DISCOVERY CLEAN WATER ALLIANCE

RESOLUTION NO. 2016 - 02

A RESOLUTION OF DISCOVERY CLEAN WATER ALLIANCE, ADOPTING THE 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 Capital Plan as proposed; now, therefore

BE IT RESOLVED by the Board of Directors of the Discovery Clean Water Alliance that the 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 16, 2016.

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

12-16-2016

2016 CAPITAL PLAN

Prepared in Support of the 2017-2018 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

Prepared in Support of the 2017-2018 Capital Budget

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 most highly 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

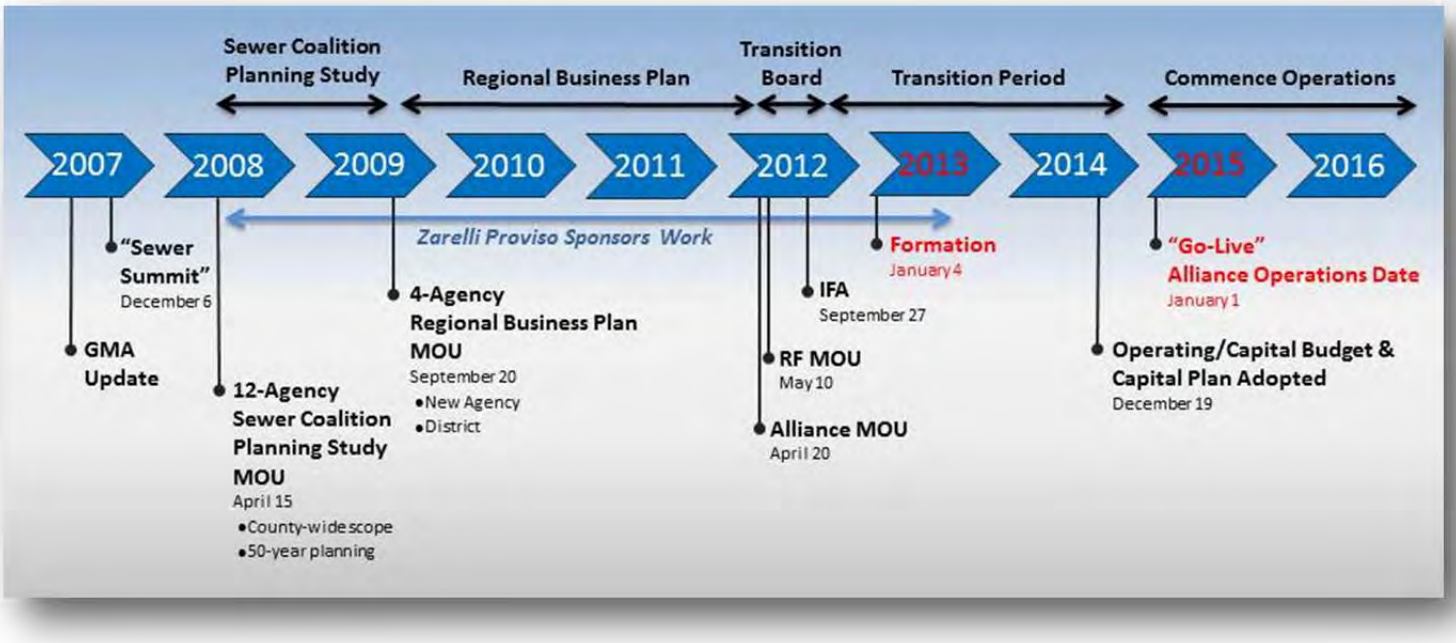
As currently established, the Alliance serves four Member agencies – the City of Battle Ground, Clark County, Clark Regional Wastewater District and the City of Ridgefield. The Members jointly own and jointly manage regional wastewater assets under Alliance ownership through an interlocal framework established 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



- Sewer Summit. 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.

- Sewer Coalition Planning Study. 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.

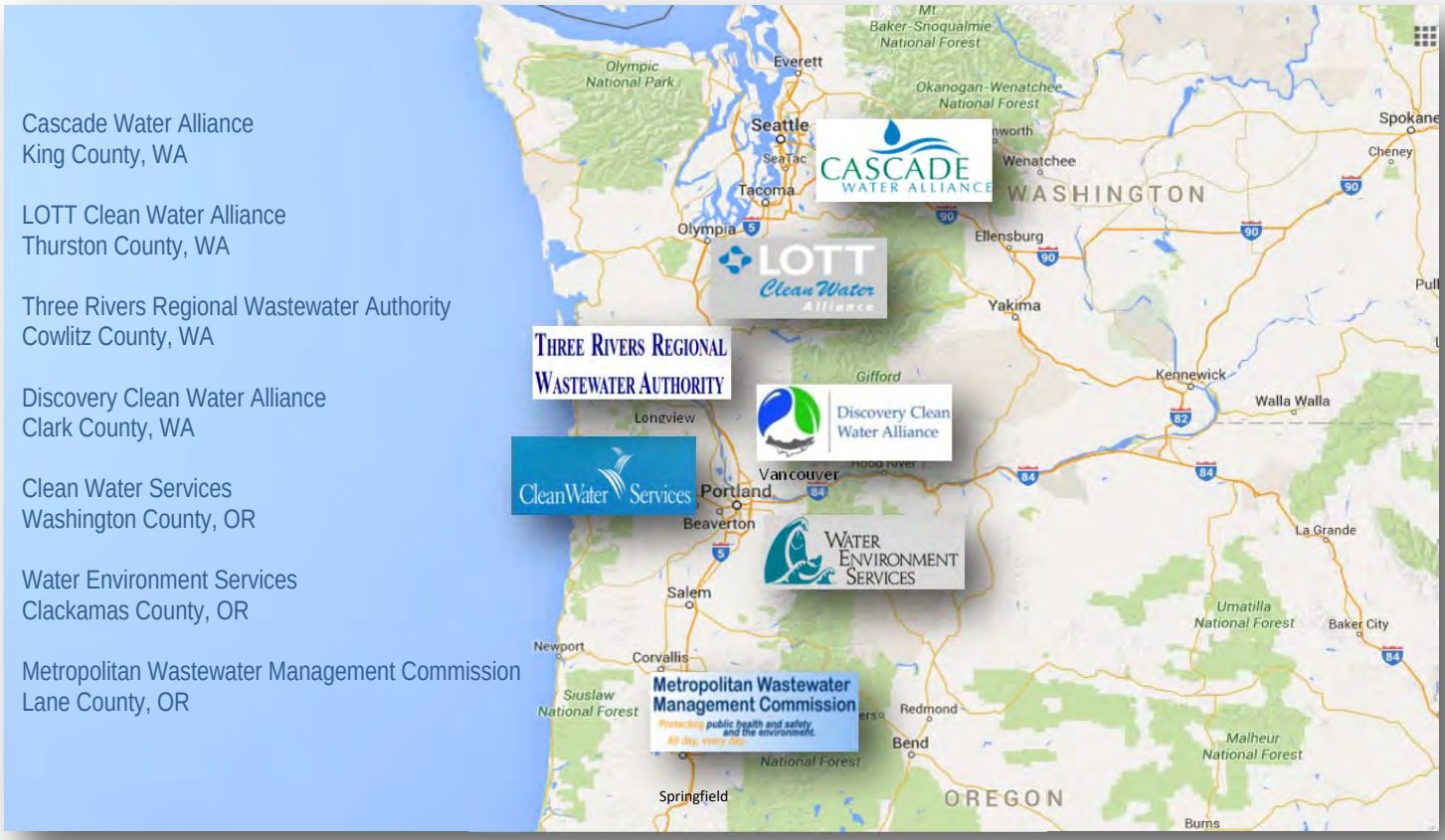
The asset-based cost allocation model consists of three primary types of costs: (1) operational costs primarily shared by actual flow contributions from the Members; (2) capital costs related to existing facilities by capacity allocation or capacity "ownership" by the Members; and (3) capital costs related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

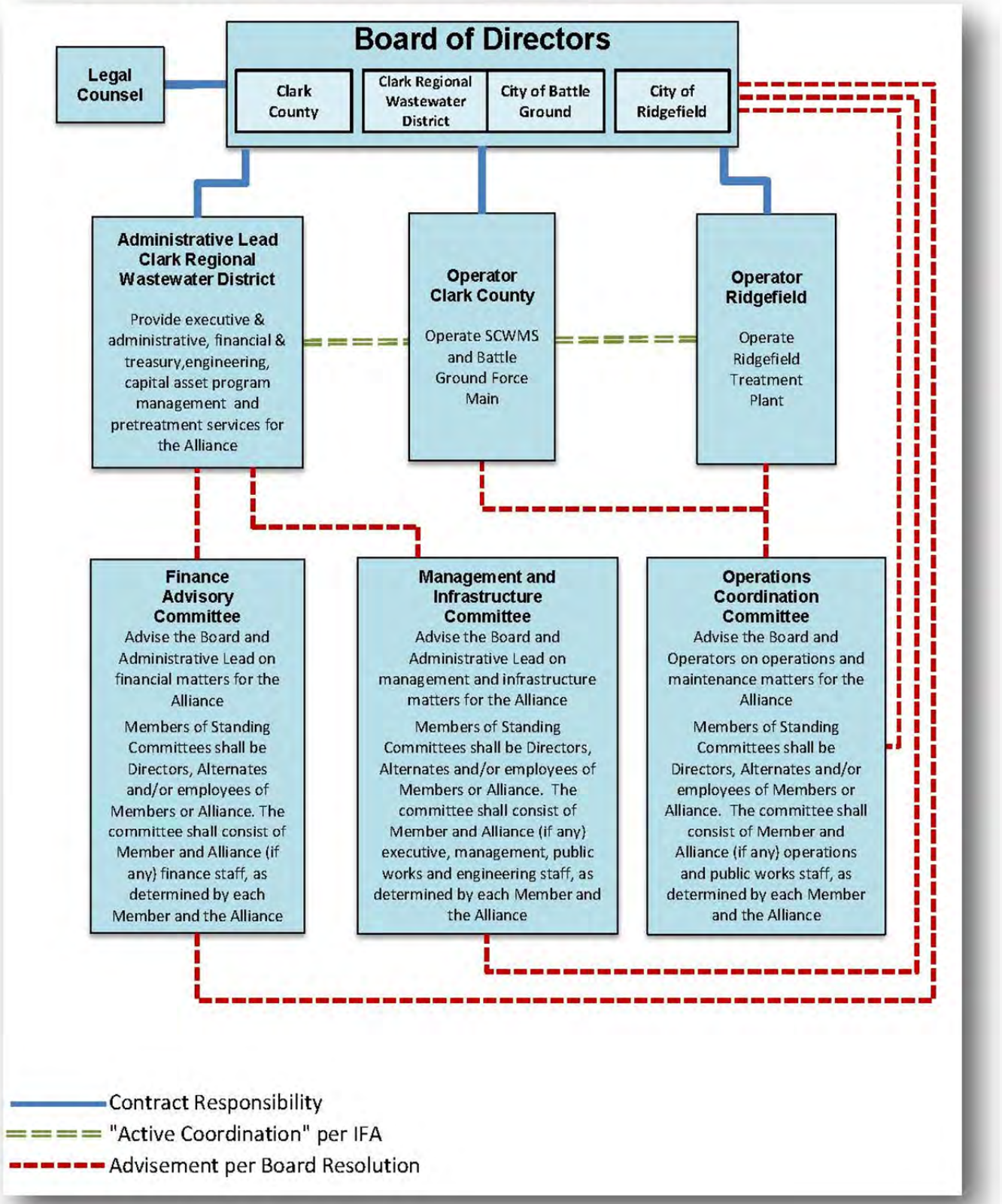
The following decisions related to capital planning for Regional Assets are classified as "Significant Decisions" in the IFA and require a Dual Super-Majority Vote: the adoption of a Capital Plan (including the allocation of costs pursuant to any such Capital Plan) and a change in Allocated Capacity.

- Member Service Providers. The Alliance structure relies on contracts with its Members to deliver the majority of services. Clark County and the City of Ridgefield are contracted with the Alliance to provide operational services for all Alliance Regional Assets. Clark Regional Wastewater District is 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 all financial matters for the Alliance. The Management and Infrastructure Committee (MIC) solicits guidance from the Members on decisions related to the Alliance asset management programs. An Operations Coordination Committee (OCC) allows for interaction and coordination of Regional Asset operations with the Members.

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 actively managed repair and replacement 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.
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 expected to be January 1, 2015, unless the Board designates a different date.

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.

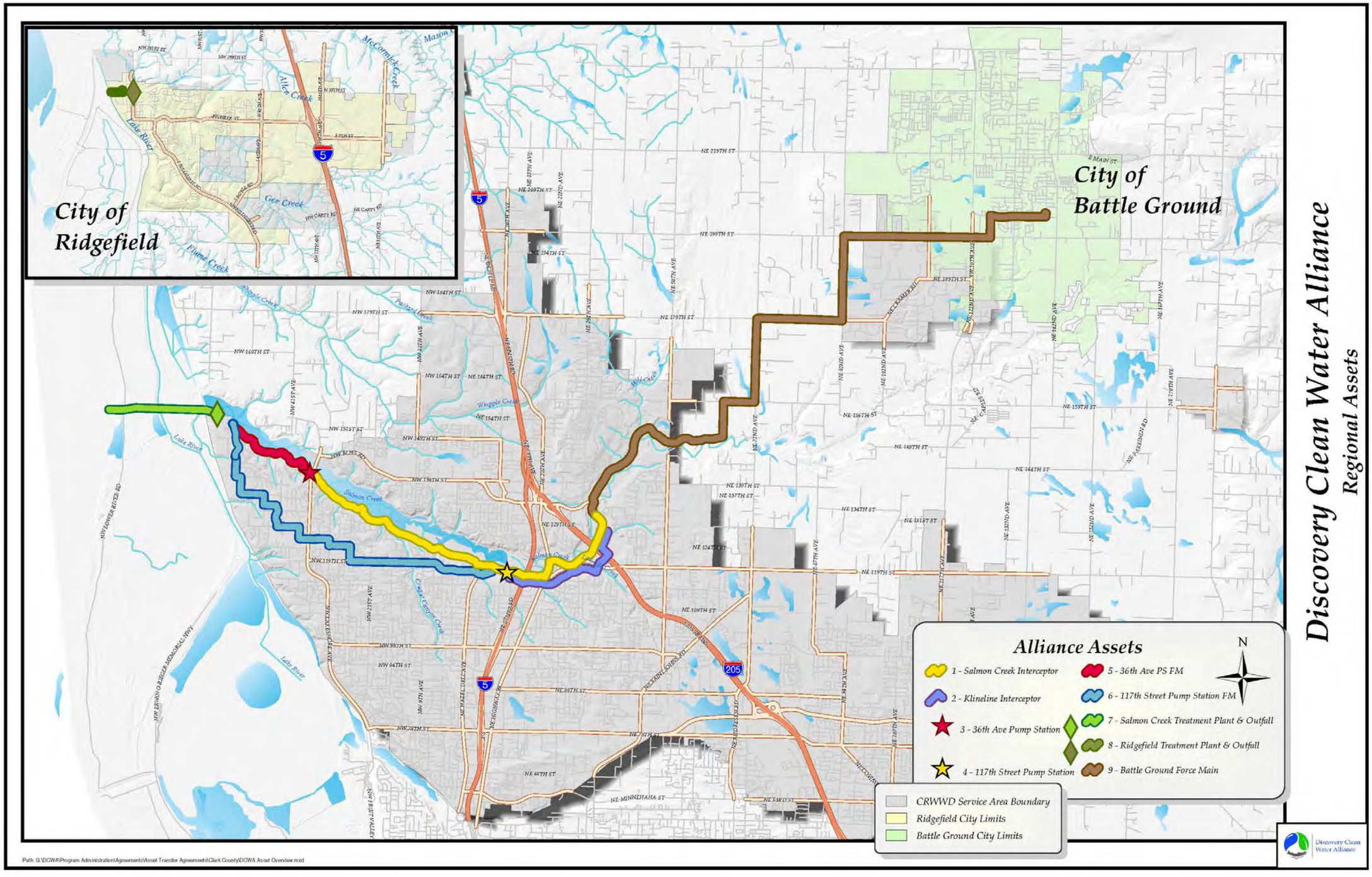
1.5 Alliance Regional Assets

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. These Regional Assets are depicted in the following Regional Asset Descriptions and Regional Asset Overview Map. For more detail on the specific Regional Assets, see Appendix A for figures illustrating each of the assets under Alliance responsibility.

