AGENDA
CITY OF STEVENSON SPECIAL COUNCIL MEETING
June 03, 2019
6:30 PM, City Hall

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1. CALL TO ORDER/PRESENTATION TO THE FLAG: Mayor to call the meeting to order, lead the group in reciting the pledge of allegiance and conduct roll call.

2. NEW FIRE HALL PROJECT:

a) **Discussion**: Stakeholders will discuss the new fire hall project and how to move forward as the current approx. $6M cost is not a viable solution. Options may include reviewing other locations previously scored and reevaluating the building configuration and design. Documents from previous studies are included for review and a few copies will be available at the meeting. (Initial 2013 report on p. 2, 2016 Strike Team report on p. 18, & 2019 Needs Assessment on p. 86)

3. ADJOURNMENT - Mayor will adjourn the meeting.

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RICE*fergus*MILLER
architecture interiors planning

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September 30, 2013

Ms. Mary Ann Duncan-Cole, City Administrator
City of Stevenson
7121 E. Loop Road
Stevenson, Washington 98648

RE: Emergency Facility Feasibility Study

Dear Mary Ann,

It is with great pleasure we present this feasibility assessment for a shared joint emergency response facility for the City of Stevenson Fire Department, Skamania County Department of Emergency Management, Skamania County Fire District #2, and the Skamania County Hospital District.

This report represents the culmination of the three month effort four agencies have spent determining the benefits and practicality of sharing a facility. Are there economic advantages to building and operating a facility together? Are there long-term operational benefits in co-locating these agencies under one roof? Would a joint facility be in the best interest of the citizens of Stevenson and the community surrounding Stevenson; for the property owners, businesses throughout Skamania County, and the thousands of visitors who come here every year?

We feel the unequivocal answer to all of these questions is a resounding "Yes." We believe there are strong reasons for all the participating four agencies to continue down this path of partnership.

We have enjoyed working with you, learning more about your community, and preparing this report. Please do not hesitate to call me if you, or any of your elected officials, have any follow-up questions.

Sincerely,
Rice Fergus Miller

David A. Fergus, Architect, NCARB
Senior Principal

Executive Summary

The purpose of this study was to determine if it's practical and cost effective for four public agencies in Skamania County to share in the building of a joint facility.

Participating Agencies

The agencies participating in this feasibility study included the Skamania County Department of Emergency Management, Skamania County Hospital District, Skamania County Fire District #2, and the City of Stevenson Fire Department. All four agencies are located within the boundaries of Skamania County, Washington, but each agency's service boundaries vary within the County, and each operates under different governance and funding structures.

Existing Facilities

Each of the agencies included in this feasibility assessment have facilities in varying degrees of condition, functionality, useful life, and adequacy.

The Skamania County Department of Emergency Management is operating out of the lowest floor in the County Jail. The space is too small and crowded when its Emergency Operation Center is activated in response to a large regional emergency, which can call upon upwards of 50 volunteers to appropriately staff.

The Skamania County Hospital District provides emergency medical and rescue services throughout Skamania County home based from a single station located in Stevenson, Washington on First Street. The building is well maintained, but undersized in many ways.

The Stevenson Fire Department and Skamania Fire District #2 provide service from a main headquarters fire station in Stevenson and a rural satellite station 2-1/2 miles north of Stevenson. Both structures are antiquated and insufficient in meeting the needs of the community.

Programmatic Requirements

Over the course of several workshop sessions with representatives of the four participant agencies, programmatic needs were identified and evaluated in terms of both current and long-range perspectives. This methodology resulted in an itemized list of rooms and spaces that detailed specific needs. Built as individual facilities, the tally was 25,090 square feet. Built as a single shared facility the tally was 20,870 square feet, which equated to a net reduction of 17% in size.

Property Considerations

Together with the participant agencies, property characteristics to support the functional aspects of the shared facility were identified, evaluated, and quantified. These characteristics were then applied to a large number of properties in the greater Stevenson area. Ultimately, two parcels were analyzed in greater depth to assess their suitability in terms of topography, utility availability, zoning and land-use restrictions, transportation access, and the potential development costs. Both were determined to be viable options in terms of constructability and development cost, yet each had other factors for weighing advantages (or disadvantages) over the other.

Building Layout

Consideration was given for how a shared building of this type might be laid out. Building diagrams were prepared to demonstrate two important aspects. First was to establish a general footprint for the building to assist in defining property requirements that would support it. Second was to assist the participant agencies in understanding how they might co-mingle and co-occupy a joint facility.

Two options are presented in this report for further consideration of the participant agencies. Both are approximately the same in square footage, and both respond to the same programmatic requirements. The contrast comes in how the individual agencies live together under one roof, how integrated each agency's programmatic needs are intertwined, and how the facility is 'shared' overall.

