, MMF) Existing Allocated Capacity		
				BG	CRWWD	Total
Salmon Creek Wastewater Management System (SCWMS)		**Interceptor System**		**10.10**	**28.08**	**38.18**
	1	Salmon Creek Interceptor	4.6 mile long gravity pipeline located on the south side of the Salmon Creek drainage. The interceptor collects and conveys wastewater from partner agencies to regional pump stations. The pipeline was constructed in segments from the mid to late 1970's (21-42-inch diameter pipe routed from Betts Bridge to 36 Ave).			
	2	Klineline Interceptor	1.8 mile long gravity pipeline located parallel to the Salmon Creek Interceptor. The pipeline was constructed in segments from 2002 to 2006 (48-inch diameter pipe routed from Salmon Creek Ave & NE 127 St to 117 St PS).			
	2A	Regional Biofilter - Klineline Interceptor	Regional biofilter providing odor and control corrosion associated with the combined discharges of the St. John's Interceptor and Battle Ground Force Main. The biofilter utilized a two-cell engineered media configuration to treat the air phase odors prior to discharge. The facility capacity is expressed in CFM because the system is treating air flows rather than wastewater flows.	**1780***	**1620***	**3400***
		Pump Station (PS) System		**4.47**	**13.57**	**18.04**
	3	36 Avenue PS	Raw sewage PS located at 14014 NW 36 Ave in Vancouver, WA. The station pumps wastewater from the Salmon Creek interceptor to SCTP. The pump station was constructed in mid 1970's and remodeled in 1994 and 2005.			
	4	117 Street PS (aka Klineline PS)	Raw sewage PS located at 1110 NE 117 St in Vancouver, WA. The station pumps wastewater from Salmon Creek and Klineline interceptors to SCTP. The pump station was constructed in 2008.			
		Force Mains (FM) System		**6.30**	**20.06**	**26.36**
	5	36 Avenue PS FM	24-inch diameter FM routed from 36 Ave PS to SCTP. The FM runs approximately 1.4 miles along the south side of the Salmon Creek and discharges to SCTP. The pipeline was constructed in mid 1970's.			
	6	117 Street PS FM	30-inch diameter FM routed from 117 St PS to SCTP. The FM runs approximately 4.9 miles along public rights-of-way to the SCTP. The pipeline was constructed in segments from 2004 to 2008.			
		Salmon Creek Treatment Plant (SCTP) & Outfall		**3.47**	**11.48**	**14.95**
	7		Secondary treatment plant originally constructed in the mid 1970s, with four major expansion phases. The plant is located at 15100 NW McCann Rd, in Vancouver, WA. The plant outfall is a 30-inch diameter pipeline routed west of the plant 1.3 miles, terminating in the Columbia River between mile 95 and 96. The discharge location is latitude 45° 43' 58" N, longitude 122° 45' 23" W.			
Ridgefield Treatment System		**Ridgefield Treatment Plant (RTP) & Outfall**		**0.00**	**0.70**	**0.70**
	8		Secondary treatment plant originally constructed in 1959 with several upgrades since then. The plant is located on West Cook St in Ridgefield, WA. The plant outfall is an 8-inch diameter pipeline routed west of the plant 0.2 miles, terminating in Lake River. The discharge location is latitude 45° 49' 18" N, longitude 122° 45' 09" W.			
Battle Ground Force Main System		**Battle Ground FM**		**3.44**	**0.96**	**4.40**
	9	(Including odor control system for FM)	9 mile long 16-inch diameter FM with bioxide chemical injection facility routed southwesterly from Battle Ground PS to Klineline interceptor at Salmon Creek Ave. The pipeline was constructed in 1993.			

* Values are in CFM for this Regional Asset

2.6 Capital Plan Summary – Project Funding

The two-, six- and 20-year capital projects related to existing Regional Assets and new capacity infrastructure will be carried forward into the Capital Budget to determine appropriate funding mechanisms and the resulting Regional Service Charges to the Alliance Members.

Tables 2.8 and 2.9, found on the following page, present cash flow summaries for the capital investments necessary to maintain the existing Regional Assets in good working order (R&R projects) and also to construct new Regional Assets over time (CIP projects) in order to adequately meet capacity demand, anticipated regulatory requirements and community-appropriate levels of service.

Table 2.8 – Project Funding - Repair and Replacement Program (all costs are in 2018 dollars)

Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	20 YR	
Project Name	Spent to-Date	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Period Total	Project Total
Expenditures																							
R&R Projects																							
#1-80 Klineline Interceptor Manhole Repair	-	27	244	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	271	271
#2-IC SCTP Digester Maintenance and Modifications	-	324	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	324	324
#3-70 SCTP Boiler Exhaust Stack Replacement	-	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	130	130
#4-70 SCTP Biosolids Cake Transfer Screw Replacement	-	390	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	390	390
#5-70 SCTP HVAC Systems Replacement	-	300	336	185	142	142	142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,248	1,248
#6-70 SCTP Fire Alarm System Replacement	-	-	120	1,281	137	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,538	1,538
#7-56 SCTP Boiler Gas Boosters	-	20	185	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	205	205
#8-50 SCTP Sludge Blend Tank Slope Stabilization	-	-	-	-	123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	123	123
#9-35 SCTP Primary Sludge Pump Replacement	-	-	-	-	428	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	428	428
#10-35 SCTP Access Road and Asphalt Repair	-	-	-	-	-	286	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	286	286
#11-30 SCTP Fire Pump Controller Replacement	-	-	-	-	-	272	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	272	272
#12-P6 SCTP Influent Screen Replacement (Phase 6)	-	-	-	-	-	33	33	33	163	326	65	-	-	-	-	-	-	-	-	-	-	652	652
#13-P6 SCTP UV System Replacement (Phase 6)	-	-	-	-	-	165	165	165	823	1,647	329	-	-	-	-	-	-	-	-	-	-	3,293	3,293
#14-P6 SCTP Dewatering Equipment Replacement (Phase 6)	-	-	-	-	-	167	167	167	836	1,673	335	-	-	-	-	-	-	-	-	-	-	3,345	3,345
#15-50 RTP Aeration Basin Mixer Support/Concrete Repair	-	74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74	74
Annual R&R Allowance	-	125	125	125	125	125	125	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	14,750	14,750
Total Annual R&R Projects Expenditures	-	1,390	1,010	1,591	955	1,190	632	1,365	2,823	4,645	1,729	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	27,329	27,329

9 *New Projects Identified Through 2017-2018 ICCA Process*

Table 2.9 – Project Funding - Capital Improvement Program (all costs are in 2018 dollars)

Year		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	20 YR	
Project Name	Spent to-Date	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Period Total	Project Total
Expenditures																							
CIP Projects																							
117th Street PS Capacity Upgrade	-	-	-	-	-	-	600	600	1,200	3,000	6,600	-	-	-	-	-	-	-	-	-	-	12,000	12,000
SCTP Phase 5A Expansion (Outfall/Effluent Pipeline)	2,661	1,514	956	12,914	6,455	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21,840	24,500
SCTP Phase 5B Expansion (Plant Improvements)	686	2,534	11,420	7,990	1,370	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23,314	24,000
SCTP Phase 6 Expansion	-	-	-	-	-	1,620	1,620	1,620	8,100	16,200	3,240			-	-	-	-	-	-	-	-	32,400	32,400
SCTP Phase 7 Expansion	-	-	-	-	-	-	-	-	-	-	-	1,710	1,710	1,710	8,550	17,100	3,420	-	-	-	-	34,200	34,200
SCTP Class A Biosolids	-	-	-	-	-	-	-	-	-	-	-	585	585	585	2,925	5,850	1,170	-	-	-	-	11,700	11,700
Ridgefield Treatment Plant Decommissioning	-	-	-	-	-	-	-	-	-	-	-	175	525	700	2,100	-	-	-	-	-	-	3,500	3,500
BGFM Parallel Force Main	-	-	-	-	-	-	1,715	1,715	1,715	8,575	17,150	3,430		-	-	-	-	-	-	-	-	34,300	34,300
Alliance General Sewer Plan/Wastewater Facilities Plan	-	-	-	750	750	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,500	1,500
Total Annual CIP Projects Expenditures	3,347	4,048	12,376	21,654	8,575	1,620	3,935	3,935	11,015	27,775	26,990	5,900	2,820	2,995	13,575	22,950	4,590	-	-	-	-	174,754	178,100
TOTAL ANNUAL CAPITAL PROGRAM PROJECT EXPENDITURES	3,347	5,438	13,386	23,245	9,531	2,810	4,567	5,300	13,838	32,420	28,719	6,900	3,820	3,995	14,575	23,950	5,590	1,000	1,000	1,000	1,000	202,083	205,429

APPENDIX A

EXISTING REGIONAL ASSETS

REPAIR AND REPLACEMENT PROGRAM
PROJECT PROFILES

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

#1

Project Name: Klineline Interceptor Manhole Repair
Project Number: RA02-19-1
Project Priority Score: 80
Form Prepared: April 2018

Project Type: Existing Asset – Repair ☒
Existing Asset – Replacement ☐
New Asset – Capacity ☐
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

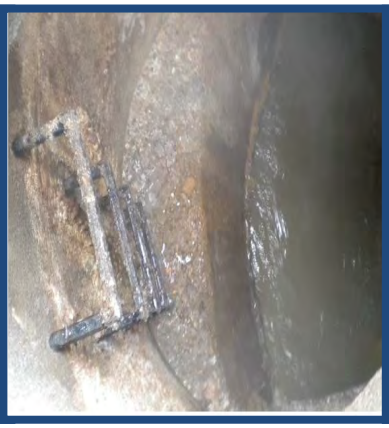
Objective. The project will repair 12 Klineline Interceptor (KLI) Manholes degraded by high concentrations of hydrogen sulfide associated with discharge of the St. Johns Interceptor and Battle Ground Force Main into the Klineline Interceptor.