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).
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 46° 43' 58" N, longitude 122° 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 45° 49' 18" N, longitude 122° 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

2016 Capital Plan

Prepared in Support of the 2017-2018 Capital Budget

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 B (Projects In Construction), Appendix C (Existing Assets – Repair and Replacement Project Profiles) and Appendix D (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 2016 Capital Plan is $57,000. 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 RA03–17–01 would be for a project for Regional Asset No. 3 (the 36th Avenue Pump Station) where the project was scheduled to bid in 2017 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 2016 dollars. A separate process to escalate the project costs from this 2016 baseline to the estimate 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%	50%
Class 4	1-15%	Study or Feasibility Review	L: -30% H: +50%	40%
Class 3	10-40%	Budget Authorization	L: -20% H: +30%	30%
Class 2	30-70%	Budget Control	L: -15% H: +20%	20%
Class 1	65-100%	Final Estimate/ Bid Review	L: -10% H: +15%	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 Program

The initial Alliance Capital Plan (adopted in 2014) incorporated the existing condition assessment reports and asset management programs from the Member agencies contributing Regional Assets to the Alliance. That information informed prioritization of six initial repair and replacement projects, which are in various stages of development and implementation at this time. Updated Capital Project Profile forms are provided in the appendices, presenting the current definition of these priority projects and based on the work accomplished over the last two-year period.

Regional Asset Condition Assessment. In order to inform the current Capital Plan and related budget processes, the Alliance sponsored formal maintenance assessments for the regional pump stations and treatment plant assets. The intent of the assessments was to identify equipment components having a reasonable likelihood of repair or replacement within the next several years. The work was performed by an independent consultant experienced in all phases of wastewater treatment plant planning, design, permitting, construction and operation. This work is summarized in two separate reports:

- *Salmon Creek WWTP Maintenance Assessment, CH2M, 2016*. This report is for the 36th Avenue Pump Station, the 117th Street Pump Station and the Salmon Creek Treatment Plant.
- *Ridgefield WWTP Maintenance Assessment, CH2M, 2016*. This report is specific to the Ridgefield Treatment Plant only.

The future (2018) Capital Plan update is intended to also focus on an evaluation of pipeline and facilities assets. The facilities work will consider the condition of buildings and structures as well as any grounds or site improvement needs.

Capital Project Prioritization Process. Project needs greater in value than the established Alliance capital project threshold (established above) have been carried into an Alliance capital planning prioritization and programming processes, as further explained in this section. Project needs below this threshold have been referred to the Alliance Operators for consideration in the establishment of the current and future Alliance operating budgets.

Information from these maintenance assessment reports was reviewed with the Alliance Standing Committees during several meetings and workshops held in the first half of 2016. In order to systematically prioritize the investments, the Standing Committees considered the following characteristics for each project:

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

After the initial rankings, additional criteria were also considered as follows:

- Safety considerations for Member Agency staff and the public served by the assets
- Return on investment (ROI) where operational cost savings are provided by the project
- Bid packaging and other potential efficiencies in delivering the projects
- Regulatory trends and compliance, where applicable
- Public and environmental health considerations, consistent with Alliance values
- Opportunities for system-wide benefits, consistent with Alliance values

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 for documented energy saving programs applied, the credits were used to offset capital costs in the ROI calculations. Net ROI performance was then prioritized according to the following three tests:

- 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.
- 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.
- 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.

Repair and Replacement Project Programming. Appendix C provides a comprehensive summary of each repair and replacement project that has been identified and vetted as part the Alliance repair and replacement program. Each Capital Project Profile form lists source documents supporting the project-specific recommendations. Section 2.6 provides a summary of the programming efforts for both prioritized near-term (two-year and six-year) projects and long-term (20-year) projects.

As noted above, the specific project definitions are based on maintenance assessments focused on near term needs. In the absence of a fully developed asset management program and in order to provide a complete 20-year Capital Plan, the following project allowances are established based on a separate analysis of general equipment and facility repairs likely to be needed in the planning period:

- Process mechanical/electrical/controls systems
  - $150,000 per year for years 3-6
  - $600,000 per year for years 7-20
- Buildings/structures/grounds
  - $150,000 per year for years 1-20

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.

2.4 New Regional Assets – Capital Projects Summary

This section of the Capital Plan presents the infrastructure investments needed to address system capacity, new regulatory obligations or new level-of-service commitments. The planning basis for individual projects is developed in the Member agency planning documents listed in Section 2.2. Individual capital projects are summarized in this section and profiled in detail in Appendix D.

Regional Asset Capacity Assessment - General. The timelines associated with the project recommendations in the Member agency 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 afford or to utilize 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 realities while still being prudently conservative in terms of providing capacity ahead of demand. The dates associated with specific projects detailed in Appendix D are consistent with this updated growth and timeline analysis.

In general, historical growth rates are applied to determine long range capacity planning and capital project timing. These historical growth rates are approximately 250 ERUs annually for the City of Battle Ground and approximately 1,100 ERUs annually for Clark Regional Wastewater District (including the Ridgefield service area within the District).

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.

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 (including upstream pipelines and pump stations). Independent assessments for other Regional Assets (the Battle Ground Force Main and the Ridgefield Treatment Plant [RFTP]) are being provided in the context of updated or amended General Sewer Plans for the City of Battle Ground and Clark Regional Wastewater District. The results of those analyses are summarized in the Capital Project Profile forms found in Appendix D for a complete Regional Asset capacity assessment.

Regional Asset Capacity Assessment – SCTP. 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

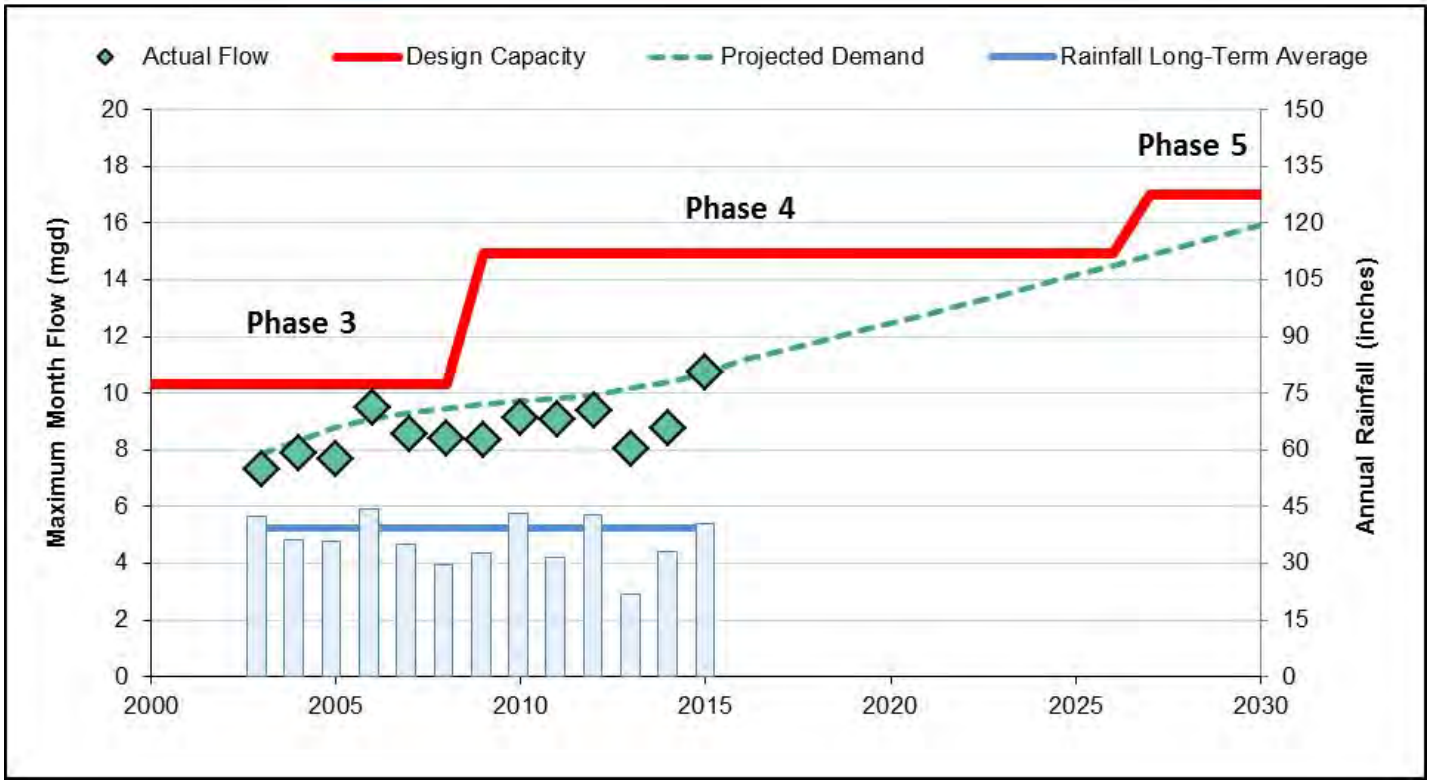
SCTP capacity has been assessed relative to these criteria for both flow and wasteload and the results are summarized herein.

In terms of flow-based assessment, SCTP influent flows are presented in Figure 2.1. 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.

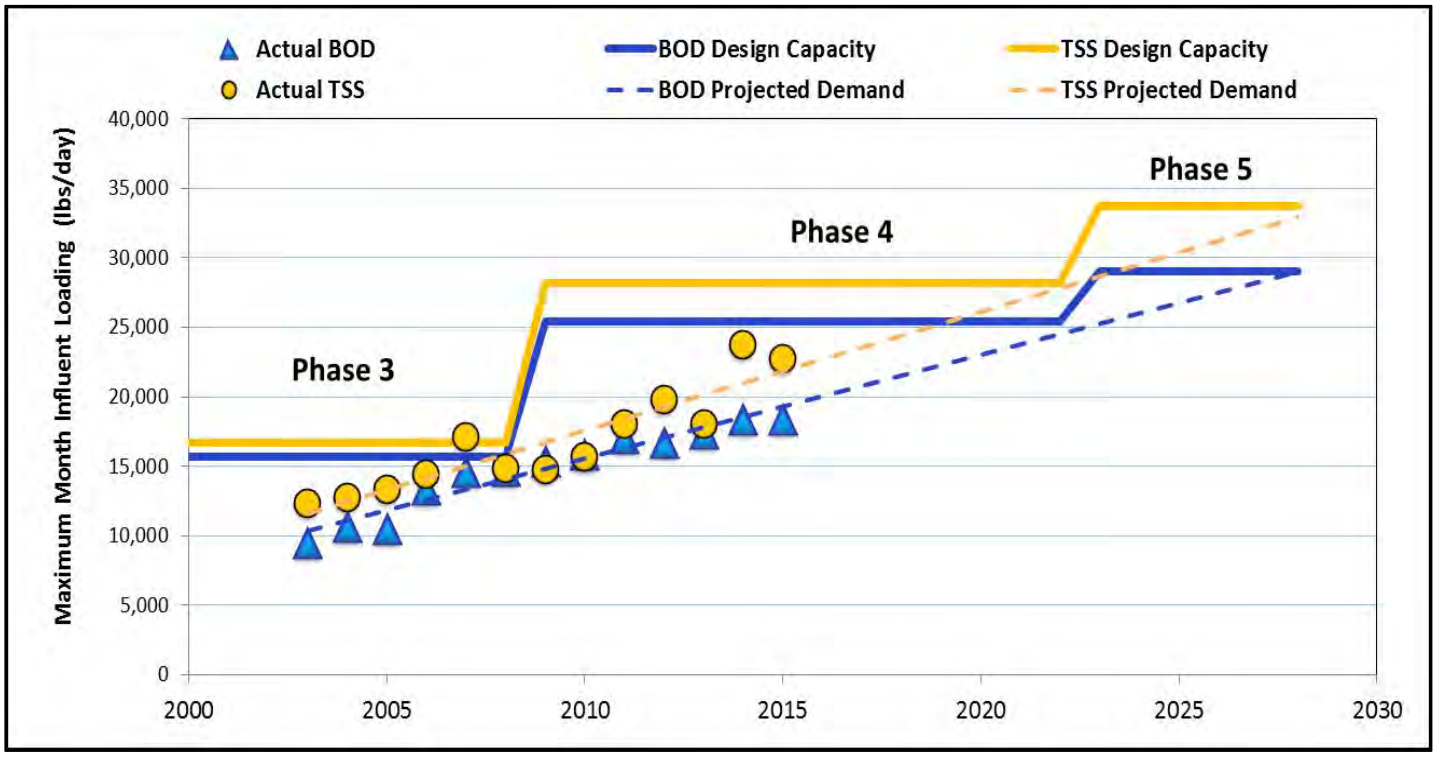
Taking these factors into consideration, this assessment indicates that capacity in the system needs to be increased approximately by the year 2026. This timeline provides a small capacity buffer that can help address factors that cannot be predicted precisely, such as the potential for wet weather conditions or above historical trend growth rates.

Figure 2.1 Salmon Creek Treatment Plant Capacity Assessment – Influent Flow



In terms of wasteload-based assessment, SCTP influent wasteloads are presented in Figure 2.2. Wasteloads are presented for two parameters used by Ecology to track plant capacity – total suspended solids (TSS) and 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 2023 for TSS and 2024 for BOD.

Figure 2.2 Salmon Creek Treatment Plant Capacity Assessment – Influent Wasteload



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

Table 2.3 – 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)	2026	2023	2024
Year Plans for Maintaining Capacity Are Due to Ecology	2021 submittal	2018 submittal	2019 submittal

This Capital Plan will include a project to provide an updated General Sewer 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. The projects depicted in the appendices represent the best current information for those future needs. However, it is expected that the project details would be updated through the process of completing a next-generation formal planning document.

Section 2.6 provides a summary of the near-term (two-year and six-year) projects and long-term (20-year) projects. The two-, six- and 20-year capital projects 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.

Long-Term Planning Framework. A separate narrative summary of projects identified through formal planning and study efforts, but not yet formally programmed within the 20-year planning period, is included in Appendix E. These projects are listed for further monitoring and development as conditions warrant. The capacity available with these projects effectively provides for more than a 50-year planning horizon at average historical growth rates.

The capital project timelines described above are based on current estimates of service area growth characteristics, current regulatory requirements and current partnership opportunities. 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.

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. The future construction of one new Regional Asset, a Regional Biofilter, within the 2017-2018 budget period provides the basis for establishing Allocated Capacity parameters for this asset.

Regional Biofilter – Klineline Interceptor. This new asset is being constructed to better manage air phase odors and corrosion in the Klineline Interceptor where two large transmission lines discharge. These discharges are from (1) the District-owned St. John's Interceptor (transporting District flows only) and (2) the Alliance-owned Battle Ground Force Main (transporting District and Battle Ground flows).

The Regional Biofilter does not directly process wastewater and is sized fundamentally based on the air flow ventilation rates needed to manage odors and corrosion from pipelines discharging into the Klineline Interceptor. Therefore, to work within the Alliance asset-based cost allocation approach, it is appropriate to apply a design ventilation rate-based allocation to this asset (rather than a wastewater flow rate-based allocation). Such an allocation is allowed under IFA Exhibit A Financial Policies - Revenue Sufficiency - Cost Allocation Basis. As summarized on the Capital Project Profile form, the overall design ventilation rates allocation is shown on Table 2.4:

Table 2.4 Summary of Design Ventilation Rates for Regional Biofilter (cubic feet per minute, CFM)

Contributing Asset	District Responsibility	Battle Ground Responsibility	Total Air Flow
St. John's Interceptor	1,050	0	1,050
Battle Ground Force Main	570	1,780	2,350
Total Air Flow	1,620 (48%)	1,780 (52%)	3,400 (100%)

A brief description of Regional Assets and Capacity Allocations, including the Regional Biofilter design ventilation rate-based allocation, is shown in Table 2.5 on the following page.