Costs

The total estimated cost for this project, including land acquisition and all project expenses, would be approximately $10.5 million dollars.

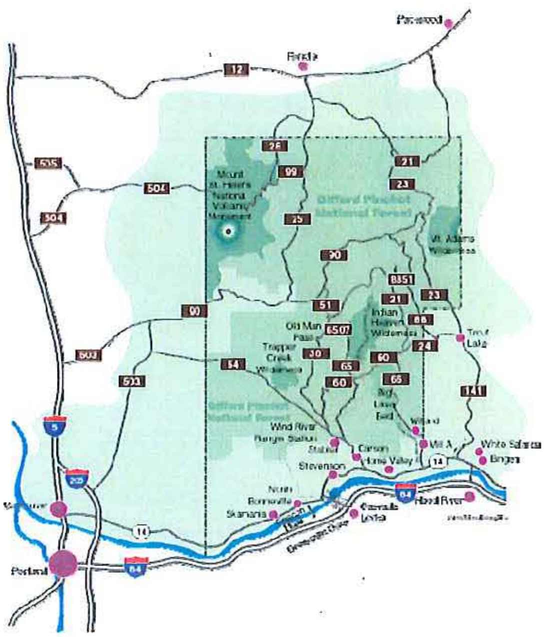
Identifying potential funding sources was a large portion of our conversations over the course of preparing this report. Grants and low interest loans were generally identified as the most viable. A listing of those potential sources is included in this report.

Participating Agencies

The agencies participating in this feasibility study include the Skamania County Department of Emergency Management, Skamania County Hospital District, Skamania County Fire District #2, and the City of Stevenson Fire Department. All four agencies are located within the boundaries of Skamania County, Washington, but each agency's service boundaries vary within the County, and each operates under different governance and funding structures.

Skamania County, Washington

Located in southwestern Washington, Skamania County extends from the northern shores of the Columbia River, through the forested ridges and ravines of the Cascade Mountains, north beyond Mount St. Helens, and east to the flanks of Mt. Adams.



Skamania County is 1,672 square miles in size and encompasses the Gifford Pinchot National Forest, Columbia River Gorge National Scenic Area, and Mt. St. Helens National Volcanic Monument. Eighty percent of the county is National Forest.

Skamania County was established in 1854, one of the first counties in the state. It operates under the laws of the State of Washington with a Commission form of government. Skamania County is a general purpose government that provides public safety, road improvement, parks and recreation, judicial administration, health and social services and general administration. There are eleven elected officials: three County Commissioners, an Assessor, an Auditor, a County Clerk, a District Court Judge, a Prosecuting Attorney, a Sheriff, a Superior Court Judge and a Treasurer.

The county population is approximately 11,000, spread throughout the communities of Washougal, Stevenson, Carson, Stabler, Home Valley, Mill A, Willard and Underwood.

Skamania County Department of Emergency Management

The Skamania County Department of Emergency Management (DEM) prepares for all natural and man-made emergencies and disasters that occur throughout Skamania County, coordinates responses, and provide logistical support, mitigation and recovery efforts.

The term 'emergency' means a set of circumstances which demand immediate action to protect life, preserve public health or essential services, or protect property. 'Disaster' means the situation is beyond the capabilities of the responding jurisdictions or organizations.

In accomplishing their mission, Skamania DEM operates hand-in-hand with the County Sheriff on all four phases of emergency management: Preparedness, Mitigation, Response, and Recovery.

Skamania DEM employs one full-time and multiple part-time individuals, coordinates more than 100 volunteers, and is currently located in the basement of the County's jail facility. The DEM's duties include implementing National Incident Management System (NIMS) protocols and coordinating search and rescue operations. Skamania County's rural areas include the Mount St. Helens National Monument, Mt. Adams Wilderness, Gifford Pinchot National Forest, and Columbia River Gorge National Scenic Area. Millions of tourists visit these areas annually. This large service area is vulnerable to large scale emergencies such as volcanic eruptions, wildland fires, and landslides, as well as the more frequent small scale emergencies related to lost hikers, lost mushroom collectors, boating and kite/sail boarding recreationists, and compromised climbers.

Governance. Skamania County DEM is managed by the County Sheriff, governed by the Skamania County Commissioners, and operated under state law per WAC 118-30 and RCW 38.52 laws.

Funding. Appropriations to fund the Skamania County Department of Emergency Management are at the discretion and direction of the County Commissioners. The Department of Emergency Management may also receive funding in the form of gifts, grants, and/or loans.

