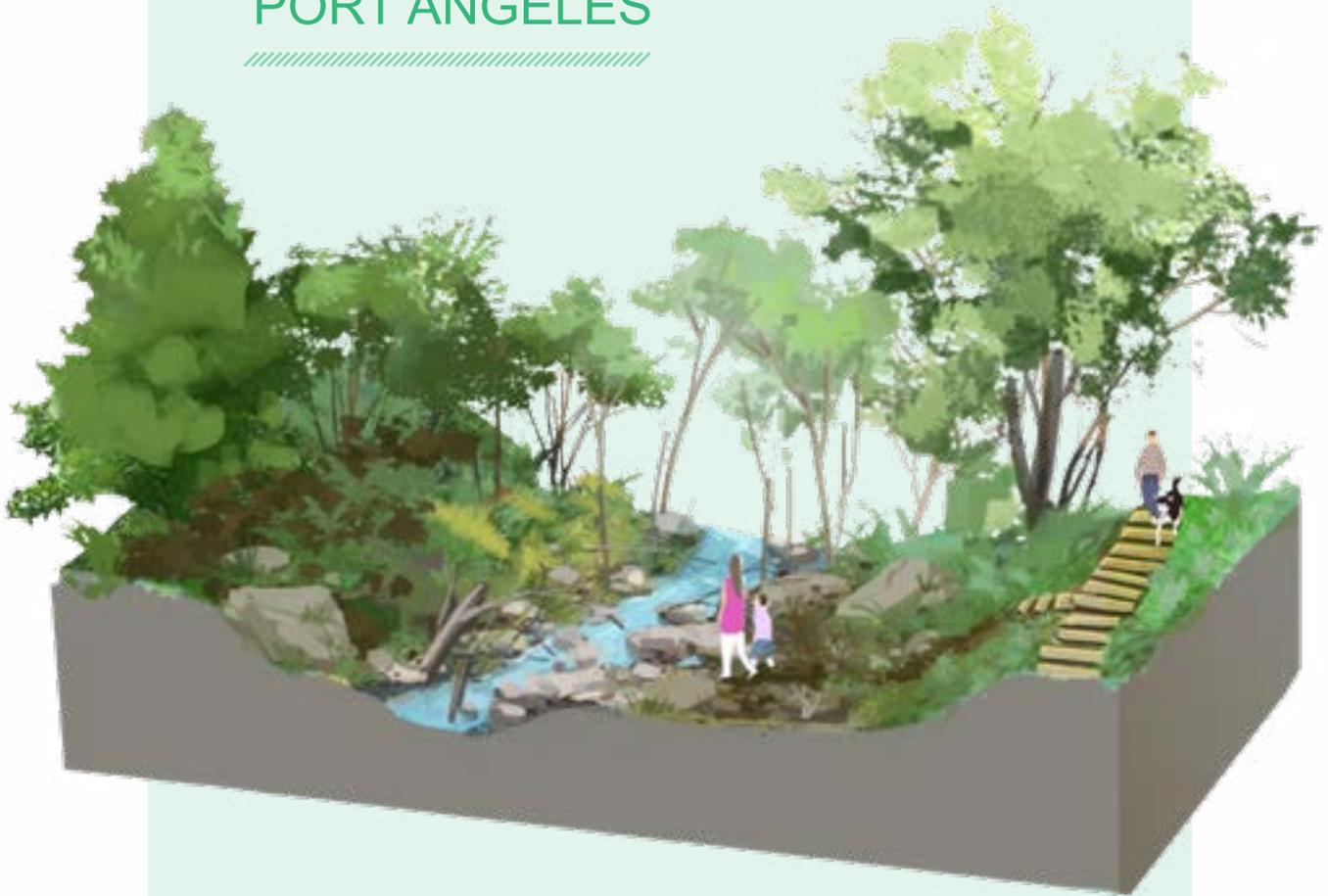


# greenlink

PORT ANGELES



GreenLink Port Angeles  
Phase 1 Summary Report  
February 2022



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## **Executive Summary**

In partnership with the City of Port Angeles (the City) and Herrera Environmental Consulting (Herrera), Futurewise is coordinating GreenLink Port Angeles, a watershed-scale planning process for developing an integrated network of multi-benefit green stormwater infrastructure (GSI) projects. Modeled after a successful pilot in Bellingham, WA, a holistic, data driven approach was used to create a prioritized list of GSI projects and programmatic recommendations that maximize the value of management investments by providing overlapping improvements to water quality, habitat and other community assets like walkability (see Appendix A.1). Public outreach was conducted and a GreenLink Advisory Committee (GLAC) was formed to guide planning and provide expertise on the identification, analysis and scoring of potential project sites. Conceptual project designs were developed and ranked based on the opportunities to provide co-benefits to ecological health and quality of life using GSI and implementation feasibility. The GLAC voted to select the highest-ranking project for advancement in Phase II, Alternative A: the development of engineering plans to daylight lower Valley Creek, and added the creation of a Valley Creek Master Plan.

## **Background**

In 2016, Futurewise partnered with the City of Sequim to submit a Near Term Action (NTA) to the Puget Sound Action Agenda. The initial NTA, 2016-0199, was recommended for funding by the Stormwater Strategic Initiative, and received a \$248,000 grant funded through EPA's Puget Sound Geographic Funds. When Futurewise received the grant in 2018, Sequim decided that they were not in a position to take on the project at that time. The Sequim partners suggested that the City of Port Angeles may be interested in participating instead and it was determined that the project aligned well with the City's stormwater infrastructure vision and goals.