Scope of Work. Since construction in 2006, the Klineline Interceptor has been exposed to high levels of hydrogen sulfide, which has degraded the existing concrete structures. The existing manholes are degrading at a much faster rate than typical for this type of installation; rehabilitating the manholes will protect this infrastructure. Rehabilitation includes cleaning and inspection to ensure there is no structural damage, and installation of a cementitious corrosion-resistant liner to protect interior areas exposed to hydrogen sulfide gasses.

Cost Allocation. A project-specific cost allocation structure is being utilized for this project based on an assessment of several factors that contributed to the deterioration of the pipeline. The resulting cost allocation is 50.9% of total project costs to Battle Ground, and 49.1% to the District. See supplemental information section (reverse side) for additional detail. For additional information on this project, see the *Manhole Inspection Report, Brown and Caldwell, December 2014*.

Photos *(if available)*:

Corrosion Around Manhole Rim



Corrosion Above Flowline

Corrosion on Manhole

Budget Information:

Project Cost Estimate		
Total Project Cost:	$271,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Class 2	
Project Cost Allocation		
Battle Ground:	50.9%	$138,000
District:	49.1%	$133,000

Schedule Information:

Activity	Year
Planning	2018
Permitting	NA
Real Property/ROW	NA
Design	2019
Bid	2019
Construction	2020

Supplemental Information:

Klineline Interceptor Manhole Rehabilitation Project-Specific Cost Allocation Based on Responsibility for Contributing Factors	RESPONSIBILITY ALLOCATION			COST ALLOCATION	
Contributing Factor	Contributing Factor (percent)	Battle Ground Share (percent)	District Share (percent)	Battle Ground Share (percent)	District Share (percent)
1. Hydrogen sulfide discharge from Battle Ground Force Main	60.0%	76.0%	24.0%	45.6%	14.4%
2. Hydrogen sulfide discharge/pressurization from St. Johns Interceptor	20.0%	0.0%	100.0%	0.0%	20.0%
3. Restricted downstream interceptor capacity	20.0%	26.5%	73.5%	5.3%	14.7%
TOTAL	100.0%			50.9%	49.1%

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

#2

Project Name: SCTP Digester Maintenance and Modifications
Project Number: RA07-19-1
Project Priority Score: In Construction
Form Prepared/Updated: April 2018

Project Type: Existing Asset – Repair ☒
Existing Asset – Replacement ☒
New Asset – Capacity ☐
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

Objective. The project addresses expected corrosion of the overflow box at Digester No. 1 and installs safety hatches and level controls to both Digester No. 1 and Digester No. 2.

Scope of Work. The digester vessels are special pre-stressed post-tensioned tanks, which enable relatively thin walls compared to traditional reinforced concrete construction. Proactive inspection is warranted due to consequence of undiscovered deficiencies. Prior to inspection, Digester No. 1 will be cleaned under a Clark County project separate from this work. Inspection will be performed by a qualified structural engineer, corrosion engineer, and representative of original tank designer, DN Tanks. This manned inspection of Digester No. 1 will require removal of grit and debris, and scaffolding installation. Any structural deficiencies found will require mitigation, which is not included in this budget since a similar inspection of Digester No. 2 in 2018 revealed no apparent structural deficiencies. The project will additionally modify the existing overflow box by cutting it 30 inches below the top of the digester, applying a corrosion-resistant paint system, and installing a new overflow pipe. Existing interior piping will be recoated (limited cleaning and touch up anticipated). New weighted hatches will be installed on new covers at the digester overflow boxes of both Digesters No. 1 and No. 2. The project will test performance of the existing level-indicating and pressure-indicating instruments, and install new radar-type sensors in Digester No. 1 and Digester No. 2 roof areas. The project will also replace the gaskets at the manways.

Cost Allocation. Project cost allocations are based on the date of project initiation. Costs will be apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall Phase 4 allocated capacity of 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) for the District.

Photos *(if available)*:

Digesters at Salmon Creek Treatment Plant

Scaffolding Inside Digester No. 2

Budget Information:

Project Cost Estimate		
Total Project Cost:	$324,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Class 1	
Project Cost Allocation		
Battle Ground:	23.2%	$75,000
District:	76.8%	$249,000

Schedule Information:

Activity	Year
Planning	2018
Permitting	NA
Real Property/ROW	NA
Design	2019
Bid	2019
Construction	2019

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

#3

Project Name: SCTP Boiler Exhaust Stack Replacement
Project Number: RA07-19-2
Project Priority Score: 25
Form Prepared/Updated: April 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☒
New Asset – Capacity ☐
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

Objective. The project will install new, more robust boiler stacks that are designed to withstand the required operating conditions.

Scope of Work. Each of the two existing boiler stacks are in very poor condition. The continuous condensation of the flue gases has resulted in severe corrosion damage over time. The existing stacks will be replaced with new stacks constructed of a Type 444 stainless steel liner, insulating layer, and stainless steel shell. These materials are more equipped to handle corrosive digester gases.

Cost Allocation. Project cost allocations are based on the date of project initiation. Costs will be apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall Phase 4 allocated capacity of 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) for the District.

Photos *(if available)*:

Existing Boiler Stacks

Budget Information:

Project Cost Estimate		
Total Project Cost:	$130,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Class 3	
Project Cost Allocation		
Battle Ground:	23.2%	$30,000
District:	76.8%	$100,000

Schedule Information:

Activity	Year
Planning	2018
Permitting	NA
Real Property/ROW	NA
Design	2019
Bid	2019
Construction	2019

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

#4

Project Name: SCTP Biosolids Cake Transfer Screw Replacement
Project Number: RA07-19-3
Project Priority Score: 70
Form Prepared/Updated: April 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☒
New Asset – Capacity ☐
New Asset – Regulatory ☐
New Asset – Level of Service ☐

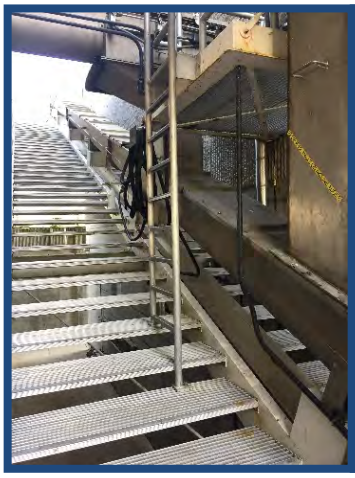
Project Definition:

Objective. The biosolids "cake" transfer screw is crucial to the operation of SCTP. Malfunctions cause significant interruptions to the solids handling process. The project will minimize operational disruptions and provide more reliable operation of the cake transfer screw.

Scope of Work. The existing cake transfer screw is a shafted screw conveyor with intermediate hanger bearings. The bearings have failed multiple times over the past 20 years, causing operational disruptions and frequent repairs. The project will replace the screw conveyor with a new stainless steel shaftless conveyor that does not require hanger bearings. The new conveyor system will replace all components of the existing system. The new system will have a lined trough and a new efficient motor and drive. As part of this project, the roof of the solids hopper will be replaced. It is showing signs of corrosion and will be replaced in conjunction with the modifications to the cake transfer screw.

Cost Allocation. Project cost allocations are based on the date of project initiation. Costs will be apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall Phase 4 allocated capacity of 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) for the District.