Skamania County Hospital District

The Skamania County Hospital District (dba Skamania County EMS) provides emergency medical services (EMS) to the residents and visitors of Skamania County. Their nineteen employees and twenty-two volunteers operate three ambulances out of their facility in downtown Stevenson and have one other ambulance strategically stationed in the county's west end. Skamania EMS also employs a rescue vehicle for automobile extrication, rope rescue and trail rescue, two squads, and a mass casualty trailer. Like the other partners of this feasibility study, Skamania EMS personnel are needed to serve visiting tourists. Responses of this nature continue to increase.

In addition to providing emergency medical services, Skamania County EMS provides a wide range of rescue services:

Rope Rescue. Most of Skamania EMS employees are rope rescue technicians. This service is important to Skamania County for two reasons. First, the diverse terrain throughout the County in which to navigate for rescues. Second, because of the many recreational activities specific to Skamania, including Beacon Rock and the Ozone as highly popular climbing areas, there is a growing incidence of rope assisted rescues.

Trail Rescue. Trail rescue is an important activity for this agency. With a new Wilderness Program, they are able to provide a higher level of advanced life support (ALS) in remote conditions. Preplanning is done for all area trails and is reviewed monthly.

Vehicle Extrication. Skamania County is one of the only Emergency Medical Services agencies in the County that provides vehicle extrication. Skamania EMS employs hydraulic tools such as the Jaws of Life and Rescue 42 Jacks for vehicle extrication. These techniques and procedures are updated and reviewed monthly.

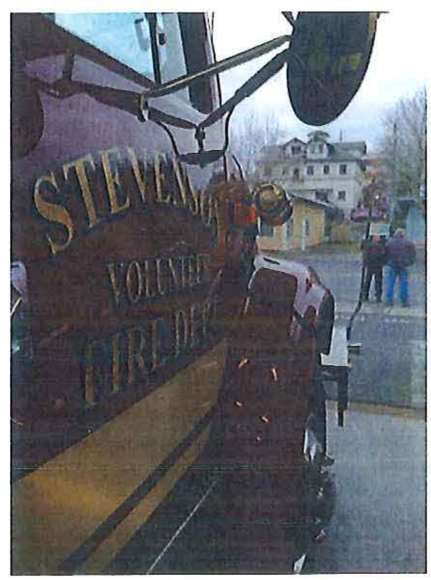
Skamania County EMS also provides event standby services for the community and an extensive number of on-going classes in CPR, First Aid, A.E.D. Operations, Blood Borne Pathogens, CPR for Health Care Providers, Emergency Medical Responder training and Wilderness First Aid.

Governance. Skamania County Public Hospital District is governed by three commissioners, elected for six-year terms from residents whom reside within the District's service area. Public Hospital Districts in Washington State are governed by Chapter 70.44 RCW.

Funding. Skamania County EMS's primary revenue source is levying taxes on property within the county wide Hospital District. This amount is limited to fifty cents per thousand dollars of assessed value on taxable property, plus an additional annual tax as a hospital district not to exceed twenty-five cents per thousand dollars. Revenue can be collected above these amounts when authorized by a vote of the people. The commission is also authorized to borrow money or issue warrants under certain circumstances. Additionally, Skamania EMS's revenue is supplemented by charging fees for ambulance service.

City of Stevenson Fire Department / Skamania Fire District #2

The Stevenson Fire Department and Skamania County Fire District #2 operate as one entity. The Chief and his 35 firefighters are all volunteers. The administrative duties of the Department are performed by City staff, and the administrative duties of the District are completed on an as-needed basis by a part-time secretary. The service area includes all of Stevenson and surroundings that stretch all the way to the Bonneville Dam. The volunteers respond to house fires, traffic accidents on the state highway, railway derailments, wildland fires, and emergencies requiring mutual aid in both Washington and Oregon. With the recent reductions in Gifford Pinchot Forest staffing the closest United States Forest Service response team is more than 45 miles from Stevenson. Together, the Stevenson Fire Department and Skamania Fire District #2 often serve as first responders for fires in the Gifford Pinchot, Washington DNR and private holdings.



Governance. The Stevenson Fire Department is governed by the City of Stevenson. Stevenson operates under a Mayor-Council form of government where the Mayor serves as the head of the executive branch and five council members serve as the legislative branch. The Mayor and City Council members are elected by the citizens of Stevenson and serve four year terms.

Skamania Fire District #2 is governed by three members of the community, elected to serve as Fire Commissioners. They serve staggered six year terms and are responsible for oversight of the District and their agreement with the City of Stevenson.

Funding. Funding for the Stevenson Fire Department is by annual appropriation by the City of Stevenson. Funding for Skamania County Fire District #2 comes primarily through the collection the taxes levied on real property within the boundaries of the Fire District.