Futurewise later applied for and received a second NTA, 2018-0615, through the Stormwater Strategic Initiative and EPA Puget Sound Geographic Funds. The second grant in the amount of \$248,000 was combined with the initial grant into Phase I and Phase II of the GreenLink project. Phase I was to be used to develop an integrated network of implementable green infrastructure project recommendations and Phase II is intended to support the advancement and implementation of selected projects identified in Phase I.

## **Project Description and Goals**

The goal of GreenLink Port Angeles Phase I was to develop a prioritized list of integrated GSI projects and policy recommendations that would provide multiple, overlapping benefits to habitat, water quality and community assets like walkability while helping the City achieve their National Pollution Discharge Elimination System permit requirements and other stormwater management objectives. Potential project sites were evaluated and scored using a variety of methods including a process called "heat mapping" (see description below) and stormwater

project concepts were created to address site specific concerns while simultaneously capitalizing on the unique opportunities associated with that location.

The original plan was to generate three to five detailed summary sheets for the highest-priority projects, one or more of which would be selected for implementation in Phase II. The remaining summary sheets would be used to seek funding for future project completion. Alternatively, the GLAC decided to pursue advancement of only the highest-ranking project in Phase II, daylighting lower Valley Creek to the extent allowed by time and funding. The creation of a master plan was a component added in response to GLAC discussions regarding the need for a cohesive vision for ongoing watershed-scale work. This approach will incorporate and build upon the extensive restoration and planning work already completed for Valley Creek. The construction is not included under this grant.