Photos *(if available)*:



Existing Cake Transfer Screw

Existing Cake Transfer Screw Motor

Budget Information:

Project Cost Estimate		
Total Project Cost:	$390,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Class 3	
Project Cost Allocation		
Battle Ground:	23.2%	$90,000
District:	76.8%	$300,000

Schedule Information:

Activity	Year
Planning	2018
Permitting	
Real Property/ROW	NA
Design	2019
Bid	2019
Construction	2019

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

#5

Project Name: SCTP HVAC Systems Replacement
Project Number: RA07-19-4
Project Priority Score: 70
Form Prepared/Updated: April 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☒
New Asset – Capacity ☐
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

Objective. This project will replace aged HVAC equipment for several facilities at Salmon Creek Treatment Plant.

Scope of Work. Much of the HVAC equipment at SCTP was installed in the late 1990s and is beyond its useful life. The project will replace the following HVAC equipment over a six-year replacement program period:

- Equipment Requiring Immediate Replacement (2019-2020): $636,000
- Equipment Requiring Replacement in Near Future (2021): $185,000
- Equipment To Be Replaced in Future (2022-2024): $427,000

See supplemental information section (reverse side) for additional detail on the specific units programmed for replacement.

Cost Allocation. Project cost allocations are based on the date of project initiation. Costs will be apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall Phase 4 allocated capacity of 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) for the District.

For additional information related to this project, please refer to *Asset Management Program Development – Salmon Creek Treatment Plant HVAC Evaluation, Jacobs, April 2018.*

Photos *(if available)*:

Aged HVAC Unit at Facility 37

Aged HVAC Unit at Facility 70

Aged HVAC Unit at Facility 72

Budget Information:

Project Cost Estimate		
Total Project Cost:	$1,248,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Class 3	
Project Cost Allocation		
Battle Ground:	23.2%	$290,000
District:	76.8%	$958,000

Schedule Information:

Activity	Year
Planning	2018
Permitting	2019-2024
Real Property/ROW	NA
Design	2019-2024
Bid	2019-2024
Construction	2019-2024

Supplemental Information:

Equipment Requiring Immediate Replacement (2019-2020): $636,000

- 37-GHPU-1 – Rooftop heat pump unit serving the Electrical Room in the Blower Building (Facility 37)
- 70-ASU-1 – Make-up air unit located on the roof of the Digester Control Building (Facility 70)
- 72-ASU-1 – Make-up air unit located on the roof of the Solids Processing Building (Facility 72)
- 72 ECP-1 – Control panel for HVAC equipment serving Facilities 70 and 72
- 83-HTP-1 – Split-system heat pump with a fan coil unit located in the Electrical Building (Facility 83) and an air-cooled outdoor unit located outside the Electrical Building (Facility 83)

Equipment Requiring Replacement in Near Future (2021): $185,000

- 72-EF-4 – Exhaust fan that maintains negative pressure in solids analysis room fume hood in the Solids Processing Building (Facility 72)
- 85-ASU-3 – Make-up air unit located in a storage room in the Operations Center Building (Facility 85)

Equipment To Be Replaced in Future (2022-2024): $427,000

- 10-ASU-1 – Make-up air unit located in mechanical room of Preliminary Treatment Building (Facility 10)
- 47-ASU-1 – Make-up air unit located on the roof of the RAS/WAS Pump Station Building (Facility 47)
- 47-EF-1 – Ventilation exhaust fan on the roof of the RAS/WAS Pump Station Building (Facility 47)
- 70-EF-1 – Ventilation exhaust fan located in the Digester Control Building (Facility 70)

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

#6

Project Name: SCTP Fire Alarm System Replacement
Project Number: RA07-20-1
Project Priority Score: 70
Form Prepared/Updated: April 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☒
New Asset – Capacity ☐
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

Objective. The project will replace the existing 20-year-old fire alarm system at SCTP with a new system in line with current fire alarm technology.

Scope of Work. The existing fire alarm system was installed as part of the Phase 3 expansion at Salmon Creek Wastewater Treatment Plant in 1998 and is in need of replacement. The project will replace fire alarm systems in 11 facilities at SCTP. The project will fully replace all fire system components and reprogram the new system to tie in to the SCTP network. The new system will utilize existing conduit, but will replace all wiring and conductors. The project will determine the most applicable and efficient fire support equipment and systems monitoring entity to meet code requirements and provide the level of service and protection required for SCTP.

Cost Allocation. Project cost allocations are based on the date of project initiation. Costs will be apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall Phase 4 allocated capacity of 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) for the District.

Photos *(if available)*:

Fire Alarm in SCTP Operations Building

Fire Alarm System Control Panel

Budget Information:

Project Cost Estimate		
Total Project Cost:	$1,538,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Class 5	
Project Cost Allocation		
Battle Ground:	23.2%	$357,000
District:	76.8%	$1,181,000

Schedule Information:

Activity	Year
Planning	NA
Permitting	NA
Real Property/ROW	NA
Design	2020
Bid	2020
Construction	2021-2022

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

#7

Project Name: SCTP Boiler Gas Boosters
Project Number: RA07-20-2
Project Priority Score: 56
Form Prepared/Updated: July 2018

Project Type: Existing Asset – Repair ☒
Existing Asset – Replacement ☐
New Asset – Capacity ☐

New Asset – Regulatory ☐
New Asset – Level of Service ☐

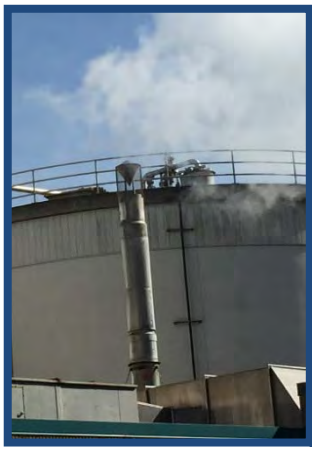
Project Definition:

Objective. The project will install gas pressure boosting equipment to increase the firing rate and temperature of the boilers to ensure boilers are operating at sufficient capacity to meet a simultaneous peak process and HVAC heating demand without forming condensation.

Scope of Work. The boiler exhaust stacks are experiencing significant corrosion damage due to contact with condensation formed inside the stacks. The issue of condensation is directly connected to the firing capacity of the boiler. To resolve this, the boiler needs to operate at its rated capacity, such that only one boiler operates at a time and the average firing rate and associated stack temperature are increased. The project will append a small structure to the outside of the boiler room, install gas pressure boosting equipment and route piping to and from gas supply lines as required to increase the firing rate and operational temperature of the boilers.

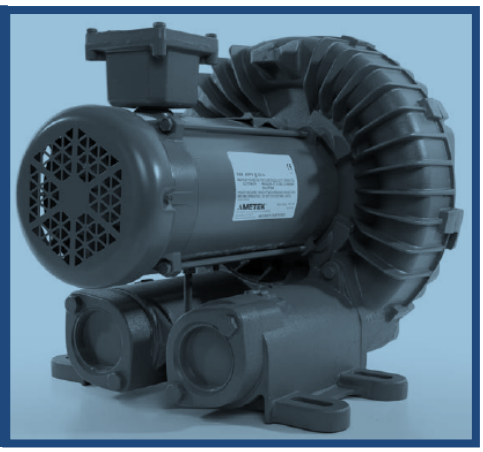
Cost Allocation. Project cost allocations are based on the date of project initiation. Costs will be apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall Phase 4 allocated capacity of 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) for the District.

Photos *(if available)*:



Boiler Stack

Boiler 1 with Gas Train



Gas Booster – Rotron Blower

Budget Information:

Project Cost Estimate		
Total Project Cost:	$205,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Class 3	
Project Cost Allocation		
Battle Ground:	23.2%	$48,000
District:	76.8%	$157,000

Schedule Information:

Activity	Year
Planning	2018
Permitting	NA
Real Property/ROW	NA
Design	2020
Bid	2020
Construction	2020

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

#8

Project Name: SCTP Sludge Blend Tank Slope Stabilization
Project Number: RA07-22-1
Project Priority Score: 50
Form Prepared/Updated: April 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☒
New Asset – Capacity ☐
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

Objective. The project will engage a geotechnical engineer to evaluate slope stability and drainage issues around the sludge blend tank and install a retaining to stabilize the slope and control runoff.

Scope of Work. The area around the sludge blend tank is highly saturated for much or the year. The project will evaluate slope stability and drainage issues around the sludge blend tank. The project will remove the existing small block wall on the slope south of the sludge blend tank and replace it with a larger, more functional retaining wall. The project will include a more complete drainage system at the base of the wall with perforated pipe that connects to the onsite storm drain.

Cost Allocation. Project cost allocations are based on the date of project initiation. Costs will be apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall Phase 4 allocated capacity of 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) for the District.