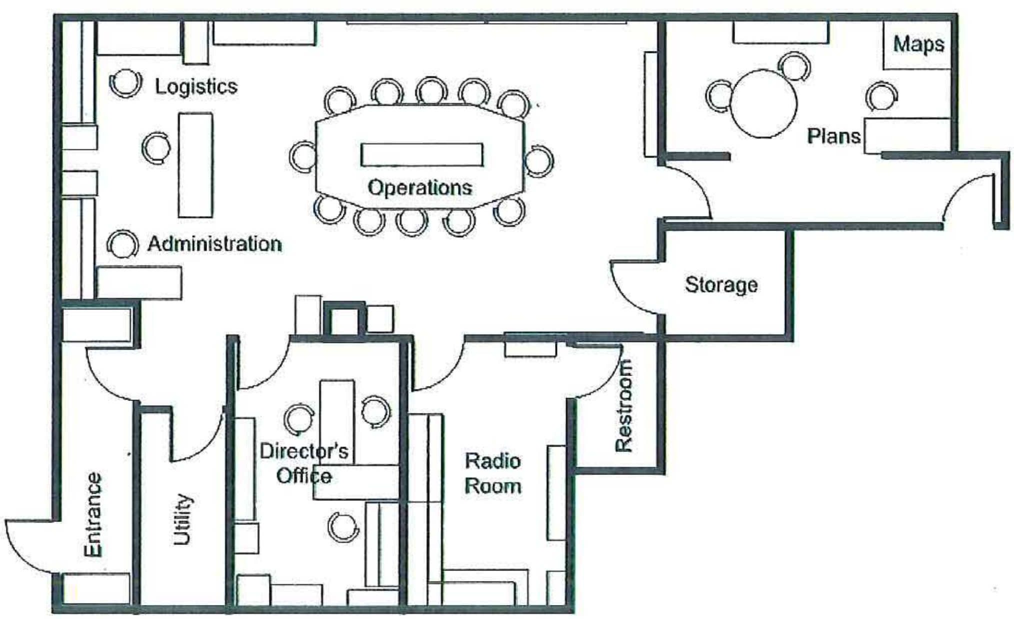
Existing Facilities

Each of the agencies included in this feasibility assessment have facilities in varying degrees of condition, functionality, useful life, and adequacy.

Skamania County Department of Emergency Management

The Skamania County Department of Emergency Management is operating out of the lowest floor in the County Jail. It occupies approximately 1, 365 square feet. While this location provides high security and good protection from the damage associated with a significant earthquake, it is only moderately satisfactory as an Emergency Operation Center for a service area as diverse and vast as Skamania County.

The central hub for Skamania County DEM's space is an open conference/meeting/training area that becomes the regional Emergency Operation Center (EOC) when required. The central table can accommodate 12 individuals, which has proven inadequate during large scale regional disasters when upwards of 50 volunteers may be called upon to report to the EOC.



Floor Plan
Department of Emergency Management
Skamania County, Washington

Skamania County Hospital District

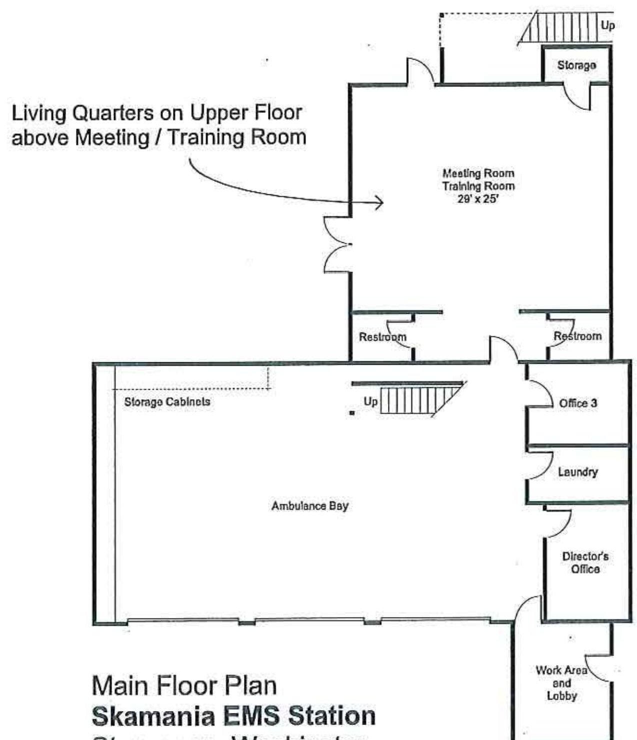
The Skamania County Hospital District provides emergency medical and rescue services throughout Skamania County home based from a single station located on First Street in Stevenson, Washington.