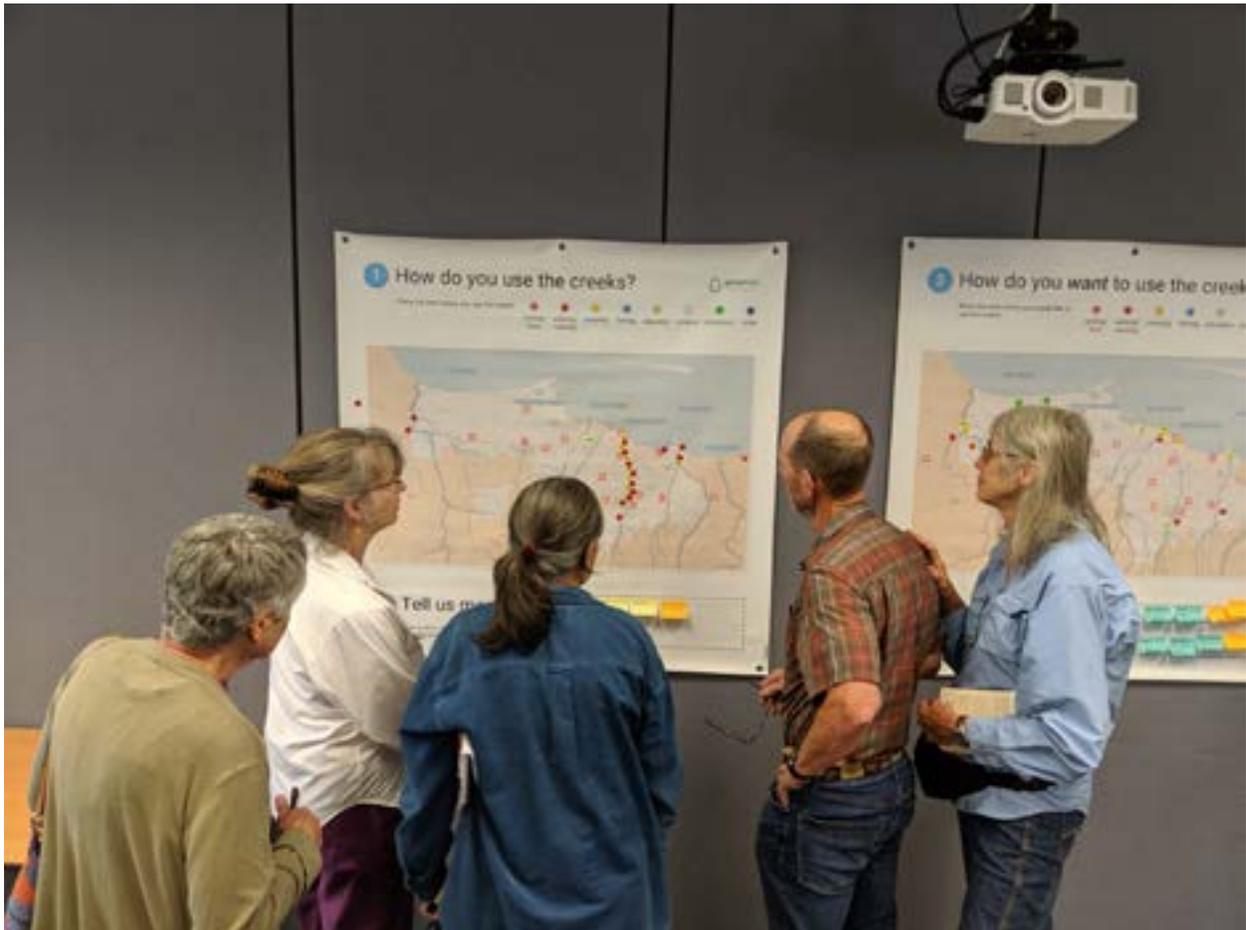


GLAC Meeting

## The GreenLink Advisory Committee

A GreenLink Advisory Committee (GLAC) was formed to provide expertise, local knowledge, and guidance throughout the iterative planning process. The GLAC has been coordinated by

Futurewise and Herrera staff and includes representatives from the Lower Elwha Klallam Tribe, the City of Port Angeles, Clallam County, Olympic National Park, the Fiero Marine Life Center, Washington Sea Grant, a consultant with Natural Systems Design and other environmental professionals and stakeholders. While the composition of the group and the positions of certain participants has changed somewhat over the course of the project, the core group has remained consistent. Defining and selecting analysis categories, identifying data sources and community priorities, filling dataset gaps, vetting analysis results, ranking potential projects, and voting for an alternative to advance in Phase II, are among the many contributions of the GLAC.