Photos *(if available)*:

Slope South of Sludge Blend Tank

Saturated Ground At Foundation

Budget Information:

Project Cost Estimate		
Total Project Cost:	$123,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Class 5	
Project Cost Allocation		
Battle Ground:	23.2%	$29,000
District:	76.8%	$94,000

Schedule Information:

Activity	Year
Planning	NA
Permitting	NA
Real Property/ROW	NA
Design	2022
Bid	2022
Construction	2022

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

#9

Project Name: SCTP Primary Sludge Pump Replacement
Project Number: RA07-22-2
Project Priority Score: 35
Form Prepared/Updated: April 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☒
New Asset – Capacity ☐
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

Objective. The project will increase the overall performance of sludge processing while reducing operating and maintenance costs by replacing the primary sludge pumps to a more efficient pump type.

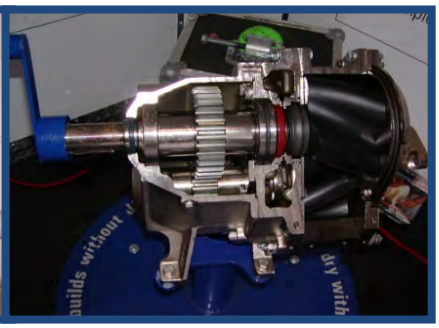
Scope of Work. The existing diaphragm pumps are air powered and inefficient. The project will replace the existing eight primary sludge pumps and associated air compressors, installed in 1998 as part of the Phase 3 Expansion, with two lobe or hose style pumps. The new pumps will be 5-hp with variable frequency drives (VFDs). The existing 60-hp screw compressors will also be replaced with a new smaller pony reciprocating compressor. In addition to the pump replacement, new flow meters and Total Suspended Solids (TSS) probes will be installed and the existing air dryers that serve the diaphragm pumps will be replaced with new, smaller air dryers. The new style pumps will provide a potential savings in operating costs on a magnitude of $15,000 to $20,000 annually. This project qualifies for an incentive of $67,601 from Clark Public Utilities and Bonneville Power Administration. These improvements, combined with the aeration basin diffuser replacements in Aeration Basins 1 through 4, provide a return on investment of 13.3 years after incentives.

Cost Allocation. Project cost allocations are based on the date of project initiation. Costs will be apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall Phase 4 allocated capacity of 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) for the District. For additional information related to this project, please refer to *Project Assessment Report – Salmon Creek WWTP – New Aeration Diffusers and Sludge Pumps, EMP2 Inc., January 2018.*

Photos *(if available)*:

Existing Diaphragm Style Pump

Proposed Hose Style Pump



Proposed Lobe Style Pump

Budget Information:

Project Cost Estimate		
Total Project Cost:	$428,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Class 3	
Project Cost Allocation		
Battle Ground:	23.2%	$99,000
District:	76.8%	$329,000

Schedule Information:

Activity	Year
Planning	NA
Permitting	NA
Real Property/ROW	NA
Design	2022
Bid	2022
Construction	2022

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

#10

Project Name: SCTP Access Road and Asphalt Repair
Project Number: RA07-23-1
Project Priority Score: 35
Form Prepared/Updated: April 2018

Project Type: Existing Asset – Repair ☒
Existing Asset – Replacement ☐
New Asset – Capacity ☐
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

Objective. The project repairs the paved surfaces at Salmon Creek Treatment Plant, including the plant access road. Maintaining existing asphalt surfaces will prevent the need for full replacement in the future.

Scope of Work. The project will apply a single layer chip seal treatment to asphalt that is in fair condition and a double layer chip seal treatment to areas of asphalt in a deteriorated condition. Chip sealing is done by evenly distributing a thin base of hot asphalt onto existing pavement and then embedding finely graded aggregate into it. The approximate area to be sealed is 19,200 square yards. Paving and asphalt repair work should be programmed every five to ten years. This project will be scheduled after the SCTP Phase 5B Improvements project is completed.

Cost Allocation. Project cost allocations are based on the date of project initiation. Costs will be apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall Phase 4 allocated capacity of 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) for the District.

Photos *(if available)*:

Paved Area Near the Headworks Building

Paved Area Near the Solids Building

Budget Information:

Project Cost Estimate		
Total Project Cost:	$286,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Class 3	
Project Cost Allocation		
Battle Ground:	23.2%	$66,000
District:	76.8%	$220,000

Schedule Information:

Activity	Year
Planning	NA
Permitting	NA
Real Property/ROW	NA
Design	2023
Bid	2023
Construction	2023

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

#11

Project Name: SCTP Fire Pump Controller Replacement
Project Number: RA07-23-2
Project Priority Score: 30
Form Prepared/Updated: April 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☒
New Asset – Capacity ☐
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

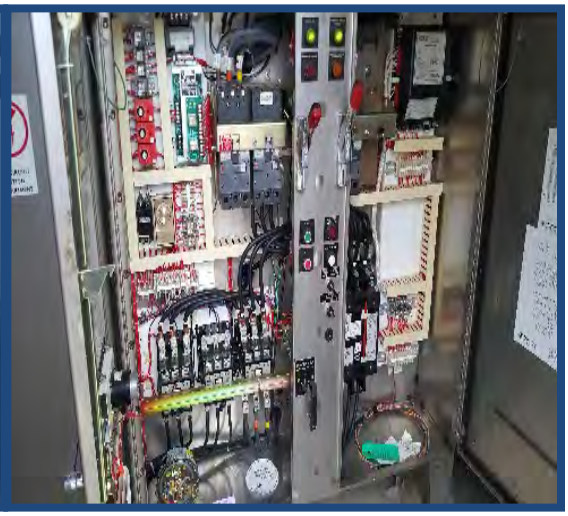
Objective. The project will ensure long-term functionality of the onsite fire pump system by replacing the existing fire pump controllers that are now approaching the end of their useful life.

Scope of Work. The project will replace the two existing fire pump controllers that serve the two onsite fire protection pumps. The fire controllers and breakers were recently rebuilt, however the parts are now obsolete and the components are no longer available. Replacement of these controllers will require a shutdown of the main power to the facility, as the controllers are hard-wired directly to the transformer providing power to that area of the plant.

Cost Allocation. Project cost allocations are based on the date of project initiation. Costs will be apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall Phase 5 allocated capacity of 3.96 mgd (22.6%) for Battle Ground, and 13.54 mgd (77.4%) for the District. For additional information related to this project, see the *Salmon Creek Wastewater Treatment Plant Maintenance Assessment, CH2M HILL, March, 2016*

Photos *(if available)*:

Fire Pump Control Cabinet



Inside Fire Pump Control Cabinet

Budget Information:

Project Cost Estimate		
Total Project Cost:	$272,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Class 3	
Project Cost Allocation		
Battle Ground:	22.6%	$61,000
District:	77.4%	$211,000

Schedule Information:

Activity	Year
Planning	NA
Permitting	NA
Real Property/ROW	NA
Design	2023
Bid	2023
Construction	2023

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

#12
Phase 6-1

Project Name: SCTP Influent Screen Replacement
Project Number: RA07-26-1
Project Priority Score: Component of Phase 6 Expansion
Form Prepared/Updated: April 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☒
New Asset – Capacity ☐
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

Objective. The project will replace the two existing mechanically cleaned influent screens and compactors in order to reduce the labor hours required to maintain the operation of the aging screens.

Scope of Work. The project will install two new mechanically-cleaned influent screens to replace the existing units, which were installed in 1998 as part of the Phase 3 Expansion. The equipment is beginning to require regular replacement of continual-wear items, such as teeth on the screen face and the upper guide rail, and increasing maintenance of the gear reducer assembly on the compactor, which requires taking the screen out of service for several days. In addition to the screens, new screening compactors are required. The current schedule is based on coupling the replacement with the addition of a third bar screen, programmed as part of the Phase 6 Expansion program for efficiency and system compatibility.

Cost Allocation. Project cost allocations are based on the date of project initiation. Costs will be apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall Phase 5 allocated capacity of 3.96 mgd (22.6%) for Battle Ground, and 13.54 mgd (77.4%) for the District. For additional information related to this project, see the *Salmon Creek Wastewater Treatment Plant Maintenance Assessment, CH2M HILL, March, 2016*

Photos *(if available)*:

Existing Influent Screens Rebuilt in 2017

Budget Information:

Project Cost Estimate		
Total Project Cost:	$652,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Class 5	
Project Cost Allocation		
Battle Ground:	22.6%	$147,000
District:	77.4%	$505,000

Schedule Information:

Activity	Year
Planning	2023
Permitting	2024-2025
Real Property/ROW	NA
Design	2024-2025
Bid	2026
Construction	2026-2028

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

#13
Phase 6-2

Project Name: SCTP UV System Replacement
Project Number: RA07-26-2
Project Priority Score: Component of Phase 6 Expansion
Form Prepared/Updated: April 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☒
New Asset – Capacity ☐
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

Objective. The project will improve performance and energy efficiency in the Ultra Violet (UV) system by replacing the existing Trojan UV4000 system with newer technology.