The facility is approximately 4,000 square feet covering two floors. It includes administrative offices on the main floor and living quarters on the upper floor for the 24-hour shift personnel assigned to the station.

The building has been well maintained and is in relatively good condition. The building appears to meet current building codes in general and provides functional areas consistent with today's design standards.

The building's shortcomings, as further noted in the Programmatic Requirements section of this report, would be in overall lack of space. Skamania EMS has exceeded its capacity to store their ambulances and support vehicles indoors. Dedicated space for decontamination, as well as adequate storage space for equipment and supplies is inadequate. Additionally, the living quarters are crowded and have limited the number of 24-hour personnel that can be assigned at this location with only three sleep rooms. The single restroom upstairs and single uni-sex locker/shower area do not provide the same level of gender separation as would be expected in a modern EMS station.

Main Floor	
Apparatus Bay	1,250 sf
Lobby / Office	150 sf
Director's Office	130 sf
Laundry	80 sf
Office	110 sf
(2) Restrooms	100 sf
Meeting / Training Room	725 sf
Training Room Storage	30 sf
Stairs / Circulation	225 sf
	2,800 sf
Upper Floor	
Kitchen / Day Room	440 sf
(3) Sleeping Rooms	340 sf
Restroom	80 sf
Lockers / Shower Area	180 sf
Stairs / Circulation	160 sf
	1,200 sf
Total Square Footage	**4,000 sf**



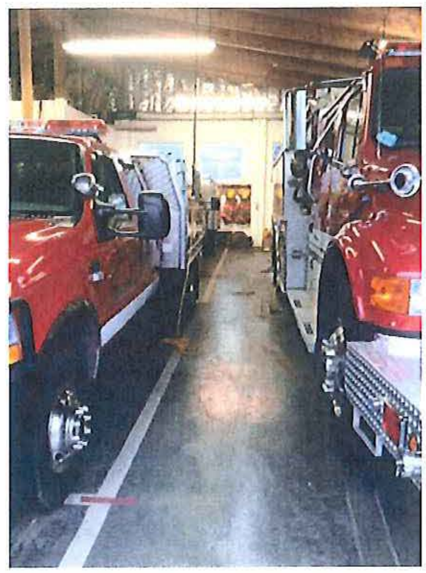
Main Floor Plan
Skamania EMS Station
Stevenson, Washington

Stevenson Fire Department / Skamania Fire District #2

There are two structures the Fire Department and Fire District provide emergency services from – a main headquarters fire station in Stevenson on First Street, and a satellite fire station north of town and close to the intersection of Loop Road and Stewart Road.

The fire station on First Street is approximately 4,320 square feet and consists primarily of a large garage space for storing fire apparatus and equipment. There is a small meeting and training room in the rear of the building and a single occupant restroom.

Included in the total square footage is a lean-to storage room on the rear of the structure of approximately 960 square feet. This addition has a lower floor elevation than the main station and is consequently accessed only from outside.