Community engagement mapping exercise

## Community Outreach and Engagement

Several steps were taken to provide the Port Angeles community with project information and to gather local knowledge and input on creek conditions, project preferences and assets definition. The GLAC reviewed the preliminary Outreach Plan and recommended the events attended to

solicit community input. The following public engagement activities were coordinated by Futurewise staff:

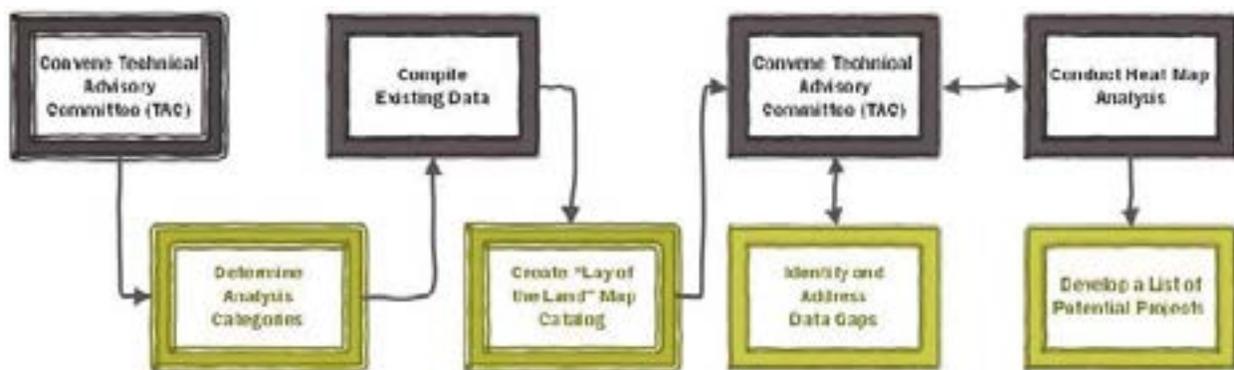
- A project overview presented to the Port Angeles City Council and members of the public at a Council Meeting in May, 2019 (see Appendix A.2).
- Four tabling/outreach events were set up at the Port Angeles Farmers' Market and the Arts & Draughts Festival during the Summer of 2019.
- An open house was held at the North Olympic Library System in August of 2019.
- A walking tour in the Valley and Peabody Creek Watersheds was led by GLAC participant Ed Chadd.



Walking tour led by Ed Chadd

## Site Selection Process

Potential project sites were identified, evaluated and prioritized using a data analysis method called “heat mapping” (see below) in combination with desktop analysis, on the ground investigations, and input from the GLAC. After discussion and a review of the Bellingham model, the GLAC selected water quality, habitat and community assets as the categories for the data analysis. While Peabody Creek, Tumwater Creek, and Valley Creek were the initial focus, this scope was expanded to include the other two watersheds within the City of Port Angeles, Dry Creek and Ennis Creek, at the suggestion of the GLAC. An overview of the site selection process and scoring method follows.



Site selection process diagram

## Lay of the Land Map Catalog

Using government sources, Herrera compiled more than 75 spatial datasets of relevant watershed health metrics and other material related to project feasibility to create a “Lay of the Land ” map catalog (see Appendix A.3). The GLAC then identified any gaps in the data.

## Heat Map Analysis

A “heat mapping” data analysis was used to inform the prioritization of a list of stormwater projects and locations by greatest need and opportunity (see Appendix A.2). Individual datasets identifying watershed characteristics were grouped for analysis by water quality, habitat, and community assets. Proximity to trailheads and community gathering spaces are examples of the assets used in this process. Scoring criteria were developed for each metric that represented the overall impact of that metric on the broader analysis category. The scoring criteria was applied to a grid overlaying a given area and the individual cells of the grid were assigned a numeric value based on the scoring.