Scope of Work. The project will demolish the existing UV system and replace it with a new, more energy-efficient system. The system was originally installed in 1998 with the Phase 3 Expansion and completely rebuilt in 2008 with the Phase 4 Expansion. System bulb life associated with current technology is now more than twice the existing. Coupled with energy savings, the total potential annual savings is on the order of $100,000 to $150,000. Simple payback for this project would be 15-20 years. The new system would be designed to replace the existing system capacity. The current schedule is based on coupling replacement with the addition of a parallel UV channel, programmed as part of the Phase 6 Expansion program for efficiency and system compatibility.

Cost Allocation. Project cost allocations are based on the date of project initiation. Costs will be apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall Phase 5 allocated capacity of 3.96 mgd (22.6%) for Battle Ground, and 13.54 mgd (77.4%) for the District. For additional information related to this project, see the *Salmon Creek Wastewater Management System Repair and Replacement Needs Assessment Update, CH2M HILL, February 11, 2014.*

Photos *(if available)*:

Existing UV System

Existing UV System Expansion During Phase 4

Budget Information:

Project Cost Estimate		
Total Project Cost:	$3,293,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Class 3	
Project Cost Allocation		
Battle Ground:	22.6%	$744,000
District:	77.4%	$2,549,000

Schedule Information:

Activity	Year
Planning	2023
Permitting	2024-2025
Real Property/ROW	NA
Design	2024-2025
Bid	2026
Construction	2026-2028

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

#14
Phase 6-3

Project Name: SCTP Dewatering Equipment Replacement
Project Number: RA07-26-3
Project Priority Score: Component of Phase 6 Expansion
Form Prepared/Updated: April 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☒
New Asset – Capacity ☐
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

Objective. This project will improve the biosolids dewatering performance and improve dewatering system reliability by replacing existing belt filter presses with screw presses. Based on pilot testing, the dewatering performance is anticipated to increase from 13% solids currently to approximately 18% solids.

Scope of Work. The project will replace two belt filter presses with screw presses of similar capacity. The current belt filter presses were procured in 1996 as part of the Interim Biosolids Dewatering Project and are approaching the end of their useful life. The simple payback for this project, based on reduced hauling costs, is 20-24 years. The current schedule is based on programming this replacement project as part of the Phase 6 Expansion program for efficiency and system compatibility.

Cost Allocation. Project cost allocations are based on the date of project initiation. Costs will be apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall Phase 5 allocated capacity of 3.96 mgd (22.6%) for Battle Ground, and 13.54 mgd (77.4%) for the District. For additional information related to this project, see the *Salmon Creek Treatment Plant Dewatering Equipment Replacement Project Engineering Report, Brown & Caldwell, July 2011.*

Photos *(if available)*:

Existing SCTP Belt Filter Press

New Screw Press

SCTP Solids Processing Center

Budget Information:

Project Cost Estimate		
Total Project Cost:	$3,345,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Class 4	
Project Cost Allocation		
Battle Ground:	22.6%	$756,000
District:	77.4%	$2,589,000

Schedule Information:

Activity	Year
Planning	2023
Permitting	2024-2025
Real Property/ROW	NA
Design	2024-2025
Bid	2026
Construction	2026-2028

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

#15

Project Name: RTP Aeration Basin Mixer Support/ Concrete Repair
Project Number: RA08-19-1
Project Priority Score: 50
Form Prepared/Updated: April 2018

Project Type: Existing Asset – Repair ☒
Existing Asset – Replacement ☐
New Asset – Capacity ☐
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

Objective. The project will perform structural repairs to the aeration basins and modify the mixer support anchorage to prevent similar damage in the future.

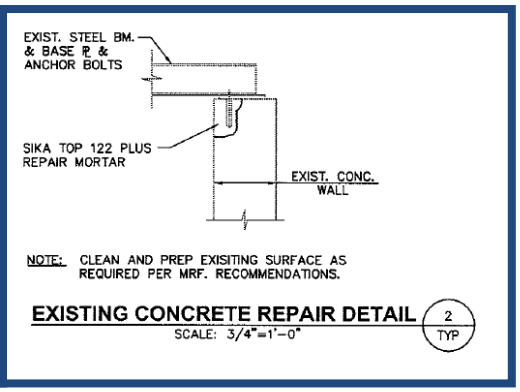
Scope of Work. The mixer support on the existing aeration basins was installed without allowance for thermal expansion of the support bridge. Over time, the anchors securing the mixer support to the basin walls have torn out of the concrete, causing concrete spalling in the area around the anchors. The project will design and install a new mixer support that allows for thermal expansion. The project will also repair the structural damage done to the existing aeration basin walls.

Cost Allocation. The project provides repairs to an existing asset serving only the District service area and therefore 100% of costs are allocated to the District.

Photos *(if available)*:

Failed Concrete at Aeration Basin Mixer Support

Concrete Spalling at Mixer Support Anchors



Detail of Failed Concrete Repair for Aeration Basins

Budget Information:

Project Cost Estimate		
Total Project Cost:	$74,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Class 5	
Project Cost Allocation		
Battle Ground:	0.0%	$0
District:	100.0%	$74,000

Schedule Information:

Activity	Year
Planning	2019
Permitting	NA
Real Property/ROW	NA
Design	2019
Bid	2019
Construction	2019

APPENDIX B

NEW REGIONAL ASSETS

CAPITAL IMPROVEMENT PROGRAM
PROJECT PROFILES

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: 117th Street PS Capacity Upgrade
Project Number: RA04-27-1
Form Prepared/Updated: May 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☒
New Asset – Capacity ☒
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

Objective. This project will increase the pumping capacity of the 117th Street Pump Station to meet the projected future capacity needs of the system.

Scope of Work. The project will replace the five existing 250-HP raw sewage pumps, motors and variable frequency drives with new equipment of larger size and capacity. The project will also install a second engine-generator to provide backup power service as required by Ecology. The pump station's structure and site was designed to accommodate this future upgrade. As a result, there is limited site or structure work required. The project is required when system capacity reaches 34 mgd peak hour flow.

Cost Allocation. A project-specific cost allocation structure is being utilized for this project based on the purchase of additional capacity in the system (see analysis on reverse side). For additional information related to this project, see the *Klineline Pump Station and Force Main Project, Preliminary Design Report, Brown & Caldwell, April 2005*.

Photos *(if available)*:

Existing Pump Assembly

Pump Station Structure

Existing Engine Generator

Budget Information:

Project Cost Estimate			
Total Project Cost:	$12,000,000		
Basis of Estimate -			
Year Completed:	2018		
Project Definition:	5% design	(Class 4)	
Project Cost Allocation			
Battle Ground:	23.4%		$2,800,000
District:	76.6%		$9,200,000

Schedule Information:

Activity	Year
Planning	2024
Permitting	2026
Real Property/ROW	N/A
Design	2025-2026
Bid	2027
Construction	2027-2028

Supplemental Information:

117th Street Pump Station Pumping Capacity Upgrade
Project-Specific Cost Allocation Based on Responsibility for Contributing Factors

Contributing Factor			RESPONSIBILITY ALLOCATION			COST ALLOCATION	
			Contributing Factor (percent)	Battle Ground Share (percent)	District Share (percent)	Battle Ground Share (percent)	District Share (percent)
1. Existing Capacity – Replacement of Existing Pumping Capacity		(Existing)	50.0%	24.8%	75.2%	12.4%	37.6%
Battle Ground Capacity (mgd)		*4.47*					
District Capacity (mgd)		*13.57*					
Total Capacity (mgd)		*18.04*					
2. New Capacity – Construction of New Pumping Capacity	(Total)	(Increment)	50.0%	22.0%	78.0%	11.0%	39.0%
Battle Ground Capacity (mgd)	*6.30*	*1.83*					
District Capacity (mgd)	*20.06*	*6.49*					
Total Capacity (mgd)	*26.36*	*8.32*					
TOTAL			100.0%			23.4%	76.6%

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: SCTP Phase 5A (Outfall/Effluent Pipeline) Expansion
Project Number: RA07-20-1
Form Prepared/Updated: May 2018

Project Type:
Existing Asset – Repair ☐
Existing Asset – Replacement ☒
New Asset – Capacity ☒
New Asset – Regulatory ☐
New Asset – Level of Service ☐

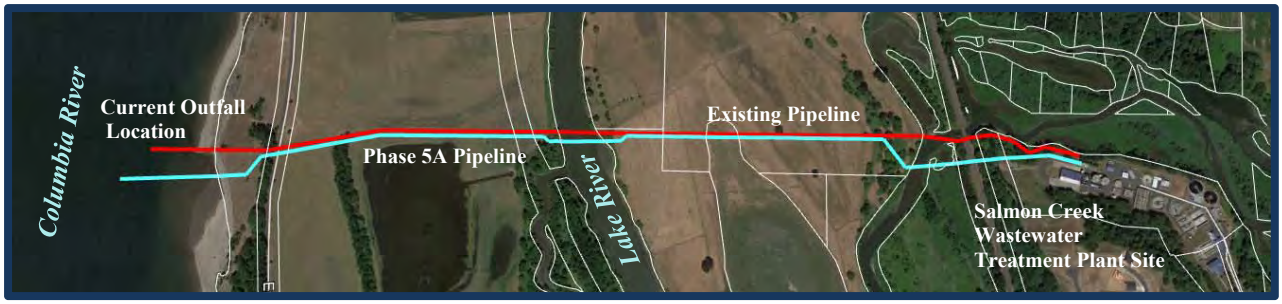
Project Definition:

Objective. This project will provide an increase to Alliance Members' Allocated Capacity of the Salmon Creek Treatment Plant Outfall with installation of a new effluent pipeline and replacement of the in-water and on-shore segments of the outfall pipeline. The outfall replacement will ensure adequate mixing and dilution of treated wastewater discharged into the Columbia River and address streambank erosion affecting the existing pipeline.