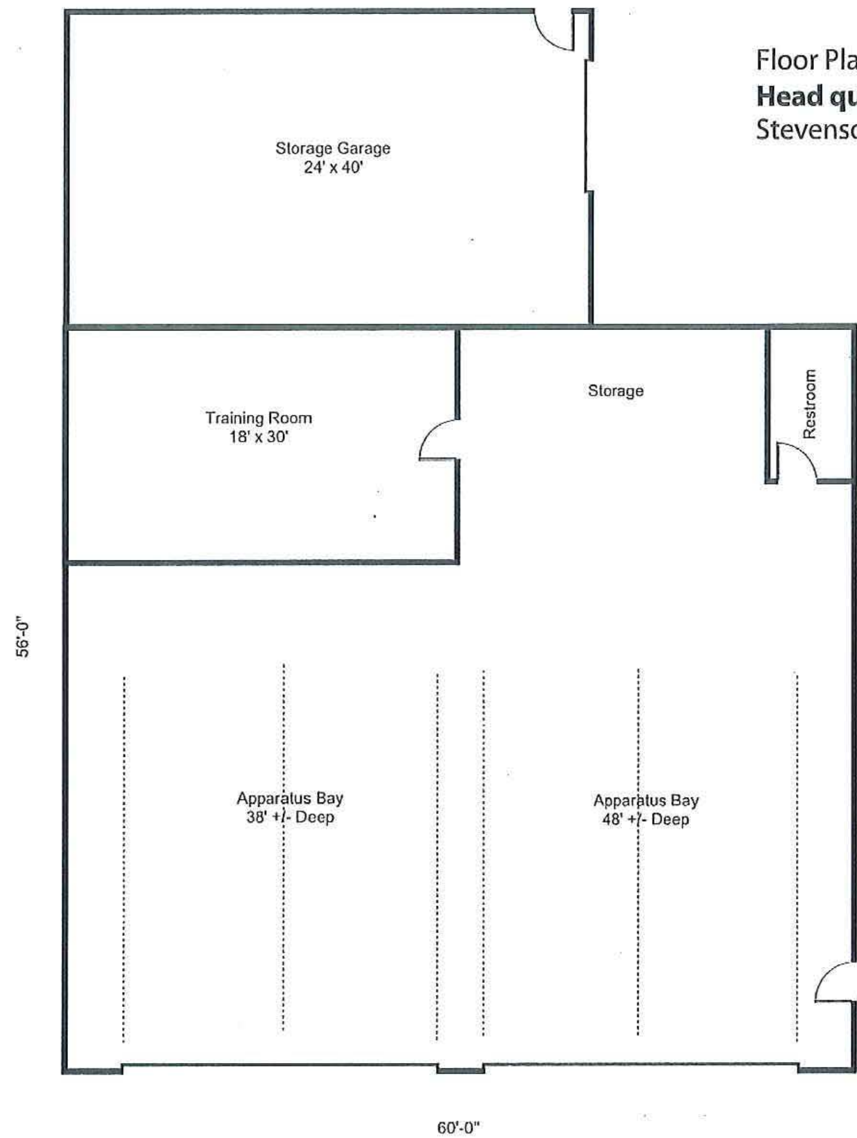
The station does not have the amenities expected of a modern fire station, including facilities for decontaminating equipment and personnel from pathogens they may have been exposed to during a call, or a mechanical ventilation system for removing diesel exhaust contaminants when driving vehicles in and out of the station.

Additionally, the building does not have automatic fire sprinklers and its resistance to a large earthquake is highly questionable. Recently when a fire truck clipped the jamb of one of the overhead doors, significant damage occurred to the building requiring a large steel framework to be installed to support the corner of the building. In many ways, the building is at or near the end of its useful life. Despite good maintenance and care over the years, the building is highly recommended for replacement.

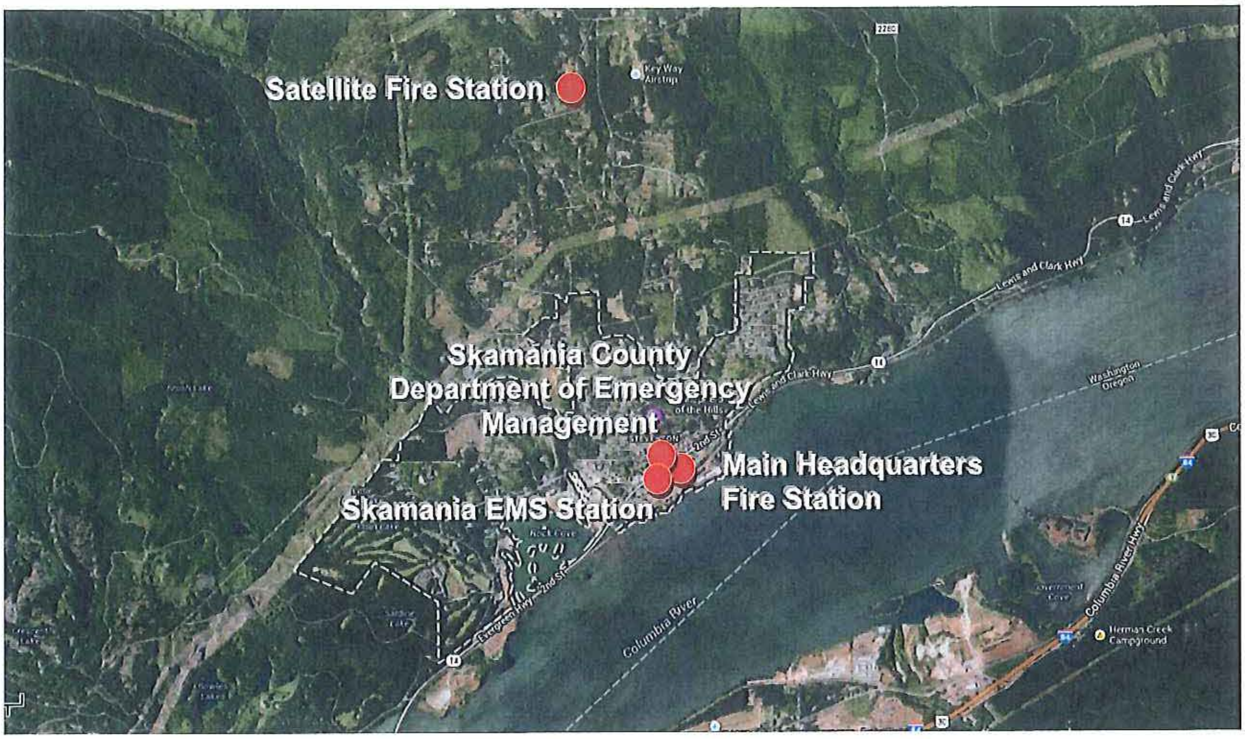
The satellite fire station is a single garage with two overhead doors facing Loop Road. While certain fire apparatus and equipment are located in this station, they are not currently dispatched from this location.