Table 2.5 – Regional Assets and 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 (RFTP) & 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

Table 2.6, found on the following page, presents a summary of the capital investments necessary to maintain the existing Regional Assets in good working order; and also to construct new Regional Assets over time in order to adequately meet capacity demand, anticipated regulatory requirements and community-appropriate levels of service.

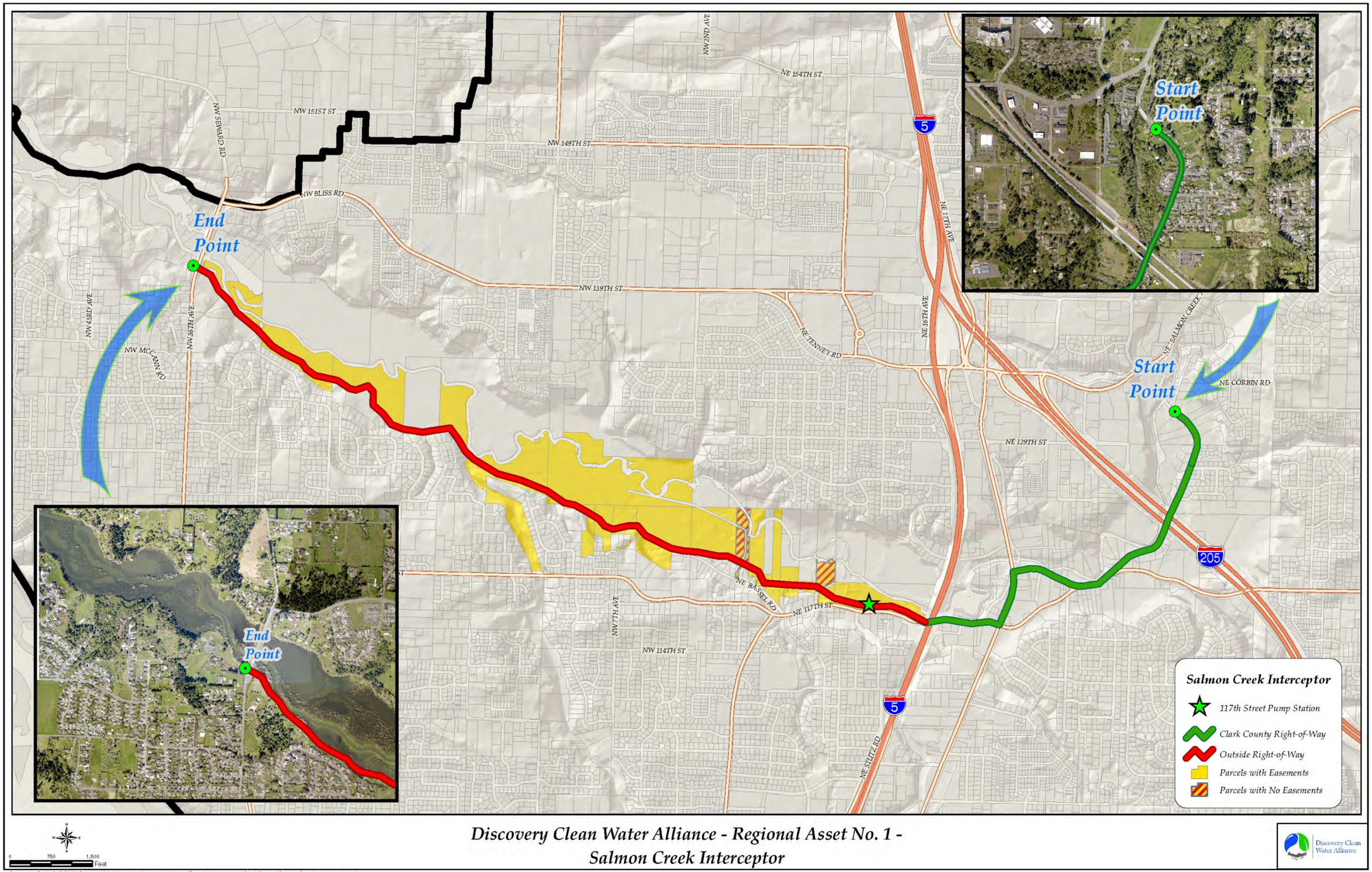
Table 2.6 – Capital Plan Summary (all costs are in 2016 dollars)

Regional Asset / Project Name	Scope of Project	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	PROJECT COST
1 Salmon Creek Interceptor																								
Middle Salmon Creek Interceptor Point Repair	Open excavation and short-term bypass pumping to replace 10' of pipe. Couplings will connect the replacement section to existing interceptor.																							$ 52,000
Upper Salmon Creek Interceptor Repair	Re-line 2,525' of 21-inch and 24-inch concrete pipe to repair corrosion damage in Salmon Creek Ave east of I-205.																							$ 693,000
2 Klineline Interceptor																								
Klineline Interceptor Manhole Rehabilitation	Rehabilitate 12 manholes with cementitious corrosion-resistant liner to protect interior areas exposed to hydogen sulfide gases.																							$ 290,000
2a - Regional Biofilter - Upper Klineline Interceptor	Replace interim 2004 chemical system for BGFM and biofilter for St. John's Interceptor with new regionally-sized biofilter sized for permanent odor and corrosion protection. Reduced operating costs for chemicals.																							$ 1,200,000
3 36th Avenue Pump Station (PS)																								
36th Avenue PS Pump Replacement	Replace three 200-HP raw sewage pumps and motors at the end of 20-year useful life, complete piping modifications for safer handling of pumps.																							$ 1,050,000
4 117th Street Pump Station (PS)																								
117th Street PS Capacity Upgrade	Replace five raw sewage pumps, motors and variable frequency drives, install second engine generator.																							$ 9,900,000
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)																								
SCTP Programmable Logic Controller Replacement	Replace Programmable Logic Controllers installed with the Phase 3 Expansion Project (1996 era) at the end of 20-year useful life.																							$ 1,600,000
SCTP Operations Center Water Chiller Replacement	Replace failed Operations Center water chiller unit , which provides required temperature control to Ecology-certified laboratory used for daily NPDES permit compliance testing.																							$ 100,000
SCTPO Phase 5A (Outfall/Effluent Pipeline) Expansion	Construct a new 7,200' 48-inch outfall pipeline from the plant to approximately Lower River Road, continuing to the existing pipeline terminus, and construct a new in-water diffuser assembly.																							$ 17,600,000
SCTPO Phase 5B (Plant) Expansion	Project will develop an Engineering Report to recognize existing embedded secondary treatment capacity to re-rate the SCTP from the currently approved 14.95 MGD to approximately 17.00 MGD., including constructing odor control and effluent pump station improvements.																							$ 6,400,000
SCTP Influent Screen Rebuild	Rebuild two mechanically cleaned influent screens to extend life of existing 1998 units for replacement in Phase 6 Expansion.																							$ 130,000
SCTP Influent Screen Replacement	Install two mechanically cleaned influent screens to replace existing 1998 units in Phase 6 Expansion.																							$ 500,000
SCTP UV System Replacement	Replace existing unit with a new, more energy efficient system.																							$ 3,200,000
SCTP Dewatering Equipment Rebuild	Rebuild two existing belt filter presses to extend life of the existing 1996 dewatering system until replacement is required.																							$ 220,000
SCTP Dewatering Equipment Replacement	Replace two existing belt filter presses with screw presses to improve dewatering performance and address equipment age.																							$ 3,200,000
SCTP Fire Pump Controller Replacement	Replace existing obsolete fire pump controllers to ensure long-term functionality of the onsite fire pump system.																							$ 170,000
SCTP Phase 6 Expansion	Phased plant expansion - influent screen 3, primary clarifier covers, aeration blower, aeration basin 7, secondary clarifier 5, RAS/WAS pump station 2, UV disinfection channel 2.																							$ 22,300,000
SCTP Primary Sludge Pump Replacement	Replace existing eight 1998 primary sludge pumps and associated air compressors with lobe or hose style pumps for increased efficiency.																							$ 230,000
SCTP Phase 7 Expansion	Phased plant expansion - primary clarifier 5, aeration basin 8, anaerobic digester 3.																							$ 16,200,000
8 Ridgefield Treatment Plant & Outfall (RTPO)																								
RFTP Plant Decommissioning	Decommission the existing treatment plant facility at the end of asset useful life.																							$ 2,700,000
9 Battle Ground Force Main (BGFM)																								
BGFM Valve & Vault Repair	Replace air vacuum valves/vaults, decommission air injection system, repair valves and pig launching stations, and install corrosion protection.																							$ 435,000
BGFM Parallel Force Main	Construct second (parallel) force main (24-inch diameter) from Battle Ground to connection point at Klineline Interceptor.																							$ 24,100,000
TOTAL																								**$ 112,270,000**

APPENDIX A

REGIONAL ASSETS

LOCATION MAPS


Start Point
End Point
Start Point
End Point
NW 151ST ST
NW SEWARD RD
NW BLISS RD
NW 149TH ST
NW 2ND AVE
NE 154TH ST
NW 139TH ST
NW 43RD AVE
NW 36TH AVE
NW MCCANN RD
NE TENNEY RD
NE 16TH AVE
NE 17TH AVE
NE SALMON CREEK
NE CORBIN RD
NE 129TH ST
NE BASSEL RD
NE 117TH ST
NW 7TH AVE
NW 114TH ST
NE 5TH ST RD
5
205
Salmon Creek Interceptor
117th Street Pump Station
Clark County Right-of-Way
Outside Right-of-Way
Parcels with Easements
Parcels with No Easements
0 750 1,500 Feet
Discovery Clean Water Alliance - Regional Asset No. 1 -
Salmon Creek Interceptor
Discovery Clean Water Alliance
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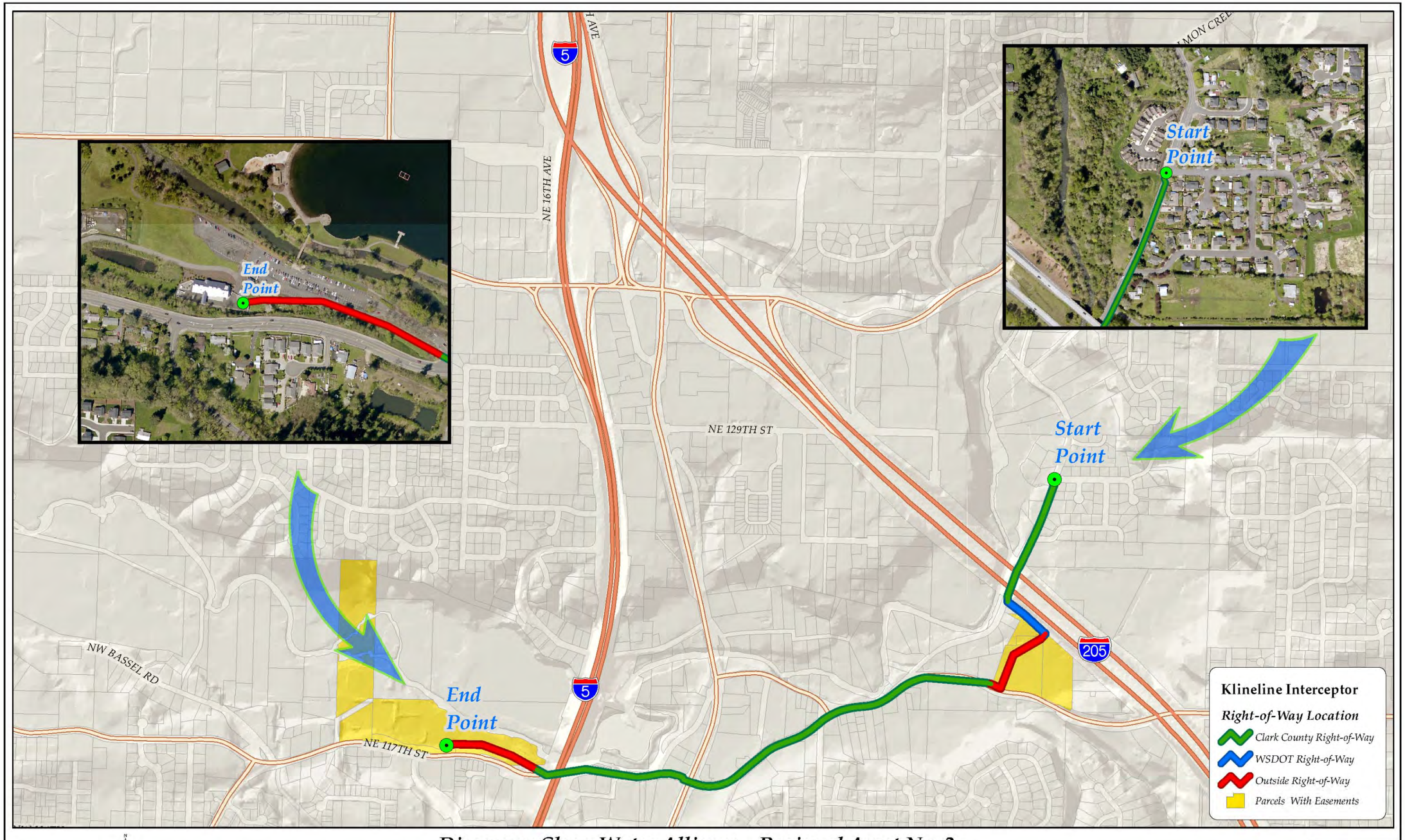