Scope of Work. Construct a new effluent pipeline approximately 6,200 feet long and 48 inches in diameter from the treatment plant to the west side of Lower River Road. The route will cross the BNSF railroad, Salmon Creek, Lake River and Lower River Road, requiring significant permitting and real property coordination to prepare the project for bid and construction. The project will also install approximately 1,000 feet of new outfall pipeline from Lower River Road to a new in-water diffuser assembly in the Columbia River. The new pipeline will parallel and replace the in-water portion of the outfall pipeline installed in 1975. The project will also replace the existing effluent pumps at the treatment plant with new pumps that are hydraulically matched to the new effluent pipeline size and configuration.

Cost Allocation. The replacement portion of the project costs are apportioned to Battle Ground and the District according to current treatment plant allocated capacity. The new capacity portion of the project costs are allocated based on the incremental capacity purchases by Battle Ground and the District. See supplemental information section (reverse side) for additional detail. For additional information related to this project, see the *Engineering Report for the Phase 5A Project – Columbia River Outfall and Effluent Pipeline, Phase 5 Expansion Program, CH2M, April 2018.*

Photos *(if available)*:



Existing (red) and Future (blue) Salmon Creek Treatment Plant Effluent Pipeline/ Outfall in Columbia River

Budget Information:

Project Cost Estimate			
Total Project Cost:	$24,500,000		
Basis of Estimate -			
Year Completed:	2018		
Project Definition:	30% Design	(Class 3)	
Project Cost Allocation			
Battle Ground:	25.9%		$6,300,000
District:	74.1%		$18,200,000

Schedule Information:

Activity	Year
Planning	2015-2018
Permitting	2016-2020
Real Property/ROW	2017-2020
Design	2016-2020
Bid	2020
Construction	2021-2022

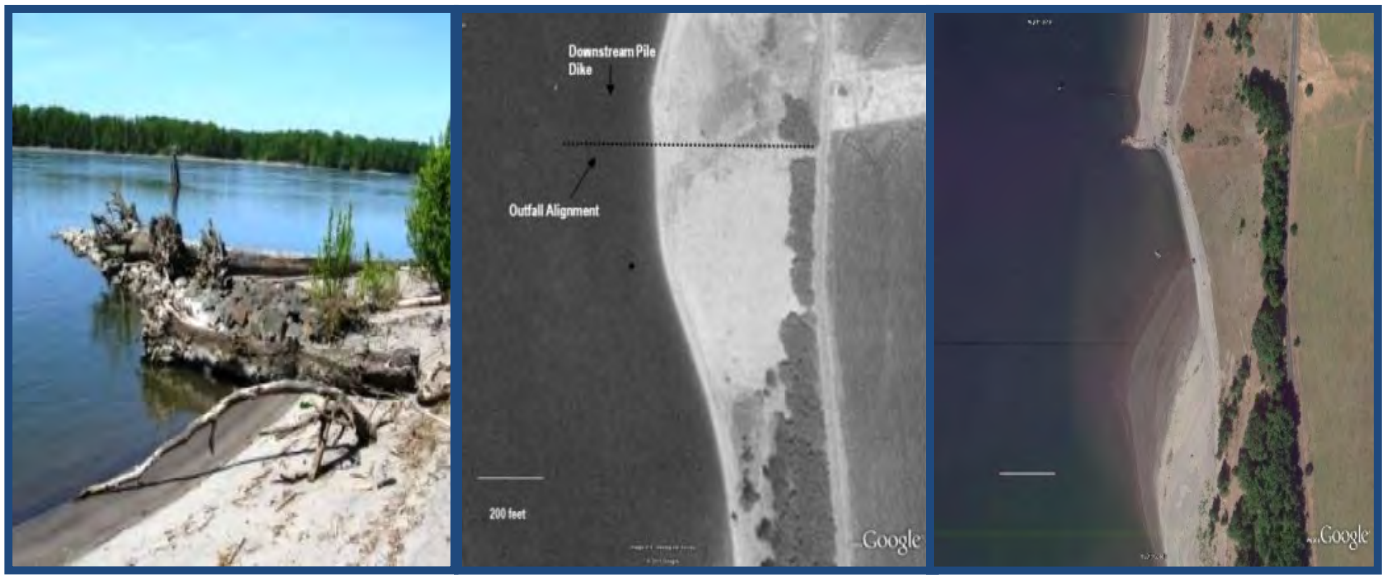
Supplemental Information:

Phase 5A (Outfall/Effluent Pipeline) Expansion
Cost Allocation Based on Allocated Capacity

Allocated Capacity Summary (MGD, MMF)				INCREMENTAL CAPACITY PURCHASED			COST ALLOCATION	
Expansion Phase	Outfall Capacity	Battle Ground	District	Outfall Capacity (mgd)	Battle Ground Capacity (mgd)	District Capacity (mgd)	Battle Ground Share (percent)	District Share (percent)
Phase 4 (Existing)	*14.95*	*3.47*	*11.48*				23.2%	76.8%
Phase 5A (New)	*38.18*	*10.10*	*28.08*	23.23	6.63	16.60	28.5%	71.5%
TOTAL				23.23	6.63	16.60		

Phase 5A (Outfall/Effluent Pipeline) Expansion
Project-Specific Cost Allocation Based on Responsibility for Contributing Factors

Contributing Factor	RESPONSIBILITY ALLOCATION			COST ALLOCATION	
	Contributing Factor (percent)	Battle Ground Share (percent)	District Share (percent)	Battle Ground Share (percent)	District Share (percent)
1. Existing Capacity – Replacement of Existing Outfall	50.0%	23.2%	76.8%	11.6%	38.4%
2. New Capacity – Construction of Larger Outfall	50.0%	28.5%	71.5%	14.3%	35.7%
TOTAL	100.0%			**25.9%**	**74.1%**



Existing Outfall Installation Low Water | *Aerial View of Outfall Area 1994* | *Aerial View of Outfall Area 2010*

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: SCTP Phase 5B Expansion
Project Number: RA07-19-1
Form Prepared/Updated: May 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☐
New Asset – Capacity ☒
New Asset – Regulatory ☐
New Asset – Level of Service ☒

Project Definition:

Objective. This project will provide an increase to Alliance Members' Allocated Capacity in the Salmon Creek Treatment Plant (SCTP), in order to meet the needs of a growing service area.

Scope of Work. The Phase 5B Expansion project will construct an odor control system for the Preliminary and Primary Treatment facilities, including the addition of covers over the Primary Clarifiers. The project will demolish existing Secondary Clarifier 2 to allow for construction of new Aeration Basin 7, per the long-term site master plan. An additional blower is being added to support the new basin. The project will demolish existing building 87 (the plant's original administration facility) in order to allow for construction of new Secondary Clarifier 5, also per the site master plan. Return Activated Sludge (RAS) system improvements include a RAS chlorination system and all new RAS pumps (seven pumps total). A proprietary sludge conditioning system is included in the scope of the project to enhance dewatering performance.