Like the Headquarters Fire Station, this satellite station is antiquated in many ways. Consequently, it is currently being used predominately as storage for the fire district, as opposed to an active fire station.

Floor Plan
Head quarters Fire Station
Stevenson, Washington



Regional Map for Existing Facilities



Costs

When evaluating the reasons for partnering in a joint building such as this, that decision should be ground in financial benefits. Cost savings should be clear over constructing independent facilities. And, the opportunities for lower monthly expenses in maintaining and operating such a facility needs to be clear as well. We believe these things to be true for the following reasons:

> Built as a single facility, the building is 17% smaller than three individual buildings when allowing for shared use of certain spaces. This equates to a savings of approximately $2.1 million.
>
> Maintaining a building that is 17% smaller than it would otherwise be has a likely annual savings of approximately $18,000/year.
>
> There are a number of smaller savings that come from undertaking a single larger project, such as real estate fees in acquiring a single property, a single architectural contract, and a single building permit. Not only are these fees not duplicated, they are often provided at a lower percentage cost as the project cost increases, known as economy-of-scale.
>
> Agencies in shared facilities often find other cost savings in operational aspects, such as a shared receptionist, internet service providers, and/or building insurance. These small items can tally large amounts over time.

Estimated Project Costs

The total estimated cost for this project, including land acquisition and all project expenses, would be approximately $10.5 million dollars. In simple terms, the overall budget is apportioned approximately as follows:

Land acquisition	$	600,000
Site Preparation "pad ready"	$	300,000
Site Development	$	900,000
Building Construction	$	6,200,000
EMS Support Structure	$	100,000
Washington State Sales Tax	$	600,000
Project Expenses	$	1,200,000
Contingencies	$	600,000
Total Project Budget	$	10,500,000

A more detailed breakdown of these amounts can be found at the end of this chapter.

Cost Sharing Amongst Partners

While all four participant agencies are equally committed to each other in seeking funding for this project, it is important to recognize they are not equal in their built needs. Each agency will build and occupy different amount of space. Each will have a certain amount of space dedicated solely to their use and certain amount of space they are quite willing and able to share. Determining an equitable proportioning of building use can be translated to an equitable proportioning of the overall project budget. In seeking grants to fund the project, proportioning is of less importance since those funds could benefit all the partners. However, if the funding strategy includes loans, the agencies would likely choose to retire that debt service based on an agreed to proportioning formula.

Any proportioning formula should have a basis in spaces dedicated for use by one agency verses that which is shared. This should be further refined by assigning benefit to each agency from common areas and common site infrastructure. This is not an exact science. Some shared space may only be occasionally shared while other spaces may be fully shared. Likewise, measuring benefit can certainly be subjective. Consequently, being partners in a joint facility requires each agency to be open, flexible, and respectful of the reasons the partnership was established initially so a fair and reasonable formula can be established.

As noted in chapter 4, approximately 3,000 square feet of the programmed space would be 'shared' amongst the participant agencies. If one also assumes equal benefit in acquiring and developing a piece of property, and that finished interior space is more expensive than apparatus garage space, the overall budget could be apportioned roughly like this:

	Department Emergency Management	Skamania Hospital District	Stevenson Fire and District #2
Land acquisition	$ 200,000	$ 200,000	$ 200,000
Site Preparation "pad ready"	$ 100,000	$ 100,000	$ 100,000
Site Development	$ 300,000	$ 300,000	$ 300,000
Building Construction	$ 600,000	$ 3,200,000	$ 2,400,000
EMS Support Structure	$ 0	$ 100,000	$ 0
Washington State Sales Tax	$ 100,000	$ 300,000	$ 200,000
Project Expenses	$ 400,000	$ 400,000	$ 400,000
Contingencies	$ 200,000	$ 200,000	$ 200,000
Total Project Budget	$ 1,900,000	$ 4,800,000	$ 3,800,000
	18 %	**46 %**	**36 %**

Operating and Maintenance Costs

For a project as contemplated in this study, one could reasonable expect on-going maintenance and utility expenses to be between $5,000 and $10,000 per month. This would include expenses necessary to maintain the building and grounds, and slowly build a maintenance reserve over time.