Discovery Clean Water Alliance - Regional Asset No. 2 -
Klineline Interceptor

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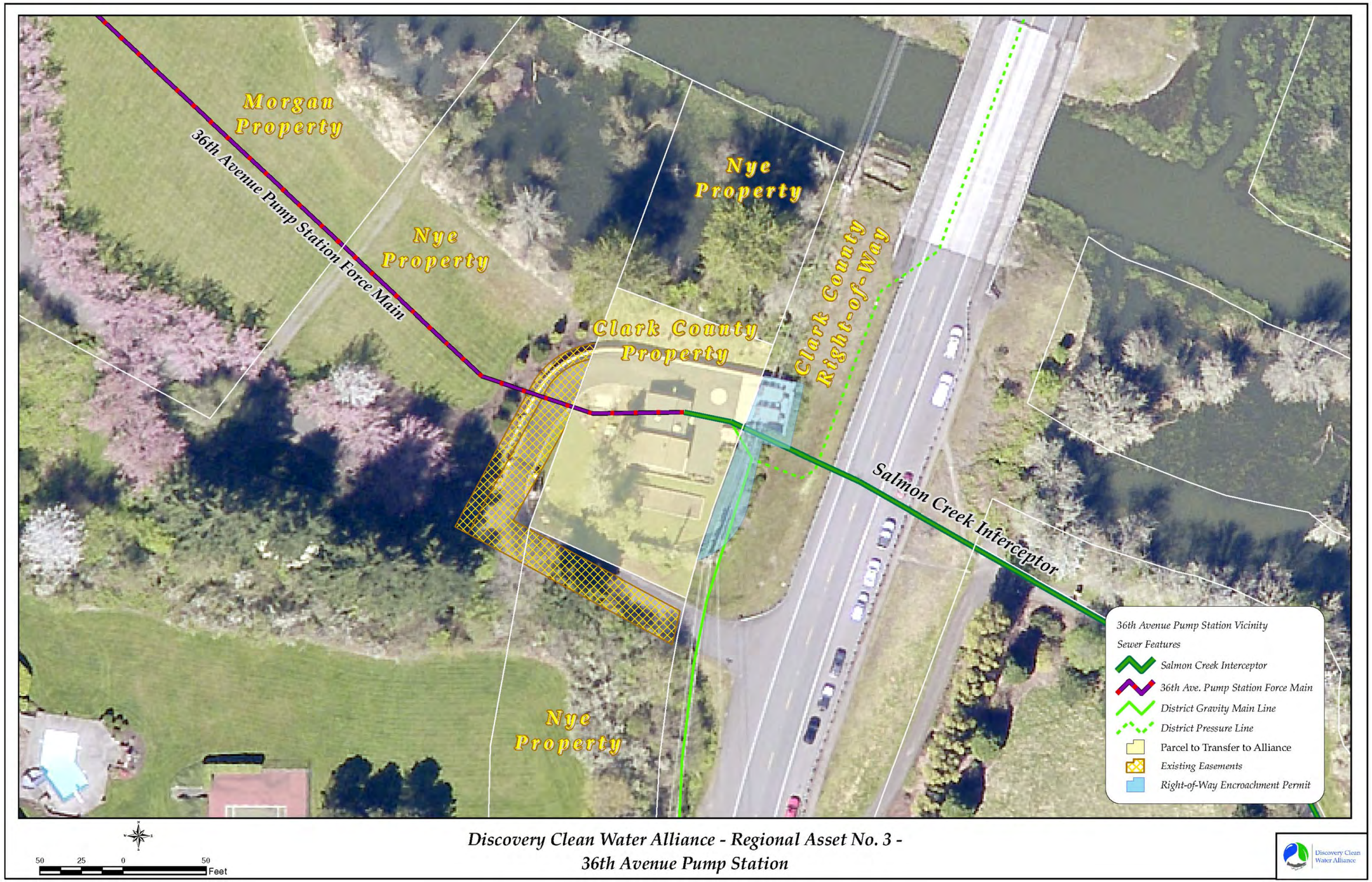
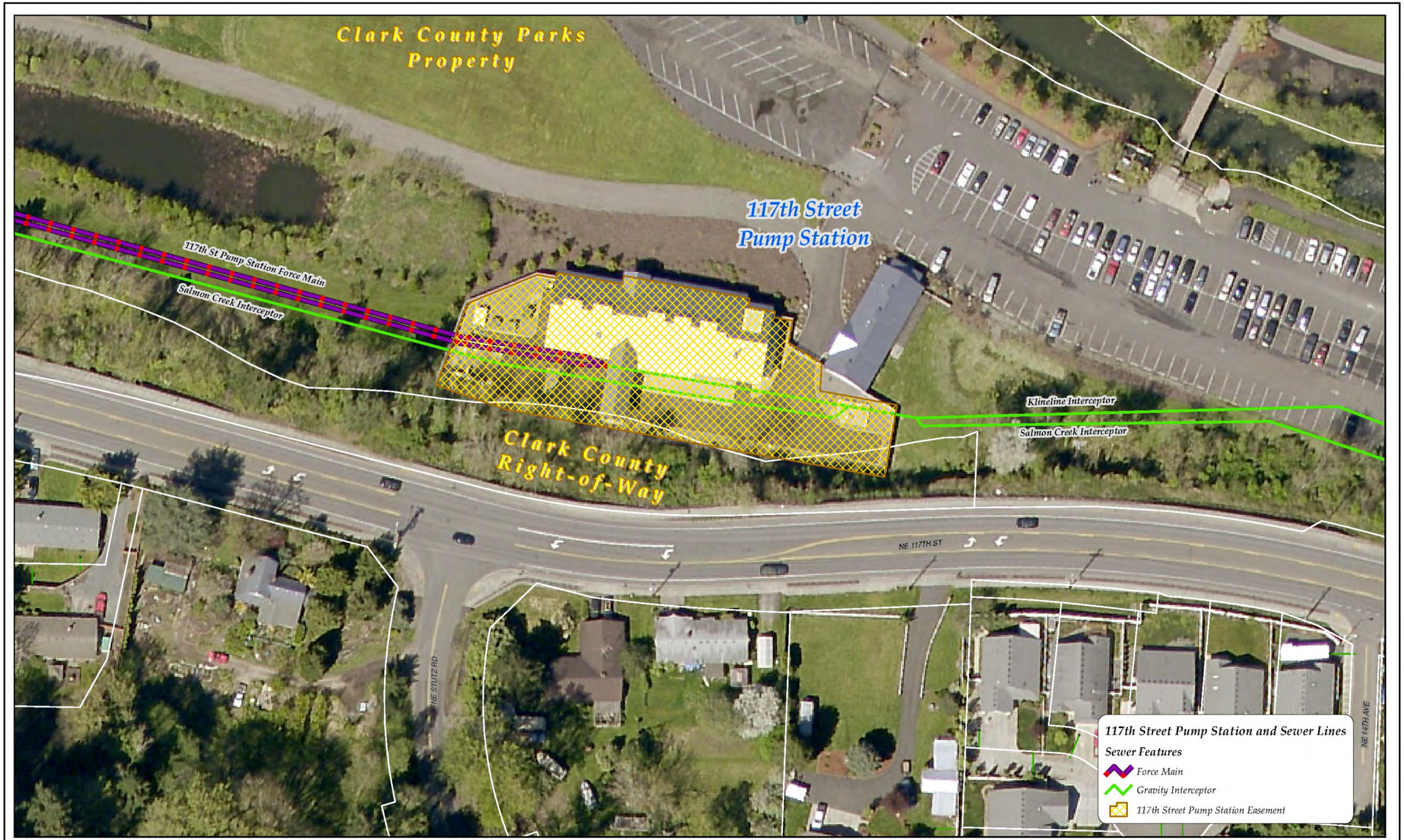
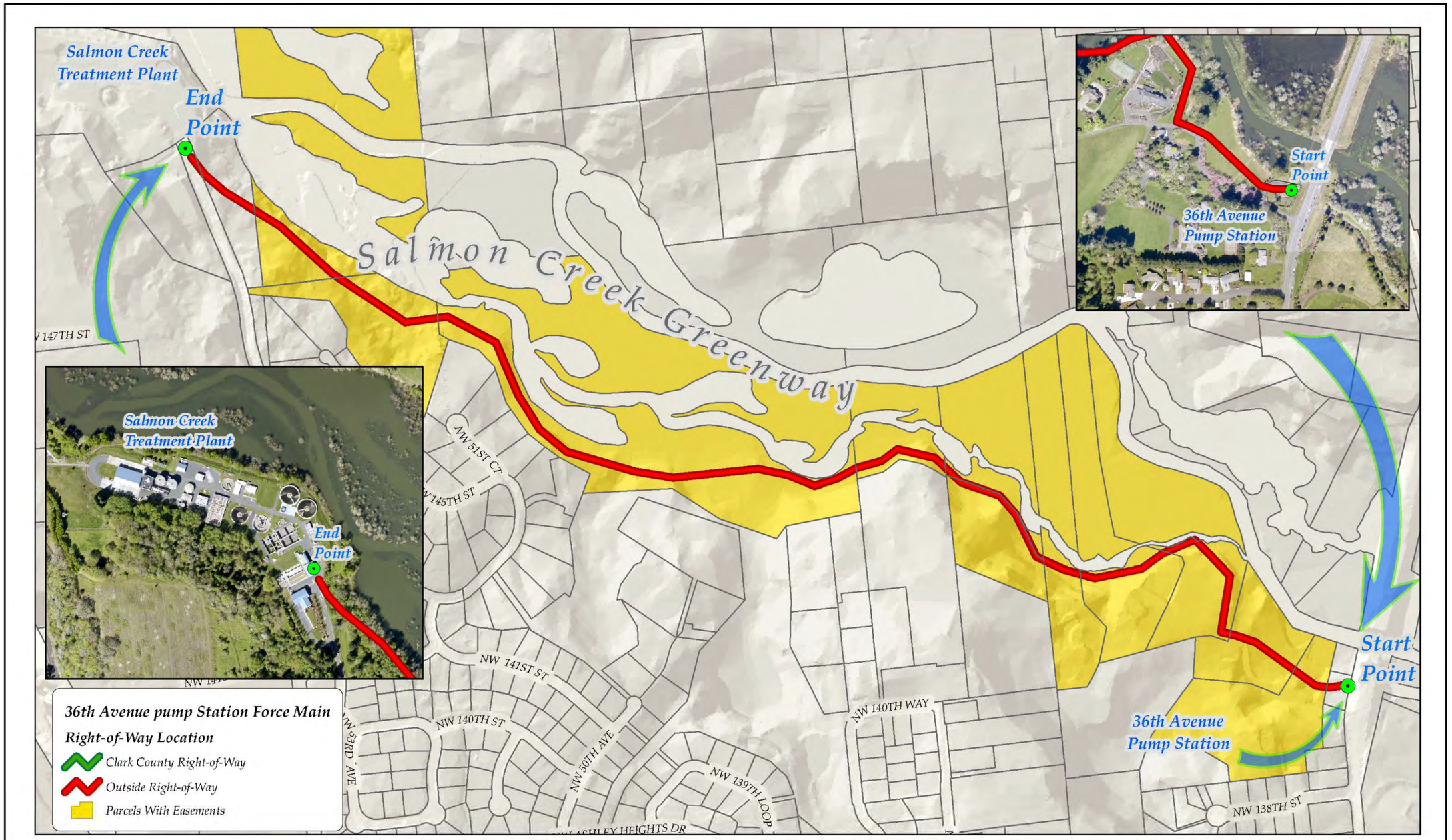


Discovery Clean Water Alliance - Regional Asset No. 3 -
36th Avenue Pump Station



Discovery Clean Water Alliance - Regional Asset No. 4 -
117th Street Pump Station



Discovery Clean Water Alliance - Regional Asset No. 5 -
36th Avenue Pump Station Force Main

Discovery Clean Water Alliance

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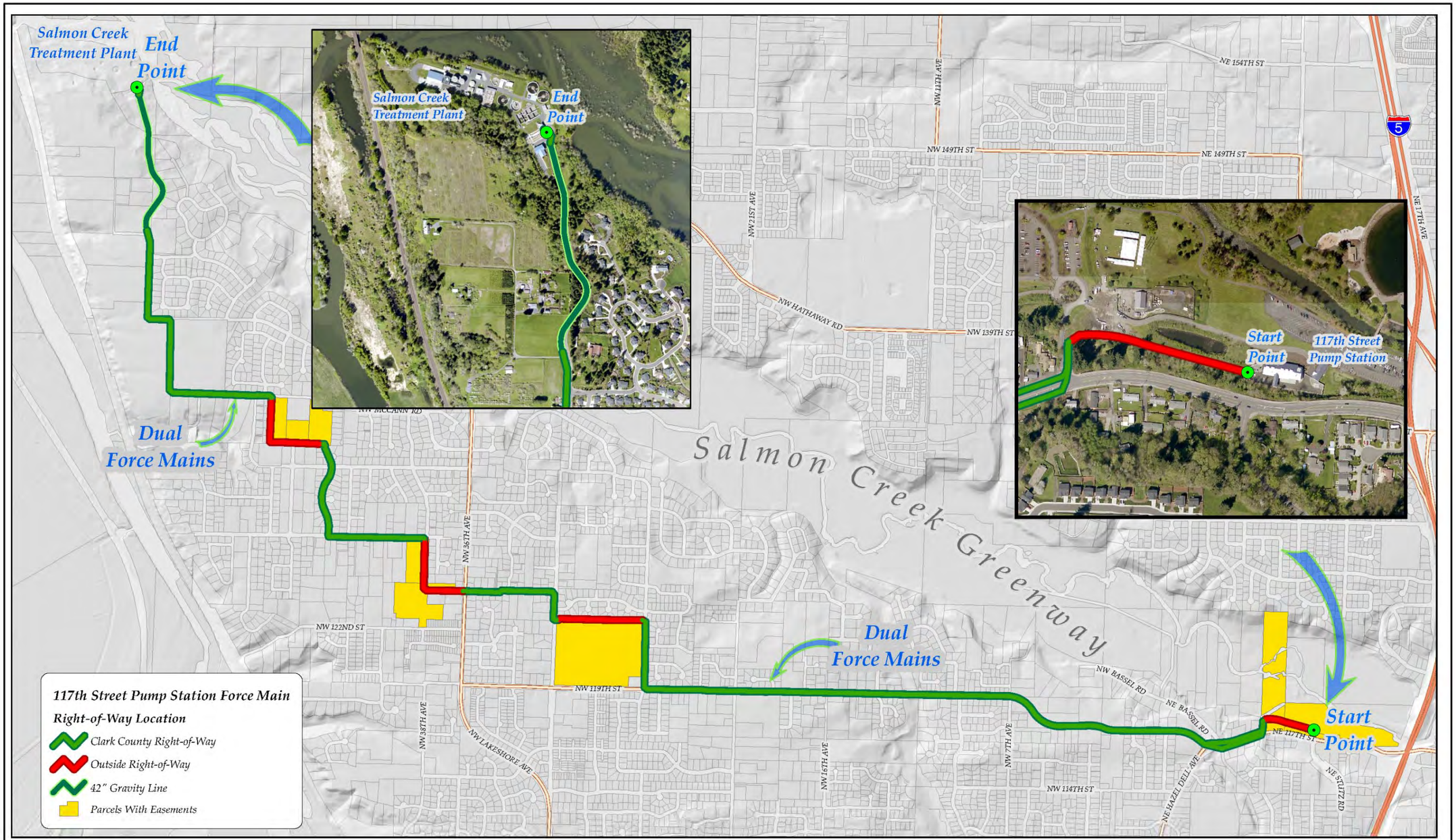

Discovery Clean Water Alliance - Regional Asset No. 6 -
117th Street Pump Station Force Main

Discovery Clean Water Alliance

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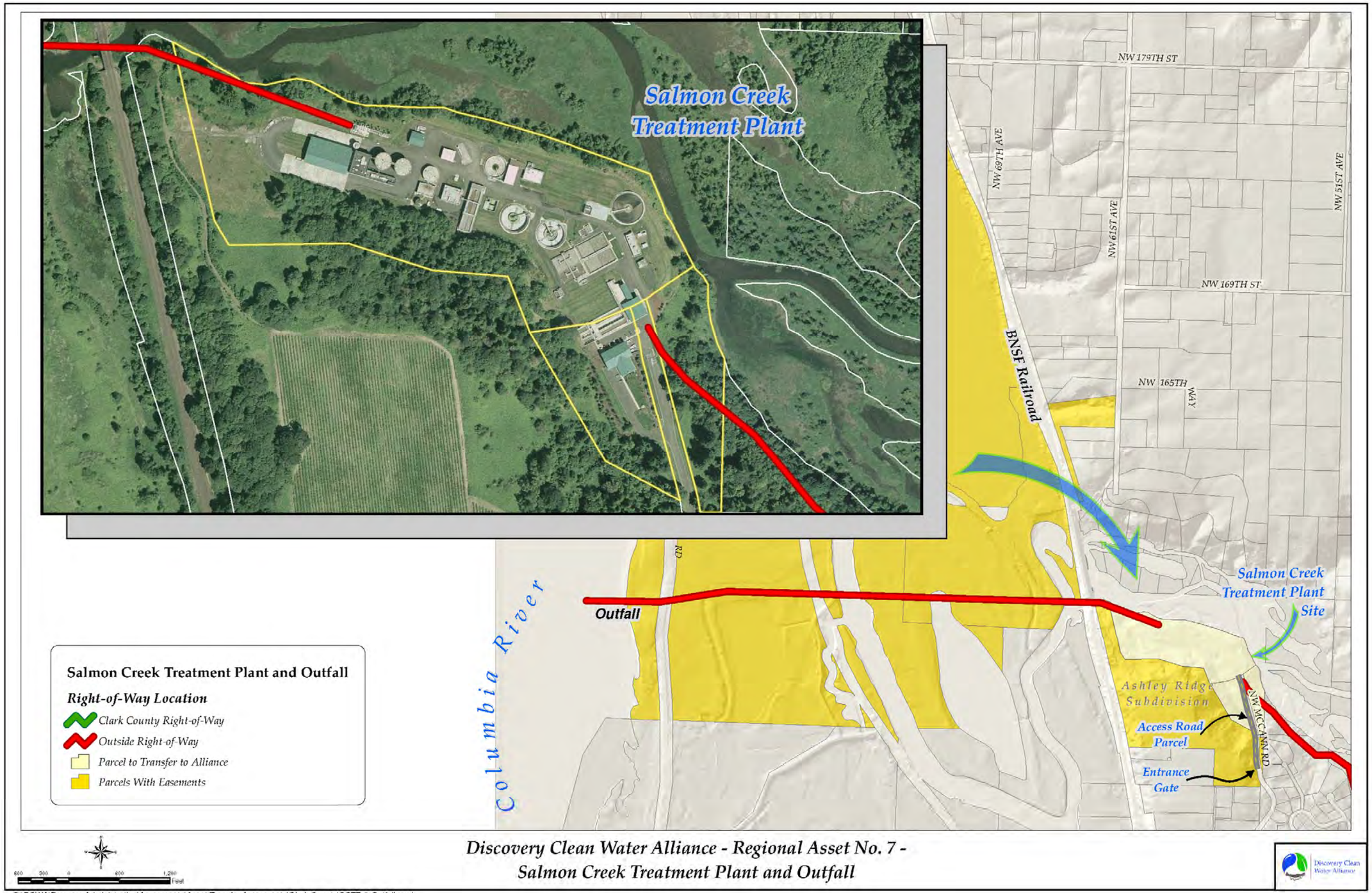