Cost Allocation. The SCTP expansion costs will be allocated based on capacity purchased in the system (see reverse side for supplemental capacity allocation information). For additional information related to this project, see the *Engineering Report for the Phase 5B Project – Salmon Creek Treatment Plant Improvements, Phase 5 Expansion Program, CH2M, June 2018.*

Photos *(if available)*:

Existing Primary Clarifiers

Primary Clarifier Covers

Bio Trickling Filter Tower

Budget Information:

Project Cost Estimate		
Total Project Cost:	$24,000,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Placeholder	(Class 5)
Project Cost Allocation		
Battle Ground:	19.2%	$4,600,000
District:	80.8%	$19,400,000

Schedule Information:

Activity	Year
Planning	2017-2018
Permitting	2018-2019
Real Property/ROW	N/A
Design	2018-2019
Bid	2019
Construction	2020-2022

Supplemental Information:

Salmon Creek Treatment Plant Expansion Program
Cost Allocation Based on Allocated Capacity

	Allocated Capacity Summary (MGD, MMF) (SCWMS Wastewater Facilities Plan Table 3-1)			INCREMENTAL CAPACITY PURCHASED			COST ALLOCATION	
				Plant Capacity (mgd)	Battle Ground Capacity (mgd)	District Capacity (mgd)	Battle Ground Share (percent)	District Share (percent)
Expansion Phase	**Plant Capacity**	**Battle Ground**	**District**					
Phase 4 (Existing)	*14.95*	*3.47*	*11.48*					
	100.0%	*23.2%*	*76.8%*	*2.55*	*0.49*	*2.06*	*19.2%*	*80.8*
Phase 5B (Plant)	*17.50*	*3.96*	*13.54*					
	100.0%	*22.6%*	*77.4%*	2.10	0.44	1.66	21.0%	79.0%
Phase 6	*19.60*	*4.40*	*15.20*					
	100.0%	*22.4%*	*77.6%*	4.20	1.10	3.10	26.2%	73.8%
Phase 7	*23.80*	*5.50*	*18.30*					
	100.0%	*23.1%*	*76.9%*	3.20	0.80	2.40	25.0%	75.0%
Phase 8	*27.00*	*6.30*	*20.70*					
	100.0%	*23.3%*	*76.7%*	3.70	0.90	2.80	24.3%	75.7%
Phase 9	*30.70*	*7.20*	*23.50*					
	100.0%	*23.5%*	*76.5%*					
TOTAL				15.75	3.73	12.02		

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: SCTP Phase 6 Expansion
Project Number: RA07-26-1
Form Prepared/Updated: May 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☐
New Asset – Capacity ☒
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

Objective. This project will provide an increase to Alliance Members' Allocated Capacity in the Salmon Creek Treatment Plant (SCTP), in order to meet the needs of a growing service area.

Scope of Work. The Phase 6 Expansion project will construct a new Influent Screen 3 and a new Primary Clarifier 5. An additional odor control tower is required with the new primary clarifier. Aeration Basin 8 will be constructed and the blower building (Facility 37) will be expanded to provide additional blower capacity for the future, including one additional blower with this project. A second Ultraviolet (UV) Disinfection channel and UV treatment unit will be constructed and a building will be erected to cover the UV and effluent pump station (EPS) facility. Anaerobic Digester 3 will be constructed along with the supporting mechanical mixing and heating systems for this new digester.

Cost Allocation. The SCTP expansion costs will be allocated based on capacity purchased in the system (see reverse side for supplemental capacity allocation information). For additional information related to this project, see the *Salmon Creek Wastewater Management System Wastewater Facilities Plan/General Sewer Plan Amendment, CH2M HILL, August 2013*.

Photos *(if available)*:

Existing Influent Screen

Existing RAS/WAS Pump Station

Existing UV Disinfection

Budget Information:

Project Cost Estimate		
Total Project Cost:	$32,400,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Placeholder	(Class 5)
Project Cost Allocation		
Battle Ground:	21.0%	$6,800,000
District:	79.0%	$25,600,000

Schedule Information:

Activity	Year
Planning	2023
Permitting	2024-2025
Real Property/ROW	N/A
Design	2024-2025
Bid	2026
Construction	2026-2028

Supplemental Information:

Salmon Creek Treatment Plant Expansion Program
Cost Allocation Based on Allocated Capacity

	Allocated Capacity Summary (MGD, MMF) (SCWMS Wastewater Facilities Plan Table 3-1)			INCREMENTAL CAPACITY PURCHASED			COST ALLOCATION	
				Plant Capacity (mgd)	Battle Ground Capacity (mgd)	District Capacity (mgd)	Battle Ground Share (percent)	District Share (percent)
Expansion Phase	**Plant Capacity**	**Battle Ground**	**District**					
Phase 4 (Existing)	*14.95*	*3.47*	*11.48*					
	100.0%	*23.2%*	*76.8%*	*2.55*	*0.49*	*2.06*	*19.2%*	*80.8*
Phase 5B (Plant)	*17.50*	*3.96*	*13.54*					
	100.0%	*22.6%*	*77.4%*	2.10	0.44	1.66	21.0%	79.0%
Phase 6	*19.60*	*4.40*	*15.20*					
	100.0%	*22.4%*	*77.6%*	4.20	1.10	3.10	26.2%	73.8%
Phase 7	*23.80*	*5.50*	*18.30*					
	100.0%	*23.1%*	*76.9%*	3.20	0.80	2.40	25.0%	75.0%
Phase 8	*27.00*	*6.30*	*20.70*					
	100.0%	*23.3%*	*76.7%*	3.70	0.90	2.80	24.3%	75.7%
Phase 9	*30.70*	*7.20*	*23.50*					
	100.0%	*23.5%*	*76.5%*					
TOTAL				15.75	3.73	12.02		

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: SCTP Phase 7 Expansion
Project Number: RA07-32-1
Form Prepared/Updated: May 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☐
New Asset – Capacity ☒
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

Objective. This project will provide an increase to Alliance Members' Allocated Capacity in the Salmon Creek Treatment Plant, in order to meet the needs of a growing service area.

Scope of Work. The Phase 7 Expansion project will construct a new Primary Clarifier 6 and a new Aeration Basin 9. An additional blower is added with this project to support the new basin. A new Mixed Liquor splitter box is required to direct flow to new Secondary Clarifier 6. A new RAS/WAS pump station facility is also required to support the new secondary clarifier. Two new effluent pumps are required to convey peak flow rates to the Columbia River. Anaerobic Digester 4 will be constructed along with the supporting mechanical mixing and heating systems for this new digester. To provide space for the new secondary clarifier and RAS/WAS pump station, the plant's original aerobic digester and a maintenance storage facility must be demolished, per the long-term site master plan. A replacement maintenance storage facility is also provided elsewhere on the site with this project.

Cost Allocation. The SCTP expansion costs will be allocated based on capacity purchased in the system (see reverse side for supplemental capacity allocation information). For additional information related to this project, see the *Salmon Creek Wastewater Management System Wastewater Facilities Plan/General Sewer Plan Amendment, CH2M HILL, August 2013.*

Photos *(if available)*:

Salmon Creek Treatment Plant Aerial

Existing Primary Clarifier

Existing Anaerobic Digester

Budget Information:

Project Cost Estimate		
Total Project Cost:	$34,200,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Placeholder	(Class 5)
Project Cost Allocation		
Battle Ground:	26.2%	$9,000,000
District:	73.8%	$25,200,000

Schedule Information:

Activity	Year
Planning	2029
Permitting	2030-2031
Real Property/ROW	N/A
Design	2030-2031
Bid	2032
Construction	2032-2034

Supplemental Information:

Salmon Creek Treatment Plant Expansion Program
Cost Allocation Based on Allocated Capacity

	Allocated Capacity Summary (MGD, MMF) (SCWMS Wastewater Facilities Plan Table 3-1)			INCREMENTAL CAPACITY PURCHASED			COST ALLOCATION	
				Plant Capacity (mgd)	Battle Ground Capacity (mgd)	District Capacity (mgd)	Battle Ground Share (percent)	District Share (percent)
Expansion Phase	**Plant Capacity**	**Battle Ground**	**District**					
Phase 4 (Existing)	*14.95*	*3.47*	*11.48*					
	100.0%	*23.2%*	*76.8%*	*2.55*	*0.49*	*2.06*	*19.2%*	*80.8*
Phase 5B (Plant)	*17.50*	*3.96*	*13.54*					
	100.0%	*22.6%*	*77.4%*	2.10	0.44	1.66	21.0%	79.0%
Phase 6	*19.60*	*4.40*	*15.20*					
	100.0%	*22.4%*	*77.6%*	4.20	1.10	3.10	26.2%	73.8%
Phase 7	*23.80*	*5.50*	*18.30*					
	100.0%	*23.1%*	*76.9%*	3.20	0.80	2.40	25.0%	75.0%
Phase 8	*27.00*	*6.30*	*20.70*					
	100.0%	*23.3%*	*76.7%*	3.70	0.90	2.80	24.3%	75.7%
Phase 9	*30.70*	*7.20*	*23.50*					
	100.0%	*23.5%*	*76.5%*					
TOTAL				15.75	3.73	12.02		

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: SCTP Class A Biosolids Upgrade
Project Number: RA07-32-2
Form Prepared/Updated: May 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☐
New Asset – Capacity ☐
New Asset – Regulatory ☒
New Asset – Level of Service ☒

Project Definition:

Objective. This project proposes to install a biosolids dryer at the SCTP site that will result in the production of a Class A biosolids material, upgrading the current Class B biosolids program. The upgrade provides several benefits to the Alliance biosolids program including (1) reduced program risk related to legislative, regulatory and political challenges to Class B programs, (2) increased program flexibility, reliability and control, including the ability to reuse the biosolids material within the local community, (3) substantially reduced truck traffic volume (by approximately a 6:1 ratio) with the residential community near the SCTP. A variety of different markets have been evaluated on a preliminary basis to ensure there are multiple end uses for the type and quantity of material that would be available within Clark County.