A cumulative watershed function map was then created by combining individual map layers related to community assets and water quality, resulting in the “stacking” of the georeferenced grids. Habitat characteristics were considered separately to avoid constraints like critical habitat that could impact permitting. The values of the grid cells overlaying a particular location were added together to give a numeric, or “heat map” value. Locations with high numeric values were identified as sites where GSI projects would provide the greatest “bang for the buck” with overlapping benefits. The habitat maps were considered separately but in parallel to the cumulative function maps to identify synergistic opportunities for habitat improvements and avoid areas where existing habitat would constrain a project.

### **Desktop Analysis and Site Visits**

A desktop analysis of relevant factors including the heat mapping results, was used by Herrera to guide on the ground investigations of the most promising locations. A small team of stormwater engineers and planners visited potential project locations in the Ennis Creek, Peabody Creek, Valley Creek and Tumwater Creek watersheds in Port Angeles to further assess the opportunities identified by the desktop analysis and to gather the information needed to develop a first draft of the list of potential GSI projects. This step informed the development of site specific GSI interventions and led to the identification of additional project opportunities. After the field reconnaissance, the team refined the project list and began developing a Project Evaluation Matrix (see Appendix A.4).

### **Project Development and Selection**

A list of conceptual project designs was developed for locations where the analysis indicated a high potential to benefit from GSI interventions (see link to Heat Map Analysis after Appendix). Projects were designed to address localized issues while providing multiple improvements to water quality, habitat and community assets. A matrix was created to score and evaluate the projects with the same criteria used in the heat mapping and the addition of “feasibility”. The GLAC ranked the projects following a discussion of their relative merits based on their local knowledge and expertise (see Appendix A.5). Daylighting Valley Creek and the installation of a comprehensive recreational trail system received the highest ranking. During the discussion of this concept, it was also suggested that a master plan would be an important next step for realizing the broader vision for Valley Creek. Overall, there was less enthusiasm expressed for any of the other projects on the list and it became clear that the group preferred to focus exclusively on advancing the Valley Creek projects.



Roadway overlaying Valley Creek

### **Alternatives Development and Final Project Selection**

To evaluate the idea of pursuing the Valley Creek project at the exclusion of further developing the other priority projects, thus deviating from the original project plan, it was determined that more information was required to understand the significant constraints associated with these sites. To compare potential approaches and options moving forward, a list of three alternatives was developed that included the most feasible or otherwise suitable components of the two highest ranking projects (see Appendix A.6). A third, more flexible alternative was created to address the preferences of some GLAC members and that would also align closely with the City's strong interest in cleaning up Peabody Creek. This alternatives assessment was based in part on the previous work of the GLAC and extensive, additional background research. The opportunities and constraints of each option were used to inform a discussion by the GLAC prior to the vote leading to the selection of Valley Creek projects for pursuit in Phase II.

## **Summary Sheets and Feasibility Study**

The selection of a single project for implementation in Phase II eliminated the need to produce multiple summary sheets; however, all of all the GSI project concepts associated with Valley Creek will be included in the Watershed Master Plan for reference and in-depth consideration at a later date and stormwater infrastructure enhancement will be emphasized throughout the design process. The City has affirmed support for this adjustment because the plans produced can be used by the City to seek funding to address long standing problems with the Valley Creek culvert identified as an unfunded priority stormwater project in the Capital Facilities Plan.

The remaining time and consultant funds earmarked for Phase I were spent on developing a summary sheet outlining elements of the feasibility study necessary to implement Alternative A, including an assessment of two potential routing options for lower Valley Creek see Appendix A.7). The evaluation of an additional potential route was proposed by a GLAC participant as a way to avoid soil contamination and other constraints.