Discovery Clean Water Alliance - Regional Asset No. 7 -
Salmon Creek Treatment Plant and Outfall

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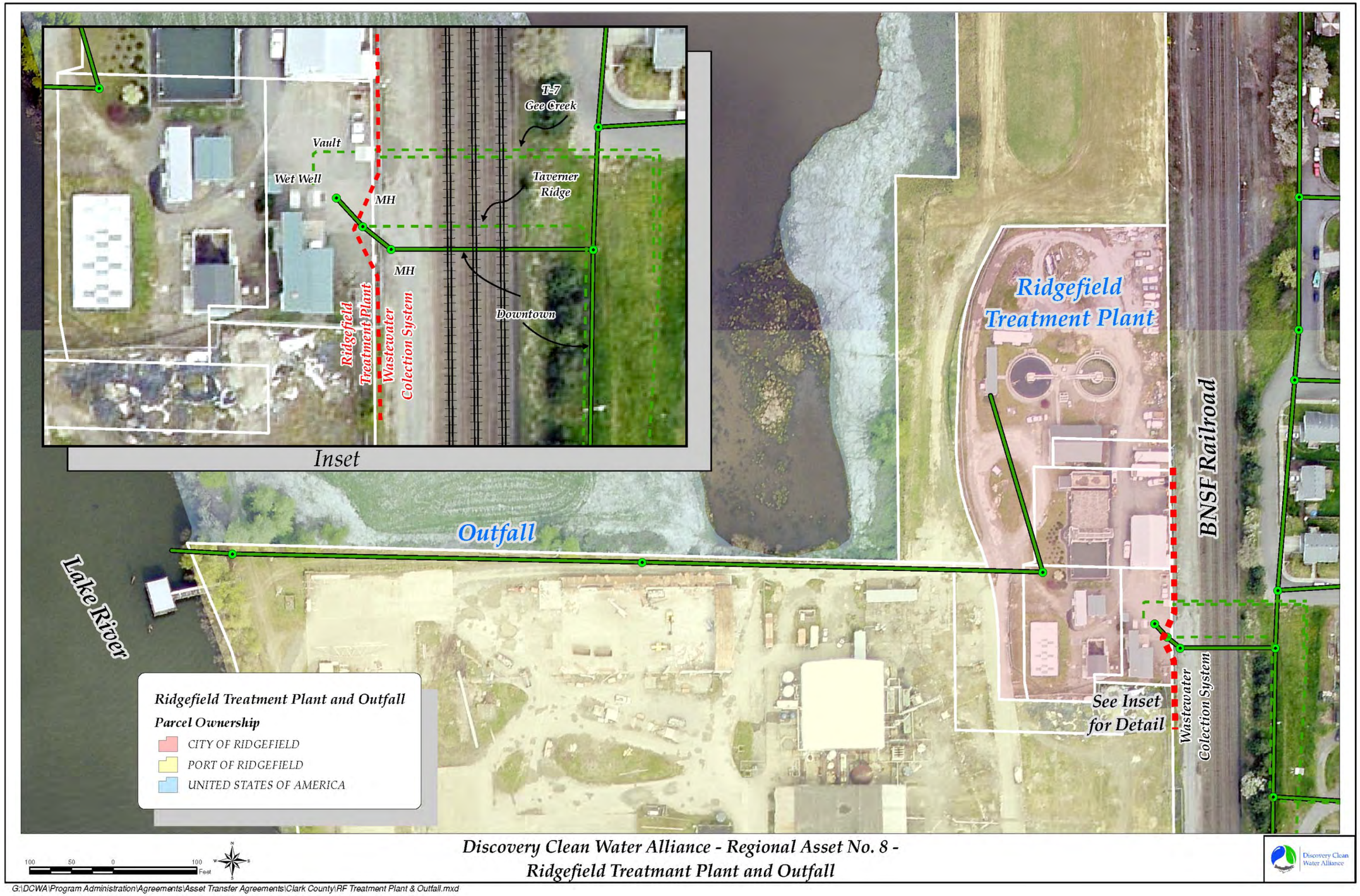

Discovery Clean Water Alliance - Regional Asset No. 8 -
Ridgefield Treatmant Plant and Outfall

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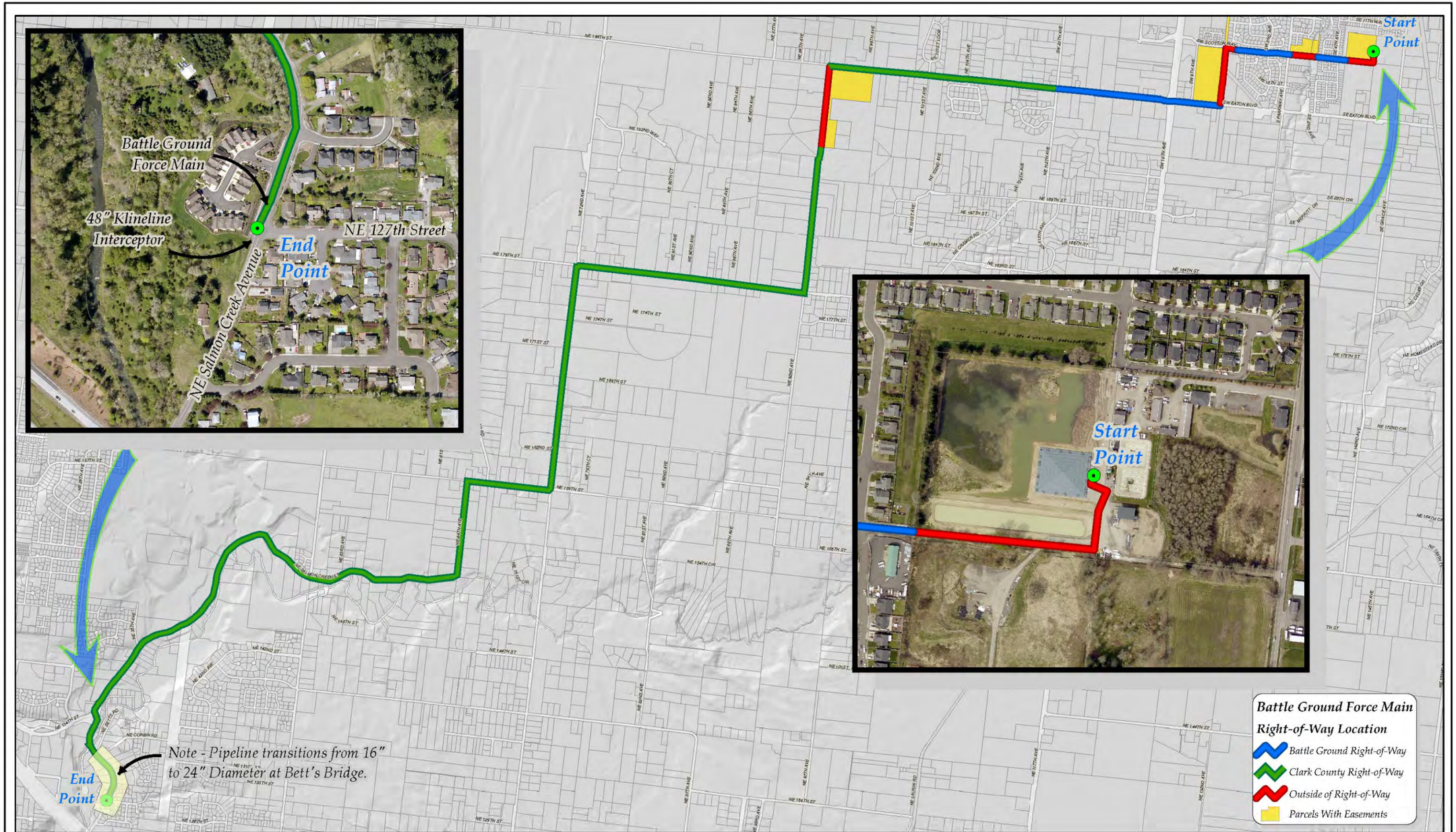

Discovery Clean Water Alliance - Regional Asset No. 9 -
Battle Ground Force Main

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APPENDIX B

PROJECTS IN CONSTRUCTION

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: Middle Salmon Creek Interceptor Point Repair
Project Number: RA01-16-1
Form Prepared/Updated: April 2016

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

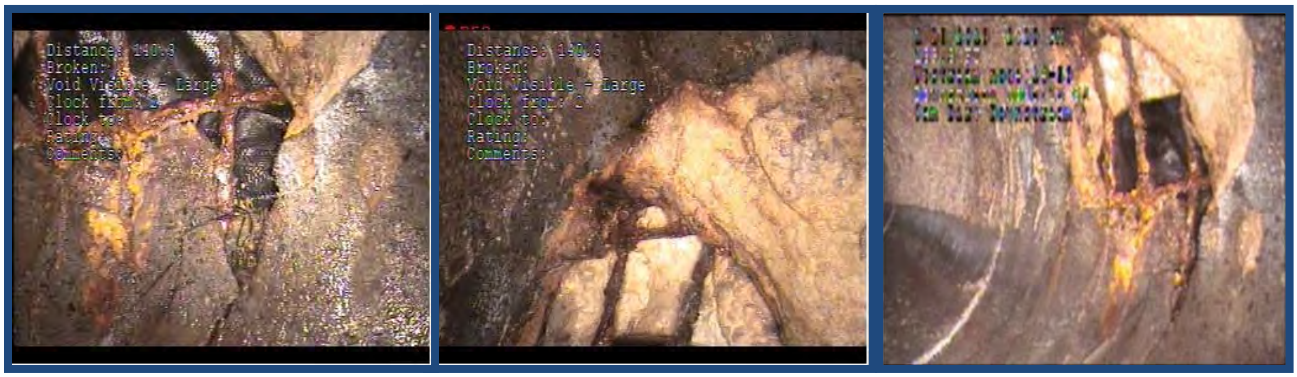
Project Definition:

Objective. The project will replace a damaged section of the Salmon Creek Interceptor. This replacement will reduce the potential failure of the interceptor in this location, providing structural integrity to the pipe.

Scope of Work. This point repair will require the replacement of approximately 10 feet of pipe. Couplings will be used to connect the replacement section with the existing interceptor. Replacement will require open excavation and short-term bypass pumping for the duration of the replacement effort. This piping was originally installed in 1975.

Cost Allocation. The replacement portion of the project costs are apportioned to Battle Ground and the District according to Salmon Creek Interceptor allocated capacity: 10.10 mgd (26.5%) for Battle Ground, and 28.08 mgd (73.5%) for the District. For additional information related to this project, see *The Salmon Creek Interceptor – 2013 CCTV Records, February 2013*.

Photos *(if available)*: (Map of area on the reverse side)



Signs of Failure of the Interceptor | *CCTV Image of the Interceptor* | *Rebar Showing at Failure Location*

Budget Information:

Project Cost Estimate		
Total Project Cost:	$52,000	
Construction Cost:	$30,000	
Basis of Estimate -		
Year Completed:	2016	
Project Definition:	Construction	(Class 1)
Project Cost Allocation		
Battle Ground:	26.5%	$14,000
Clark County:	0%	$0
District:	73.5%	$38,000
Ridgefield:	0%	$0
Total:	100%	$52,000

Schedule Information:

Activity	Year
Planning	2014 (complete)
Permitting	2015 (complete)
Real Property/ROW	N/A
Design	2015 (complete)
Bid	2016 (complete)
Construction	2016

Middle Salmon Creek Interceptor Assessment Map

CLARK REGIONAL WASTEWATER DISTRICT

Document Path: G:\Engineering\GIS_Data\GIS Projects\SCI PPR\Salmon Creek Interceptor Inspection Middle.mxd

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: Upper Salmon Creek Interceptor Repair
Project Number: RA01-16-2
Form Prepared/Updated: April 2016

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 extensive corrosion in the Salmon Creek Interceptor due to the discharge of hydrogen sulfide (H2S) from the Battle Ground Force Main between 1993 and 2006, and due to pressurization from the St. Johns Interceptor.

Scope of Work. The project will re-line approximately 2,174 feet of 21-inch diameter concrete pipe and 351 feet of 24-inch concrete pipe in Salmon Creek Avenue near the I-205 overpass. This piping was originally installed in 1975. A trenchless technology will be used to re-line the pipe from inside, eliminating the need for major excavation. The project will also provide for repair of service laterals connected to the damaged pipe, coordinate traffic control in Salmon Creek Avenue, bypass pump sewer flows around the work area during construction and provide for public engagement of the residents near the project.