Scope of Work. The project will construct the biosolids dryer and related material handling and odor control systems, primarily in two of the existing four bays of the existing Biosolids Storage facility. This allows the remaining two bays to continue to serve in a biosolids storage capacity for the finished Class A material. Miscellaneous site improvements would also be required to support the equipment installation.

Cost Allocation. The project is scheduled to be completed at approximately the same time as the Phase 7 Expansion project, therefore the overall Phase 7 Allocated Capacity is used as the basis of cost allocation with District capacity of 18.30 mgd (76.9%) and Battle Ground capacity of 5.50 mgd (23.1%). See the *Technical Memorandum – Class A Biosolids Cost Update, Brown and Caldwell, May 2017* for additional information. The overall Class A and Class B program costs are similar, with the Class A program being incrementally higher cost through year 18 of the study period. After that point, the Class A program is more cost effective overall.

Photos *(if available)*:

Paddle Dryer - Exterior View

Paddle Dryer - Interior View

Class A Biosolids Product

Budget Information:

Project Cost Estimate		
Total Project Cost:	$11,700,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Placeholder	(Class 5)
Project Cost Allocation		
Battle Ground:	23.1%	$2,700,000
District:	76.9%	$9,000,000

Schedule Information:

Activity	Year
Planning	2029
Permitting	2030-2031
Real Property/ROW	N/A
Design	2030-2031
Bid	2032
Construction	2032-2034

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: Ridgefield Treatment Plant Decommissioning
Project Number: RA08-32-1
Form Prepared/Updated: May 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☒
New Asset – Capacity ☐
New Asset – Regulatory ☐
New Asset – Level of Service ☐

Project Definition:

Objective. This project provides for the proper decommissioning of the Ridgefield Treatment Plant and Outfall at the end of the facility's useful life.

Scope of Work. This project will demolish all WWTP structures to three feet below ground level. Above ground waste from this demolition will be disposed of at a construction landfill. Below grade waste will be kept onsite and used as back fill material for the empty basins. All below-grade piping, including the outfall, will be filled with low strength concrete and abandoned in place. All structures more than three feet below grade will remain. Basins will be filled with sand to bring them to existing ground level. Due to the hazardous soils on site, a HAZWOPER supervisor will be required to witness all excavation and material handling. It is assumed that no material will be excavated and hauled offsite. Upon completion of demolition work, placement of a geo-textile on top of contaminated soils, along with a two-foot cap of clean fill material will be required to complete the decommissioning. The site will then be reclaimed for other uses by the City of Ridgefield. The work will be completed in accordance with the consent decree terms and conditions required for excavating on the Pacific Wood Treating Corporation Site (Ecology Site No. 1019).

Cost Allocation. All capacity related to the Ridgefield Treatment Plant and Outfall is allocated to the District, therefore 100% of costs of this project are the responsibility of the District.

Photos *(if available)*:

Ridgefield Treatment Plant Site

Budget Information:

Project Cost Estimate		
Total Project Cost:	$3,500,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Placeholder	(Class 5)
Project Cost Allocation		
Battle Ground:	0%	$0
District:	100%	$3,500,000

Schedule Information:

Activity	Year
Planning	2029
Permitting	2030-2031
Real Property/ROW	N/A
Design	2030-2031
Bid	2032
Construction	2032

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: BGFM Parallel Force Main
Project Number: RA09-27-1
Form Prepared/Updated: May 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☐
New Asset – Capacity ☒
New Asset – Regulatory ☐
New Asset – Level of Service ☐

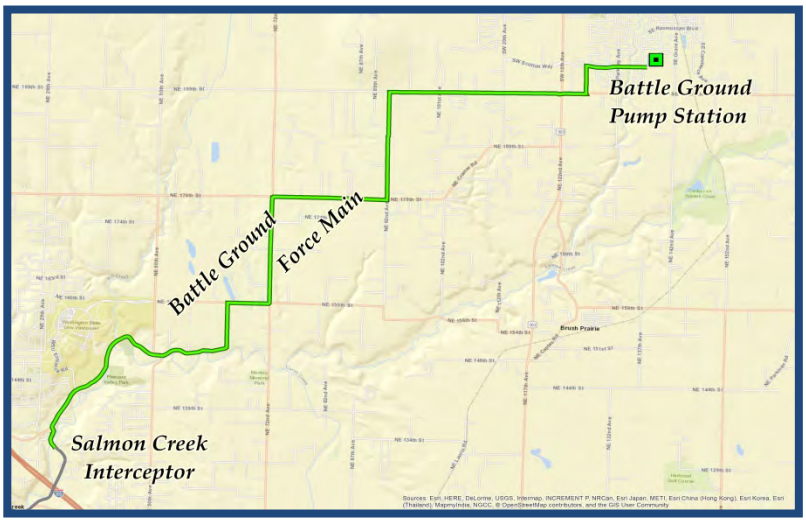
Project Definition:

Objective. The project will increase capacity in the Battle Ground Force Main system to support continued growth in the Battle Ground service area.

Scope of Work. The project will construct a second, parallel force main pipeline from Battle Ground to a point of connection with the Klineline Interceptor. The new pipeline is estimated to be 24 inches in diameter and is anticipated to largely follow the route of the current force main. Additional planning and engineering work will be completed in advance of construction to confirm pipe sizing and route.

Cost Allocation. The project provides capacity only for the Battle Ground service area and therefore 100% of costs are allocated to Battle Ground. For additional information related to this project, see the *City of Battle Ground General Sewer Plan, Wallis Engineering, March 2011*.

Photos *(if available)*:



Battle Ground Force Main Route

Budget Information:

Project Cost Estimate		
Total Project Cost:	$34,300,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Placeholder	(Class 5)
Project Cost Allocation		
Battle Ground:	100%	$34,300,000
District:	0%	$0

Schedule Information:

Activity	Year
Planning	2024
Permitting	2025-2026
Real Property/ROW	2025-2026
Design	2025-2026
Bid	2027
Construction	2027-2029

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: General Sewer Plan/Wastewater Facilities Plan
Project Number: GSP-WFP-20
Form Prepared/Updated: May 2018

Project Type: Existing Asset – Repair ☐
Existing Asset – Replacement ☐
New Asset – Capacity ☒
New Asset – Regulatory ☒
New Asset – Level of Service ☒

Project Definition:

Objective. This project will develop the first Alliance regulatory planning document for Alliance-owned infrastructure, providing a report meeting the Ecology definition for a General Sewer Plan (GSP) and the EPA definition for a Wastewater Facilities Plan (WFP). To-date, the Alliance has relied on planning documents inherited from Member agencies at formation. Those documents are sufficiently dated that a new plan for Alliance infrastructure is needed at this time to guide future capital investments.

Scope of Work. The plan will provide a recommended program for future investments that meets the growth demands on the system, is consistent with regulatory requirements and reflects Alliance values. The plan will provide updated flow and loading assessments, considering current and future regulatory requirements, and explore alternatives in these areas:

- Regional wastewater transmission options associated with routing future Battle Ground area flows and future upgrades for the 117th Street Pump Station.
- Regional wastewater treatment options including use of City of Vancouver facilities and Ridgefield Treatment Plant decommissioning.
- Reclaimed water alternatives and cost effectiveness (a regulatory requirement).
- Residuals and resource recovery options including Class A biosolids and digester gas utilization.

Cost Allocation. Administrative costs not related to operations or capital projects are determined by total Treatment Facilities Allocated Capacity. After Phase 5 capacity is recognized, costs would be allocated based on District Allocated Capacity of 14.24 mgd (78.2%) and Battle Ground Allocated Capacity of 3.96 mgd (21.8%).

Photos *(if available)*:

Alliance Regional Assets Service Area

Budget Information:

Project Cost Estimate		
Total Project Cost:	$1,500,000	
Basis of Estimate -		
Year Completed:	2018	
Project Definition:	Placeholder	(Class 5)
Project Cost Allocation		
Battle Ground:	21.8%	$330,000
District:	78.2%	$1,170,000

Schedule Information:

Activity	Year
Planning	2021-2022
Permitting	NA
Real Property/ROW	NA
Design	NA
Bid	NA
Construction	NA