## **Tribal Consultation**

Because of their unique political status and cultural relationship to the land, it is essential that the interested Tribes have ample opportunities for early and robust engagement in the project planning process, beyond the limits of the GLAC forum and standard Section 106 consultation requirements. To ensure that the project design and implementation are informed by, and responsive to, tribal input and preferences, we have sent an invitation for a separate, in depth consultation to the Lower Elwha Tribe Business Committee Chair that also recognizes the ongoing contributions of their staff to the GLAC (see Appendix A.8). At the outset of Phase II, additional invitations for consultation will be sent to the other interested tribes.

## **Timeline Delays**

The disruptions caused by the COVID-19 pandemic significantly impacted the project timeline. Important field surveys planned by Herrera for March, 2020, had to be postponed until June 2020 due to coronavirus related gathering restrictions. Following the successful completion of this on-site survey, the project again began to make progress and a major milestone was completed in November 2020 when a preliminary project list and prioritization matrix were presented to the GLAC. Another major delay occurred in February of 2021 due to an unexpected reduction in staffing.

Hiring a resident of Port Angeles to serve as the new project manager and obtaining an 18-month extension of the project timeline from the Department of Ecology, were among the steps taken to respond to these challenges.

## **Lessons Learned**

### **Tribal Engagement**

An earlier, comprehensive tribal engagement strategy may have led to a more timely and productive process by providing valuable perspective on local needs and priorities, previous efforts, and the cultural, historical, and social contexts.

### **Data Driven Approach**

Heat map analysis may not be the most effective or efficient route to achieve the desired outcome in Port Angeles and it should not be presumed that an approach that proved useful in one community will produce an equivalent benefit to another. While data analysis provides some quantitative validation of the site selection process, there may be less time consuming and costly ways to secure a comparable result given that the projects ultimately selected are mostly similar to ones identified and prioritized prior to this undertaking. The underlying assumption that the data layers used for heat mapping are additive and that sites receiving the highest score are the most suitable for project placement may be an oversimplification of the factors influencing these decisions.

The high level of site-specific knowledge and expertise held by this GLAC could have been used to select projects based on needs already identified by the City and other local organizations with the concept of multi-benefit projects as a guiding principle and the use of data analysis for additional validation. This approach also may have led to the selection of a final project more in tune with the City's most pressing stormwater management objectives. However, that the projects ultimately chosen are of longstanding importance and high value to the community does indicate that the process was successful in identifying and prioritizing projects with merit.

### **Predefined Framework**

While there were limitations in applying the Bellingham GreenLink model in Port Angeles, having an established framework was valuable for providing a path forward and a forum for important discussions and decision making. Initiating an entirely new process would have taken time and led to untested results. It is possible that hiring someone with the type of local knowledge and expertise held by the members of the GLAC could have facilitated a rapid adaptation of the GreenLink process to suit the unique context at the outset.

### **Next Steps for Phase II**

- Maintain ongoing engagement with the GLAC.
- Expand the outreach strategy to include other interested tribes.

- Continue community engagement efforts with particular emphasis on outreach to affected property owners and businesses for the daylighting project and the broader community for creation of the Valley Creek Master Plan.
- Determine components of the Valley Creek Master Plan.
- Complete the feasibility assessment to include an evaluation of routing alternatives and logical project segments.
- Develop the scope of work and secure an engineering contract to begin plan set development, and if time allows, permitting.
- Evaluate the need for consultants to work on elements of the Valley Creek Master Plan and if needed develop that scope of work and secure a contract.
- Research funding opportunities for project implementation.

## **Appendix**

A.1 GreenLink Bellingham Project Report

A.2 Memo to Port Angeles City Council

A.3 Technical Memo

A.4 Project Evaluation Matrix (DRAFT)

A.5 GLAC Project Scoring Results Table

A.6 Revised Project Alternatives

A.7 Valley Creek Daylighting Feasibility Assessment Project Summary Sheet

A.8 Lower Elwha Klallam Tribe Consultation Letter

Link to Heat Map Analysis:

<https://storymaps.arcgis.com/stories/40539d2ba4e143f286d4430b413062f1>

Link to Potential Project List:

<https://arcg.is/Cqrq9>

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