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 related to this project, see *The Clark Regional Wastewater District, 2012 Inspections Report, Brown & Caldwell, May 2013.*

Photos *(if available)*:

Erosion in the Pipe – Near Corbin Road

Salmon Creek Avenue

Crack in the Pipe – South of 127th Street

Budget Information:

Project Cost Estimate			
Total Project Cost:		$693,000	
Construction Cost:		$578,000	
Basis of Estimate -			
Year Completed:		2016	
Project Definition:		Construction	(Class 1)

Project Cost Allocation		
Battle Ground:	50.9%	$353,000
Clark County:	0.0%	$0
District:	49.1%	$340,000
Ridgefield:	0.0%	$0
Total:	100.0%	$693,000

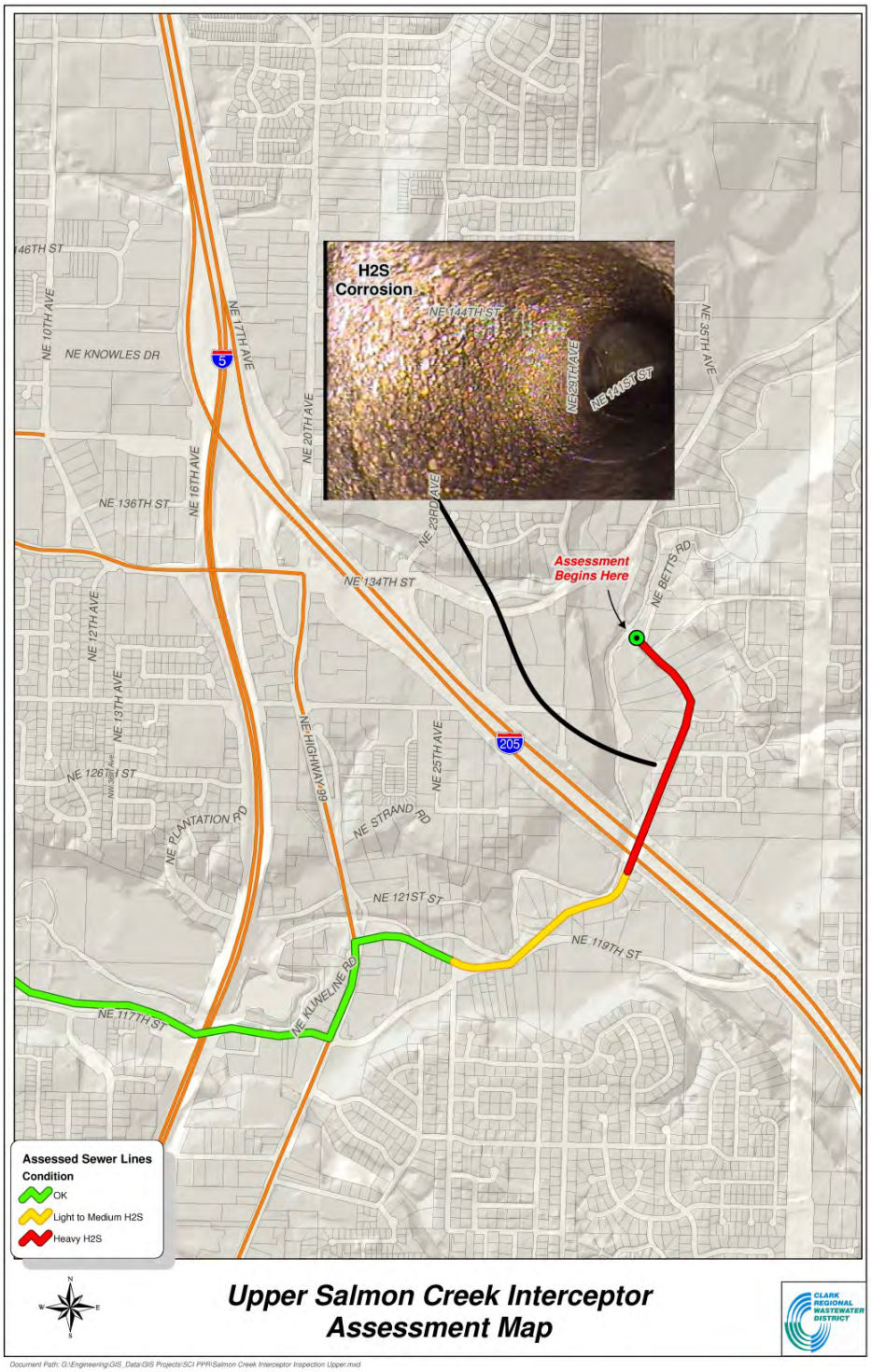
Schedule Information:

Activity	Year
Planning	2014 (complete)
Permitting	2015 (complete)
Real Property/ROW	N/A
Design	2014-2015 (complete)
Bid	2016 (complete)
Construction	2016

Supplemental Information:

Upper Salmon Creek Interceptor Repair
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. 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

Project Name: SCTP Programmable Logic Controller Replacement
Project Number: RA07-16-1
Form Prepared/Updated: April 2016

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

Project Definition:

Objective. Programmable Logic Controllers (PLCs) are the primary computerized control system hardware responsible for the Salmon Creek Treatment Plant operations and control. The project will replace a portion of the plant PLCs to ensure system reliability. The PLCs being replaced are approaching 20 years old and represent a product line that was discontinued in 2013 and will no longer be supported after 2020.

Scope of Work. The project will replace seven of the facility's PLCs originally procured in 1996 as part of the Phase 3 Expansion, as these systems are no longer available and support from the manufacturer is scheduled to end in 2020. A significant portion of the total project costs are for programming the new PLCs, as the current programs are not transferrable to the new platform due to age. Additional work to design the new system and provide implementation, testing and startup support is also included in the total project cost.

Cost Allocation. The project costs are apportioned to Battle Ground and the District according to treatment plant allocated capacity: 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) for the District. For additional information related to this project, see the *Control System PLC and Ethernet Network Evaluation TM, CH2M HILL, November 2011*.

Photos *(if available)*:

Existing PLC Installation

Salmon Creek Treatment Plant

Allen Bradley PLC-5

Budget Information:

Project Cost Estimate			
Total Project Cost:		$1,600,000	
Construction Cost:		$500,000	
Basis of Estimate -			
Year Completed:		2016	
Project Definition:		Final Design	(Class 1)

Project Cost Allocation		
Battle Ground:	23.2%	$370,000
Clark County:	0%	$0
District:	76.8%	$1,230,000
Ridgefield:	0%	$0
Total:	100%	$1,600,000

Schedule Information:

Activity	Year
Planning	2015 (complete)
Permitting	N/A
Real Property/ROW	N/A
Design	2015-2016
Bid	2016
Construction	2016-2018

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: SCTP Operations Center Water Chiller Replacement
Project Number: RA07-16-2
Form Prepared/Updated: May 2016

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

Project Definition:

Objective. The Operations Center water chiller provides the primary cooling function for the entire Operations Center, including the Ecology-certified laboratory where NPDES permit compliance testing takes place on a daily basis. The project will replace the existing water chiller unit that initially failed on April 20, 2016.

Scope of Work. The project will replace the existing 20-year old unit 85-WC-1 air-cooled water chiller with a unit of equal cooling capacity. This will ensure that the Operations Center and laboratory facility maintain a controlled temperature range at all times to meet the testing protocol requirements associated with a certified laboratory performing NPDES permit compliance testing. Three separate vendors have inspected the existing unit and determined it is not repairable. Therefore, the unit will be replaced as an emergency project on an expedited basis.

Cost Allocation. The project costs are apportioned to Battle Ground and the District according to treatment plant allocated capacity: 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) for the District.

Photos *(if available)*:

Existing Water Chiller | *Existing Unit Deterioration* | *Potential Water Chiller Replacement Unit*

Budget Information:

Project Cost Estimate			
Total Project Cost:		$100,000	
Construction Cost:		$100,000	
Basis of Estimate -			
Year Completed:		2016	
Project Definition:		Placeholder	(Class 5)

Project Cost Allocation		
Battle Ground:	23.2%	$23,000
Clark County:	0%	$0
District:	76.8%	$77,000
Ridgefield:	0%	$0
Total:	100%	$100,000

Schedule Information:

Activity	Year
Planning	2016
Permitting	2016
Real Property/ROW	N/A
Design	2016
Bid	2016
Construction	2016

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: BGFM Valve & Vault Repair
Project Number: RA09-16-1
Form Prepared/Updated: April 2016

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 the Alliance's ability to provide reliable and predictable service by repairing extensive deterioration of valve and vault structures along the nine-mile length of the force main.

Scope of Work. The project will replace or repair approximately 17 and decommission six combination air vacuum valves and vault structures, decommission an air injection system installed with the original force main, repair isolation valves and pig launching stations, and install odor control filters at key locations. The system was installed in 1992. Much of the deterioration is due to the presence of hydrogen sulfide (H_2S) generated when sewage is transported over long distances in the anaerobic environment of the force main. The replacement components will utilize more corrosion-resistant materials.

Cost Allocation. The project costs are apportioned to Battle Ground and the District according to Battle Ground Force Main allocated capacity: 3.44 mgd (78.2%) for Battle Ground, and 0.96 mgd (21.8%) for the District. For additional information related to this project, see the *Battle Ground Force Main Condition Assessment Project TM, CH2M HILL, January 2014*.

Photos *(if available)*:

Valve Corrosion | *Vault Corrosion* | *Vault Corrosion*

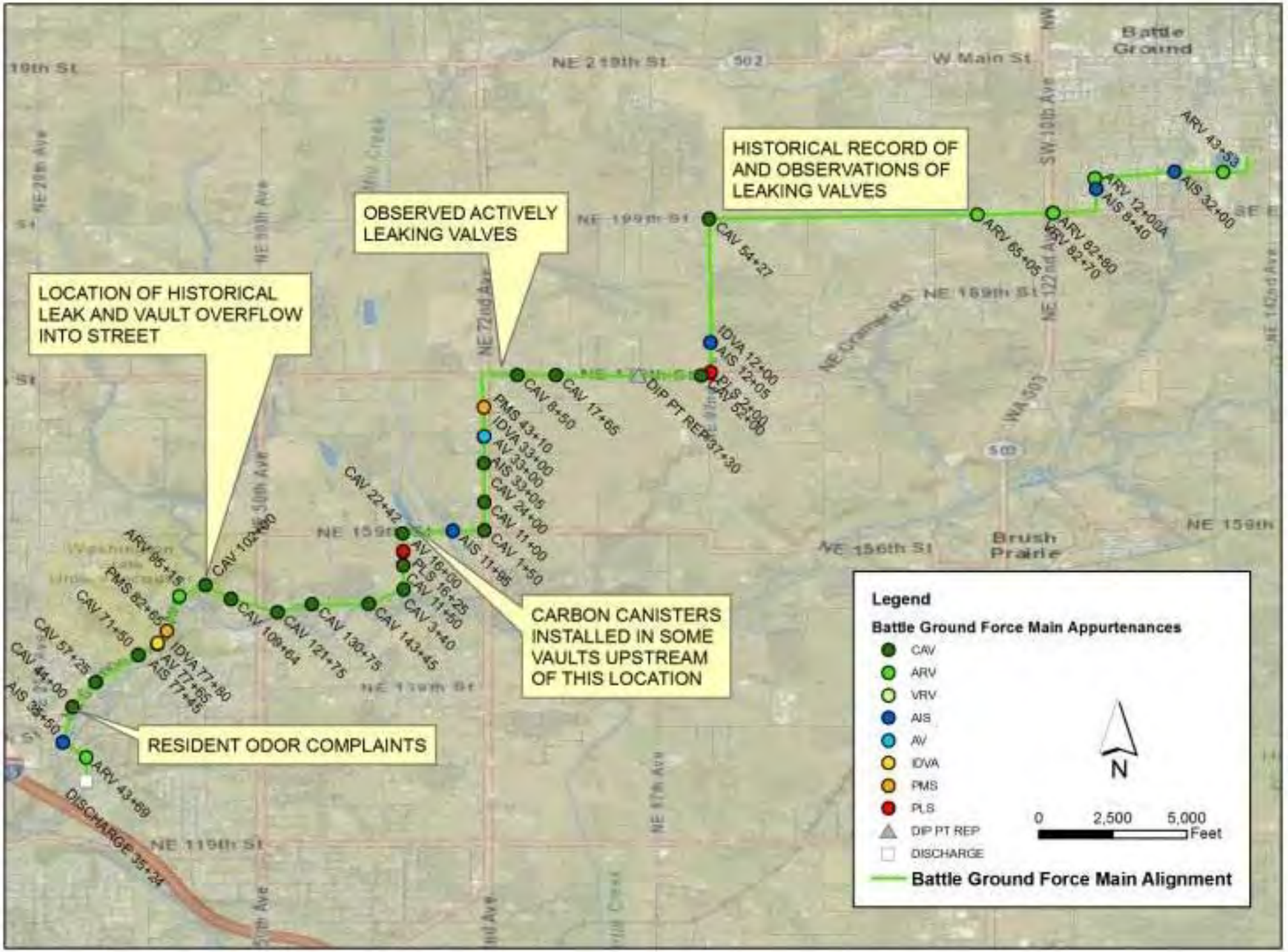
Budget Information:

Project Cost Estimate			
Total Project Cost:		$435,000	
Construction Cost:		$310,000	
Basis of Estimate -			
Year Completed:		2016	
Project Definition:		Construction	(Class 1)

Project Cost Allocation		
Battle Ground:	78.2%	$340,000
Clark County:	0%	$0
District:	21.8%	$95,000
Ridgefield:	0%	$0
Total:	100%	$435,000

Schedule Information:

Activity	Year
Planning	2014 (complete)
Permitting	2015-2016 (complete)
Real Property/ROW	N/A
Design	2015-2016 (complete)
Bid	2016 (complete)
Construction	2016


HISTORICAL RECORD OF AND OBSERVATIONS OF LEAKING VALVES
OBSERVED ACTIVELY LEAKING VALVES
LOCATION OF HISTORICAL LEAK AND VAULT OVERFLOW INTO STREET
CARBON CANISTERS INSTALLED IN SOME VAULTS UPSTREAM OF THIS LOCATION
RESIDENT ODOR COMPLAINTS
Battle Ground
NE 219th St
W Main St
NE 199th St
NE 159th St
NE 156th St
Brush Prairie
NE 119th St
CAV 54+27
ARV 65+05
ARV 82+60
VRV 82+70
ARV 12+00A
AIS 8+40
AIS 32+00
ARV 43+53
IDVA 12+00
AIS 12+05
PLS 21+00
CAV 52+00
DIP PT REP 37+30
CAV 8+50
CAV 17+65
PMS 43+10
IDVA 33+00
AV 33+00
AIS 33+05
CAV 24+00
CAV 11+00
CAV 1+50
AIS 11+98
CAV 22+42
AV 16+00
PLS 16+25
CAV 11+50
CAV 3+40
CAV 143+45
CAV 130+75
CAV 121+75
CAV 109+64
CAV 102+80
ARV 85+15
PMS 82+65
IDVA 77+80
AV 77+65
AIS 77+45
CAV 71+50
CAV 57+25
CAV 44+00
AIS 35+50
ARV 43+69
DISCHARGE 35+24
Legend
Battle Ground Force Main Appurtenances
CAV
ARV
VRV
AIS
AV
IDVA
PMS
PLS
DIP PT REP
DISCHARGE
Battle Ground Force Main Alignment
N
0
2,500
5,000
Feet

APPENDIX C

EXISTING ASSETS

REPAIR AND REPLACEMENT PROJECT PROFILES

Discovery Clean Water Alliance

CAPITAL PROJECT PROFILE FORM

Project Name: Klineline Interceptor Manhole Rehabilitation
Project Number: RA02-22-1
Form Prepared: March 2016

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 rehabilitate 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 initial construction in 2006, the KLI 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 gases.

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:	$290,000
Construction Cost:	$220,000
Basis of Estimate -	
Year Completed:	2016
Estimate Classification:	Class 2

Project Cost Allocation

Battle Ground:	50.9%	$150,000
Clark County:	0%	$0
District:	49.1%	$140,000
Ridgefield:	0%	$0
Total:	100%	$290,000

Schedule Information:

Activity	Year
Planning	2016
Permitting	N/A
Real Property/ROW	N/A
Design	2021
Bid	2022
Construction	2022

Supplemental Information:

Klineline Interceptor Manhole Rehabilitation
Project-Specific Cost Allocation Based on Responsibility for Contributing Factors

	Contributing Factor	RESPONSIBILITY ALLOCATION: Contributing Factor (percent)	RESPONSIBILITY ALLOCATION: Battle Ground Share (percent)	RESPONSIBILITY ALLOCATION: District Share (percent)	COST ALLOCATION: Battle Ground Share (percent)	COST ALLOCATION: 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

Project Name: Regional Biofilter - Upper Klineline Interceptor
Project Number: RA2A-18-1
Form Prepared/Updated: March 2016

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

Project Definition:

Objective. The project represents a new strategy to manage odors and control corrosion associated with the discharge of the Battle Ground Force Main (BGFM) and St. Johns Interceptor into the Klineline Interceptor at a significantly reduced life cycle cost.

Scope of Work. The project will consist of permanent replacement of the interim infrastructure installed in 2004 (chemical addition system for BGFM and biofilter for St. Johns Interceptor) with a new regionally-sized biofilter. In order to promote appropriate air movement to the regional biofilter, an air intake will be constructed at the discharge of the BGFM and an air duct will be installed from the Klineline Interceptor to the location of the regional biofilter. The total potential annual savings is on the order of $200,000 to $250,000. The simple payback for this project is approximately five years, primarily related to a reduction of chemical purchases.

Cost Allocation. A project-specific cost allocation structure is being utilized for this project based on an assessment of several factors that contribute to sizing of the biofilter. The resulting cost allocation is 52% of total project costs to Battle Ground, and 48% to the District. See supplemental information section (reverse side) for additional detail. For additional information related to this project, see the *Regional Biofilter –Upper Klineline Interceptor Odor Control System TM, CH2M HILL, March 2016.*

Photos *(if available)*:

Biofilter at Discharge of St. Johns Interceptor | *BGFM Chemical Tank* | *36th Avenue Biofilter*

Budget Information:

Project Cost Estimate		
Total Project Cost:	$1,200,000	
Construction Cost:	$750,000	
Basis of Estimate -		
Year Completed:	2016	
Estimate Classification:	Class 3	
Project Cost Allocation		
Battle Ground:	52%	$620,000
Clark County:	0%	$0
District:	48%	$580,000
Ridgefield:	0%	$0
Total:	100%	$1,200,000

Schedule Information:

Activity	Year
Planning	2015 (complete)
Permitting	2015-2017
Real Property/ROW	2016-2017
Design	2015-2016
Bid	2018
Construction	2018

Supplemental Information:

Regional Biofilter - Upper Klineline Interceptor
Project-Specific Cost Allocation Based on Responsibility for Contributing Factors

	RESPONSIBILITY ALLOCATION – BY PIPELINE Ventilation Rates (air flow, CFM)			RESPONSIBILITY ALLOCATION – BY AGENCY				COST ALLOCATION	
				St. Johns		BG FM			
	Total (CFM)	St. Johns (percent)	BG FM (percent)	District Share (percent)	Battle Ground Share (percent)	District Share (percent)	Battle Ground Share (percent)	District Share (percent)	Battle Ground Share (percent)
Odor Prevention[1]	*2,218*	*42%*	*58%*	*100%*	*0%*	*24%*	*76%*	*56%*	*44%*
Corrosion Prevention[2]	*1182*	*10%*	*90%*	*100%*	*0%*	*24%*	*76%*	*32%*	*68%*
TOTAL	*3,400*							*48%*	*52%*

[1] *Ventilation Rate for Odor Prevention is a function of depressurization and is directly related to the natural ventilation rate of the Interceptors*

[2] *Ventilation Rate for Corrosion Prevention is a function of reducing H_2S concentrations below damaging levels and therefore directly related to H_2S loading rates*

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: 36th Avenue PS Pump Replacement
Project Number: RA03-17-1
Form Prepared/Updated: March 2016

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 primary raw sewage pumps and motors in order to maintain reliable and effective transmission of flow to the Salmon Creek Treatment Plant.

Scope of Work. The project will replace the existing three 200-HP primary raw sewage pumps and motors. The existing equipment was installed with the 1994 Expansion program, approximately 22 years ago, and is now at the end of its useful life. The pumps have experienced some accelerated deterioration due to chronic vibration and related operating difficulties. A new pump selection will address the unique hydraulic characteristics of the pump station wet well, utilizing recent advances in pump mechanical design. Piping and access modifications improving safety will also be part of this work.

Cost Allocation. The project costs are apportioned to Battle Ground and the District according to the pump station allocated capacity approved in the 2015-2016 Capital Plan: 4.47 mgd (24.8%) for Battle Ground, and 13.57 mgd (75.2%) for the District. For additional information related to this project, see the *36th Avenue Pump Station Assessment TM, CH2M HILL, February 2016.*

Photos *(if available)*:

Existing Pumps – View From Above

36th Avenue Pump Station

Existing Pump & Motor

Budget Information:

Project Cost Estimate		
Total Project Cost:		$1,050,000
Construction Cost:		$640,000
Basis of Estimate -		
Year Completed:		2016
Estimate Classification:		Class 3
Project Cost Allocation		
Battle Ground:	24.8%	$260,000
Clark County:	0%	$0
District:	75.2%	$790,000
Ridgefield:	0%	$0
Total:	100%	$1,050,000

Schedule Information:

Activity	Year
Planning	2015 (complete)
Permitting	2016
Real Property/ROW	N/A
Design	2016
Bid	2017
Construction	2017

Discovery Clean Water Alliance

CAPITAL PROJECT PROFILE FORM

Project Name: SCTP Influent Screen Rebuild
Project Number: RA07-17-1
Form Prepared: March 2016

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

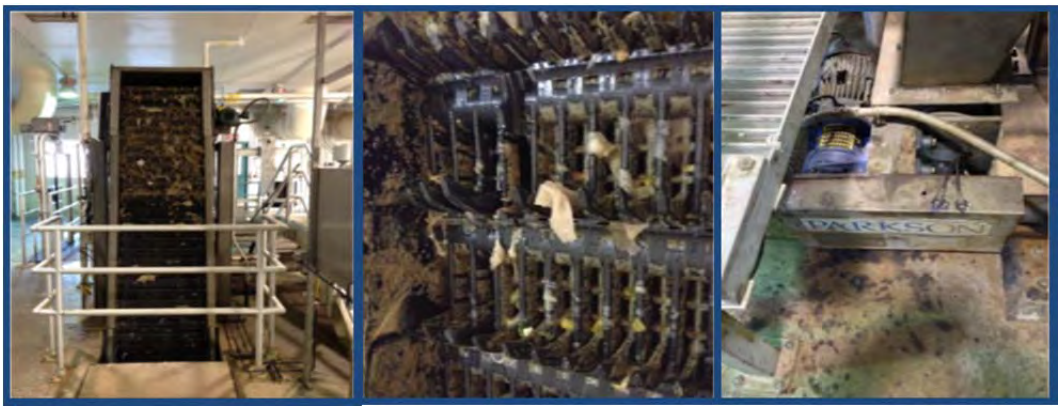
Project Definition:

Objective. The project will rebuild the two existing mechanically cleaned influent screens and compactors in order to reduce the high level maintenance required to keep this aging equipment operating until the screens are replaced as part of the Phase 6 Expansion program.

Scope of Work. The project will rebuild the mechanically-cleaned influent screens, which were installed in 1998 as part of the Phase 3 Expansion. The equipment requires regular replacement of components that wear down, such as teeth on the screen face and the upper guide rail, and maintenance of the gear reducer assembly on the compactor. These repairs are labor-intensive, and require taking the screen out of service for several days. The current replacement schedule for these screens is based on coupling the replacement with third bar screen programming as part of the Phase 6 capital expansion for efficiency and system compatibility.

Cost Allocation. The project costs are apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall allocated capacity: 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) 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 *Existing Screen Face* *Existing Compactor Gear Assembly*

Budget Information:

Project Cost Estimate

Total Project Cost:		$130,000
Construction Cost:		$130,000
Basis of Estimate -		
Year Completed:		2016
Estimate Classification:		Class 1

Project Cost Allocation

Battle Ground:	23.2%	$30,000
Clark County:		
District:	76.8%	$100,000
Ridgefield:		
Total:	100%	$130,000

Schedule Information:

Activity	Year
Planning	2016
Permitting	N/A
Right-of-Way	N/A
Design	2017
Bid	2017
Construction	2017

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: SCTP Influent Screen Replacement
Project Number: RA07-28-1
Form Prepared/Updated: March 2016

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 third bar screen programming as part of the Phase 6 Expansion program for efficiency and system compatibility.

Cost Allocation. The project costs are apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall allocated capacity: 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) 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 Screen *Existing Screen Face* *Existing Compactor Gear Assembly*

Budget Information:

Project Cost Estimate		
Total Project Cost:	$500,000	
Construction Cost:	$400,000	
Basis of Estimate -		
Year Completed:	2016	
Estimate Classification:	Class 5	
Project Cost Allocation		
Battle Ground:	23.2%	$120,000
Clark County:	0%	$0
District:	76.8%	$380,000
Ridgefield:	0%	$0
Total:	100%	$500,000

Schedule Information: (same as Phase 6 schedule)

Activity	Year
Planning	2025
Permitting	2026-2027
Real Property/ROW	N/A
Design	2026-2027
Bid	2028
Construction	2028-2030

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: SCTP UV System Replacement
Project Number: RA07-28-2
Form Prepared/Updated: March 2016

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 Trojan UV4000 system with a new, more energy-efficient UV system.

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 parallel UV channel programming as part of the Phase 6 capital expansion for efficiency and system compatibility.

Cost Allocation. The project costs are apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall allocated capacity: 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) 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:	$3,200,000	
Construction Cost:	$2,400,000	
Basis of Estimate -		
Year Completed:	2016	
Estimate Classification:	Class 5	
Project Cost Allocation		
Battle Ground:	23.2%	$700,000
Clark County:	0%	$0
District:	76.8%	$2,500,000
Ridgefield:	0%	$0
Total:	100%	$3,200,000

Schedule Information:

(same as Phase 6 schedule)

Activity	Year
Planning	2025
Permitting	2026-2027
Real Property/ROW	N/A
Design	2026-2027
Bid	2028
Construction	2028-2030

Discovery Clean Water Alliance

CAPITAL PROJECT PROFILE FORM

Project Name: SCTP Dewatering Equipment Rebuild
Project Number: RA07-18-1
Form Prepared: March 2016

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 dewatering system reliability by rebuilding existing belt filter presses.

Scope of Work. The project will rebuild the two existing belt filter presses, consisting of replacing all wearing part, new belts, rakes, and drip pans. 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. Rebuilding these units will extend the lifetime.

Cost Allocation. The project costs are apportioned to Battle Ground and the District according to treatment plant allocated capacity: 3.47 mgd (23.2%) for Battle Ground and 11.48 mgd (76.8%) 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)*:

SCTP Solids Processing Center

Existing SCTP Belt Filter Press

Budget Information:

Project Cost Estimate		
Total Project Cost:	$220,000	
Construction Cost:	$220,000	
Basis of Estimate -		
Year Completed:	2016	
Estimate Classification:	Class 1	
Project Cost Allocation		
Battle Ground:	23.2%	$50,000
Clark County:	0%	$0
District:	76.8%	$170,000
Ridgefield:	0%	$0
Total:	100.0%	$220,000

Schedule Information:

Activity	Year
Planning	2016
Permitting	N/A
Real Property/ROW	N/A
Design	2018
Bid	2018
Construction	2018

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: SCTP Dewatering Equipment Replacement
Project Number: RA07-24-1
Form Prepared/Updated: April 2016

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 the two existing belt filter presses (BFPs) 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 both 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. *For additional options on sequencing the replacement please see back of this page.*

Cost Allocation. The project costs are apportioned to Battle Ground and the District according to treatment plant allocated capacity: 3.47 mgd (23.2%) for Battle Ground and 11.48 mgd (76.8%) 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 | *SCTP Solids Processing Center* | *New Screw Press*

Budget Information:

Project Cost Estimate		
Total Project Cost:	$3,200,000	
Construction Cost:	$2,500,000	
Basis of Estimate -		
Year Completed:	2016	
Estimate Classification:	Class 4	
Project Cost Allocation		
Battle Ground:	23.2%	$700,000
Clark County:	0%	$0
District:	76.8%	$2,500,000
Ridgefield:	0%	$0
Total:	100.0%	$3,200,000

Schedule Information:

Activity	Year
Planning	2023
Permitting	2023
Real Property/ROW	N/A
Design	2023
Bid	2024
Construction	2024

Alternative Options discussion:

Baseline as Identified on Profile Form: The information on this profile form assumes a near-term rebuild of the existing equipment to continue use of this equipment until the Phase 6 Expansion. In the Phase 6 Expansion, both BFPs will be replaced with screw presses.

Alternative 1: As an alternate, one screw press could be installed in the near term, maintaining the existing two BFPs for redundancy. The cost and ROI for this alternative is 50% of what is shown, and would require the installation of a second screw press (and removal of existing BFPs) as part of the Phase 6 Expansion.

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: SCTP Fire Pump Controller Replacement
Project Number: RA07-19-1
Form Prepared/Updated: March 2016

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

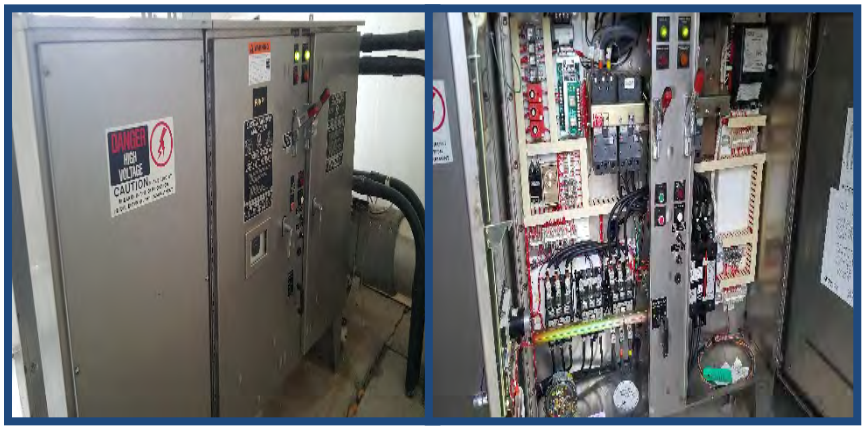
Project Definition:

Objective. The project will ensure long-term functionality of the onsite fire pump system by replacing the existing fire pump controllers, which are now obsolete and unreliable.

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 the area of the plant.

Cost Allocation. The project costs are apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall allocated capacity: 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) 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:	$170,000	
Construction Cost:	$130,000	
Basis of Estimate -		
Year Completed:	2016	
Estimate Classification:	Class 3	
Project Cost Allocation		
Battle Ground:	23.2%	$40,000
Clark County:	0%	$0
District:	76.8%	$130,000
Ridgefield:	0%	$0
Total:	100%	$170,000

Schedule Information:

Activity	Year
Planning	2016
Permitting	2018
Real Property/ROW	N/A
Design	2018
Bid	2019
Construction	2019

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: SCTP Primary Sludge Pump Replacement
Project Number: RA07-20-1
Form Prepared/Updated: March 2016

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 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 project will replace the existing eight primary sludge pumps and associated air compressors, installed in 1998 as part of the Phase 3 Expansion, with lobe or hose style pumps. These new style pumps will provide a potential savings in operating costs of a magnitude of $15,000 to $20,000 annually. The simple payback is approximately 8-11 years. In addition to the pump replacement, new flowmeters and Total Suspended Solids (TSS) probes will be installed.

Cost Allocation. The project costs are apportioned to Battle Ground and the District according to the Salmon Creek Treatment Plant and Outfall allocated capacity: 3.47 mgd (23.2%) for Battle Ground, and 11.48 mgd (76.8%) 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 Diaphragm Style Pump *Proposed Hose Style Pump* *Proposed Lobe Style Pump*

Budget Information:

Project Cost Estimate		
Total Project Cost:	$230,000	
Construction Cost:	$190,000	
Basis of Estimate -		
Year Completed:	2016	
Estimate Classification:	Class 5	
Project Cost Allocation		
Battle Ground:	23.2%	$50,000
Clark County:	0%	$0
District:	76.8%	$180,000
Ridgefield:	0%	$0
Total:	100%	$230,000

Schedule Information:

Activity	Year
Planning	2019
Permitting	2019
Real Property/ROW	N/A
Design	2019
Bid	2020
Construction	2020

APPENDIX D

NEW ASSETS

CONSTRUCTION/ACQUISITION
PROJECT PROFILES

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: 117th Street PS Capacity Upgrade
Project Number: RA04-31-1
Form Prepared/Updated: May 2016

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 18 mgd maximum month 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. The resulting cost allocation is 23.4% of total project costs to Battle Ground and 76.6% to the District. 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:	$9,900,000		
Construction Cost:	$7,600,000		
Basis of Estimate -			
Year Completed:	2016		
Project Definition:	5% design	(Class 4)	

Project Cost Allocation		
Battle Ground:	23.4%	$2,300,000
Clark County:	0%	$0
District:	76.6%	$7,600,000
Ridgefield:	0%	$0
Total:	100.0%	$9,900,000

Schedule Information:

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

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: RA07-21-1
Form Prepared/Updated: May 2016

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 to address streambank erosion affecting the existing pipeline.

Scope of Work. Phase 5A will construct a new effluent pipeline from the treatment plant to the west side of Lower River Road. The pipeline is estimated to be approximately 6,200 feet long and 48 inches in diameter. 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 approximately Lower River Road to the pipeline terminus, and include a new in-water diffuser assembly at the end of the outfall. The new pipeline will parallel and replace the in-water portion of the outfall pipeline installed in 1975. The Phase 5A (Plant) Expansion Project will also produce a General Sewer Plan (GSP) document covering for all Alliance Regional Assets as part of the required planning process.

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 *Salmon Creek Wastewater Management System Wastewater Facilities Plan/General Sewer Plan Amendment, CH2M HILL, August 2013.*

Photos *(if available)*:

Existing Salmon Creek Treatment Plant Effluent Pipeline/ Outfall in Columbia River

Budget Information:

Project Cost Estimate		
Total Project Cost:	$17,600,000	
Construction Cost:	$13,000,000	
Basis of Estimate -		
Year Completed:	2016	
Project Definition:	Placeholder	(Class 5)
Project Cost Allocation		
Battle Ground:	25.9%	$4,600,000
Clark County:	0%	$0
District:	74.1%	$13,000,000
Ridgefield:	0%	$0
Total:	100%	$17,600,000

Schedule Information:

Activity	Year
Planning	2015-2018
Permitting	2016-2019
Real Property/ROW	2017-2018
Design	2016-2020
Bid	2021
Construction	2021-2022

Supplemental Information:

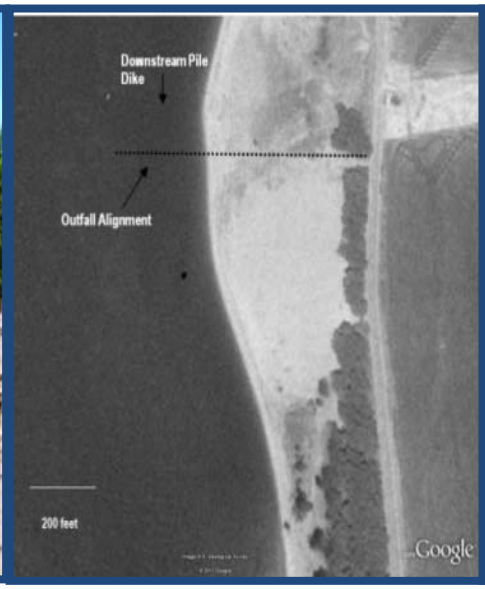
Phase 5A (Outfall/Effluent Pipeline) Expansion
Cost Allocation Based on Allocated Capacity

	Allocated Capacity Summary (MGD, MMF)			INCREMENTAL CAPACITY PURCHASED			COST ALLOCATION	
				Outfall Capacity (mgd)	Battle Ground Capacity (mgd)	District Capacity (mgd)	Battle Ground Share (percent)	District Share (percent)
Expansion Phase	Outfall Capacity	Battle Ground	District					
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		

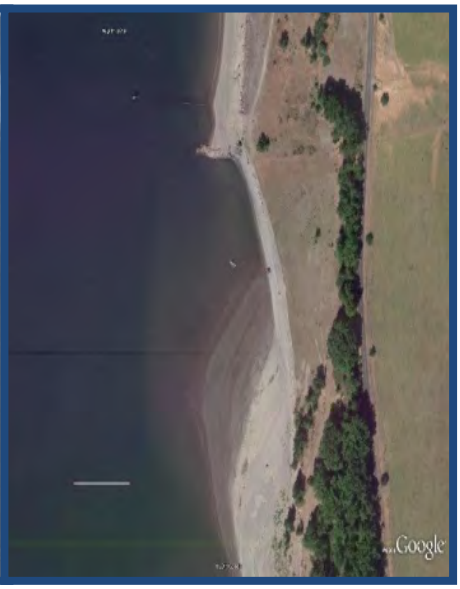
Phase 5A (Outfall/Effluent Pipeline) Expansion
Project-Specific Cost Allocation Based on Responsibility for Contributing Factors

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: SCTPO Phase 5B (Plant) Expansion Project
Project Number: RA07-21-2
Form Prepared/Updated: May 2016

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 address influent wasteload trends, which indicate capacity at the Salmon Creek Treatment Plant (SCTP) may be reached by approximately the 2023-2024 timeframe. The project will seek to have existing embedded secondary treatment capacity recognized through a formal re-rating process and proactively address certain odor sources at the plant through control and treatment to circumvent regulatory enforcement of improvements. The project will also address any other in-plant incremental capacity elements needed to rate the overall SCTP facility capacity at 17.0 mgd on a maximum month flow basis.

Scope of Work. The project will develop an Engineering Report (ER) and subsequent design documents for improvements required to establish an overall increased rating for the facility at 17.0 mgd. At this time, elements of the work are anticipated to include: process-related studies, a formal treatment process re-rating analysis, and implementation of an odor control system for the preliminary and primary treatment facilities. The scope also includes modifications to the effluent pump station to complete all in-plant work to coordinate with the outfall and effluent pipeline (Phase 5A) improvements. The scope and cost of the project are preliminary at this time and will be further refined in the ER process.

Cost Allocation. 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, see the *Salmon Creek Wastewater Treatment Plant Capacity Evaluation, CH2M HILL, April 2016* and *Salmon Creek Treatment Plant Phase 4 Odor Control Update, CH2M HILL, June 2016*.

Photos *(if available)*:

Primary Clarifiers | *Secondary Treatment* | *Effluent Pump Station*

Budget Information:

Project Cost Estimate		
Total Project Cost:	$6,400,000	
Construction Cost:	$4,600,000	
Basis of Estimate -		
Year Completed:	2016	
Project Definition:	Placeholder	(Class 5)

Project Cost Allocation		
Battle Ground:	25.9%	$1,700,000
Clark County:	0%	$0
District:	74.1%	$4,700,000
Ridgefield:	0%	$0
Total:	100%	$6,400,000

Schedule Information:

Activity	Year
Planning	2017-2018
Permitting	2019-2020
Real Property/ROW	N/A
Design	2019-2020
Bid	2021
Construction	2021-2022

Supplemental Information:

Phase 5B (Plant) Expansion
Cost Allocation Based on Allocated Capacity

Allocated Capacity Summary (MGD, MMF)				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*					
Phase 5B (New)	*17.00*	*4.00*	*13.00*	2.05	0.53	1.52	25.9%	74.1%

Discovery Clean Water Alliance

CAPITAL PROJECT PROFILE

Project Name: SCTP Phase 6 Expansion
Project Number: RA07-28-1
Form Prepared/Updated: May 2016

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, add an Aeration Blower, construct Aeration Basin 7, construct Secondary Clarifier 5, demolish Secondary Clarifier 1, construct RAS/WAS Pump Station 2 and construct UV Disinfection Channel 2.

Cost Allocation. The SCTP expansion costs will be allocated based on capacity purchased in the system: estimated at 19.2% for Battle Ground, and 80.8% for the District. 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:	$22,300,000	
Construction Cost:	$17,100,000	
Basis of Estimate -		
Year Completed:	2016	
Project Definition:	Placeholder	(Class 5)

Project Cost Allocation		
Battle Ground:	19.2%	$4,300,000
Clark County:	0	$0
District:	80.8%	$18,000,000
Ridgefield:	0	$0
Total:	100%	$22,300,000

Schedule Information:

Activity	Year
Planning	2025
Permitting	2026-2027
Real Property/ROW	N/A
Design	2026-2027
Bid	2028
Construction	2028-2030

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*				23.2%	76.8%
Phase 5A (Outfall Only)								
Phase 5B (Plant)	*17.00*	*4.00*	*13.00*	2.05	0.53	1.52	25.9%	74.1%
Phase 6	*19.60*	*4.50*	*15.10*	2.60	0.50	2.10	19.2%	80.8%
Phase 7	*23.80*	*5.60*	*18.20*	4.20	1.10	3.10	26.2%	73.8%
Phase 8	*27.00*	*6.40*	*20.60*	3.20	0.80	2.40	25.0%	75.0%
Phase 9	*30.70*	*7.30*	*23.40*	3.70	0.90	2.80	24.3%	75.7%
TOTAL				15.75	3.83	11.92		

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: SCTP Phase 7 Expansion
Project Number: RA07-34-1
Form Prepared/Updated: May 2016

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 Primary Clarifier 5, Aeration Basin 8 and Anaerobic Digester 3.

Cost Allocation. The SCTP expansion costs will be allocated based on capacity purchased in the system: estimated at 26.2% for Battle Ground, and 73.8% for the District. 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:	$16,200,000	
Construction Cost:	$12,400,000	
Basis of Estimate -		
Year Completed:	2016	
Project Definition:	Placeholder	(Class 5)

Project Cost Allocation		
Battle Ground:	26.2%	$4,200,000
Clark County:	0%	$0
District:	73.8%	$12,000,000
Ridgefield:	0%	$0
Total:	100%	$16,200,000

Schedule Information:

Activity	Year
Planning	2031
Permitting	2032-2033
Real Property/ROW	N/A
Design	2032-2033
Bid	2034
Construction	2034-2036

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*				23.2%	76.8%
Phase 5A (Outfall Only)								
Phase 5B (Plant)	*17.00*	*4.00*	*13.00*	2.05	0.53	1.52	25.9%	74.1%
Phase 6	*19.60*	*4.50*	*15.10*	2.60	0.50	2.10	19.2%	80.8%
Phase 7	*23.80*	*5.60*	*18.20*	4.20	1.10	3.10	26.2%	73.8%
Phase 8	*27.00*	*6.40*	*20.60*	3.20	0.80	2.40	25.0%	75.0%
Phase 9	*30.70*	*7.30*	*23.40*	3.70	0.90	2.80	24.3%	75.7%
TOTAL				15.75	3.83	11.92		

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: Ridgefield Treatment Plant Decommissioning
Project Number: RA08-34-1
Form Prepared/Updated: May 2016

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:	$2,700,000	
Construction Cost:	$2,100,000	
Basis of Estimate -		
Year Completed:	2016	
Project Definition:	Placeholder	(Class 5)

Project Cost Allocation		
Battle Ground:	0%	$0
Clark County:	0%	$0
District:	100%	$2,700,000
Ridgefield:	0%	$0
Total:	100%	$2,700,000

Schedule Information:

Activity	Year
Planning	2031
Permitting	2032-33
Real Property/ROW	N/A
Design	2032-33
Bid	2034
Construction	2034

Discovery Clean Water Alliance
CAPITAL PROJECT PROFILE

Project Name: BGFM Parallel Force Main
Project Number: RA09-28-1
Form Prepared/Updated: May 2016

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

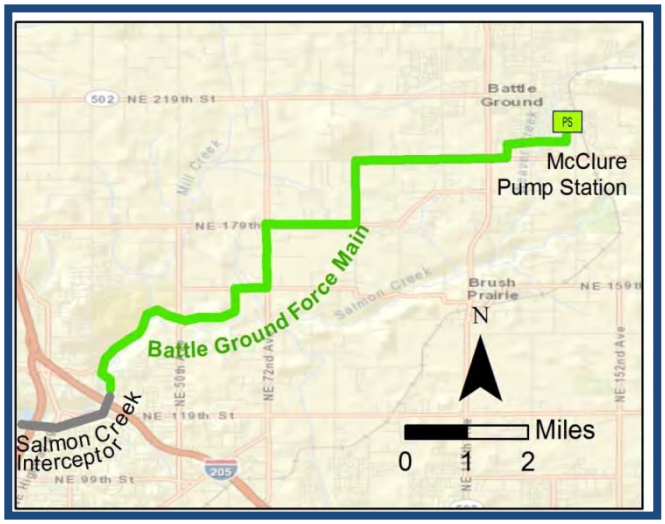
Project Definition:

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:	$24,100,000	
Construction Cost:	$18,500,000	
Basis of Estimate -		
Year Completed:	2016	
Project Definition:	Placeholder	(Class 5)

Project Cost Allocation		
Battle Ground:	100%	$24,100,000
Clark County:	0%	$0
District:	0%	$0
Ridgefield:	0%	$0
Total:	100%	$24,100,000

Schedule Information:

Activity	Year
Planning	2025
Permitting	2026-2027
Real Property/ROW	2026-2027
Design	2026-2027
Bid	2028
Construction	2028-2030

APPENDIX E

LONG-RANGE PLANNING

FUTURE PROJECT DEFINITION

Long-Range Planning – Future Project Definition

The following projects have been identified through previous planning and study efforts, but are not currently programmed in the 20-year planning period. These projects are listed for further monitoring and development as conditions warrant.

- *Salmon Creek Treatment Plant (SCTP) - Phase 8 Expansion*. The Phase 8 Expansion project is a phased expansion of the SCTP that would construct Primary Clarifier 6, construct Aeration Basin 9, provide additional aeration blower capacity and construct Secondary Clarifier 6. The project would also demolish existing Secondary Clarifier 2. The project is estimated to cost $15.1 million in 2011 dollars ($17.5 million in 2016 dollars) and would increase the facility capacity to 27.0 MGD MMF.

- *Salmon Creek Treatment Plant - Phase 9 Expansion*. The Phase 9 Expansion project is a phased expansion of the SCTP that would construct Aeration Basin 10 and provide additional aeration blower capacity. The project is estimated to cost $6.6 million in 2011 dollars ($7.6 million in 2016 dollars) and would increase the facility capacity to 30.7 MGD MMF.

- *Ridgefield Treatment Plant – Expansion to 1.0 MGD*. The project would construct a third aeration basin, odor control facilities for the digester, a new laboratory and increase the size of the effluent pipe from the wastewater treatment plant to the outfall. The project would include associated pumps, blowers, piping, electrical and controls. The estimated cost for this project is $4.3 million in 2009 dollars ($5.3 million in 2016 dollars).

- *Westside-Salmon Creek Intertie Project*. This project would construct a 30-inch diameter pipeline approximately 5 miles long, connecting the 117th Street Pump Station Force Main with the City of Vancouver Westside Water Reclamation Facility. The pipeline portion of the project is estimated to cost $34.3 million in 2007 dollars, including necessary improvements at the Westside Water Reclamation Facility to receive the flow. In addition, the project would purchase treatment capacity at the Westside facility. The cost for purchase of treatment capacity was estimated in 2007 at $35.1 million. This value is based on 6 million gallons per day (gpd) of average annual flow capacity being purchased at $5.85 per gpd treated. Total project costs for pipeline construction and treatment capacity purchase therefore are $69.4 million in 2007 dollars ($90.6 million in 2016 dollars). Additional information is available in the report titled *Vancouver Westside Water Reclamation Facility, Salmon Creek Wastewater Management System Connection Study, OTAK, 2007*.

- *Westside Energy Recovery/Class A Biosolids Project*. This project would construct biosolids drying equipment at the City of Vancouver Westside Water Reclamation Facility and utilize waste heat from the Westside solids incinerator process to produce Class A biosolids with the Salmon Creek Class B biosolids feedstock. The project also provides for a drier ash product for the City of Vancouver, intended to be compatible with industry demand for fly ash material. A biosolids and dry ash market study are recommended as part of the preliminary design effort

to confirm the market potential for both products. The Alliance project cost share is estimated to be $7.8 million in 2012 dollars ($8.8 million in 2016 dollars). For the Alliance, the project would decrease operating costs associated with biosolids hauling and increase the level of service by providing a Class A material that can be reused in the local community. Additional information is available in the report titled *Biosolids Processing and Utilization Review, Brown and Caldwell, 2010* and the *Westside Water Reclamation Facility Energy Recovery Project Engineering Report, Brown and Caldwell, 2012*. The Engineering Report was approved by Ecology on August 9, 2013.

Taken together, these projects represent an additional estimated potential investment of approximately $130 million (2016 dollars) in treatment capacity, regional system integration and increased levels of service. These projects will be further reviewed at a policy level to provide additional context for the appropriate application of the projects in the long-range planning horizon for the Alliance.