Further discussion should occur amongst the participant agencies regarding how on-going maintenance and utility expenses would be apportioned amongst each agency. In general, one could expect building expenses to be divided utilizing the square footage scenario noted in chapter 4 (8% DEM / 51% EMS / 41% Fire). For expenses associated with maintaining the parking, landscaping, and other site amenities, one could expect a more equal basis since all agencies benefit equally from these site features (33.3% DEM / 33.3% EMS / 33.3% Fire).

Cost Impacts of LEED Certification

Leadership in Energy & Environmental Design (LEED) is a rating system for measuring a building's performance in reducing energy consumption and good environmental stewardship. It is a well regarded tool nationally for comparing the performance of buildings across the country in a standardized way, regardless of size or type of occupancy.

The principles associated with LEED are wholly embraced by the participant agencies since energy savings lead to lower on-going costs for operating and maintaining facilities. Enthusiasm for obtaining LEED certification for this project was less of a priority because of the cost associated with applying for that recognition, and the documentation require supporting the application. These efforts can add as much as 5% to the overall cost of a project.

Potential Funding Sources

As previously noted, there are significant differences amongst the participant agencies in their governance, jurisdictional boundaries, and funding mechanisms for daily operations. Consequently, it is likely the funding strategy for this shared facility would be derived from multiple sources. These sources fall into three general categories: grants, loans, and voter-approved measures.

Leaders from the participant agencies have uniformly expressed their dislike for funding this project through a voter-approved levy or by selling voter-approved bonds. Given the low population base of Skamania County, a taxation-based funding structure would result in a relatively high levy rate on those citizens. A more appropriate scenario may be given to a voter-approved tax measure that funds only a portion of the project and is part of a larger strategy of sources to fund the project. More discussion of the issues surrounding voter-approved measures can be found in the appendix of this report.

Obtaining grants and/or low interest loans is another viable option. These programs are usually highly competitive, but well worth the rewards if received. The strategy is particularly attractive in this joint project in that different granting agencies have different funding priorities. This makes some grants easier and more applicable to EMS agencies over fire departments and some vice versa. The following prospective programs were identified:

- ***US Dept of Housing and Urban Development, CDBG Program*** – Construction projects for a fire facility are eligible for grant and/or loan funds. The requirement is that 50% of the population served is below the HUD-determined moderate income level. (We were eligible for this grant, subject to the same requirements). Applications are submitted to the Washington Dept. of Commerce.

- ***US Dept of Agriculture, RDA Grants and Loans*** – Funding assistance is available for facility projects in rural areas and communities (below 2000 population) and will cover 75% of the project costs. Grant funding depends on median household income and population.

- ***US Dept of Commerce, Economic Development Administration, Public Works Grants & Loans*** – Grants and loans to support infrastructure projects that will stimulate economic development and/or job opportunities. Portions of the Emergency Facility Project may be eligible for public works funding assistance.

- ***FEMA, Assistance to Fire fighters Station Construction Grants*** – Funded 120 stations in the past…there are no funds currently in place.

- ***Assistance to Firefighters Grants (AFG)*** – Although most of the funding is for firefighting equipment and vehicles – we could probably get some of the equipment (internet connections, wash down equipment and etc.). It is worth the investigation (1-866-274-0360 firegrnats@dhs.gov).

- ***International Association of Firefighters Promotes Fire Protection Funding*** – A lobbying association for SAFER and FIRE Grants who could provide guidance for applications.

- ***CERB Funds*** – Grants and loans for infrastructure that primarily create jobs – cities, counties and special purpose districts are eligible. If presented correctly this may be a focus for the hospital district.

- ***Public Works Trust Fund*** –Loans for infrastructure. (This year state legislature swiped all of the cash).

- ***Washington State Capital Budget*** – Political, we would be asking for capital grant funding assistance via special appropriations by the Washington State Legislature. Do not try to ask for more than 25% of the cost. Project must be shovel-ready. Forms are available from the Washington legislature – best to contact our Washington State legislative representative for a copy of the form.

- ***Washington Investment Board*** – Special funds only available for citizens within the Gorge. Capital Projects are eligible.

Another source of revenue for constructing the project could come from outright donations from business entities with a base in Skamania County or significant presence in the community. Examples could be Burlington Northern Railroad or the Bonneville Power Administration. Enterprises such as these sometimes generate a high risk for large scale emergencies or regional disasters, but don't always contribute a commensurate level of revenue to the emergency service providers for the risks they bring to the community.

Professional Cost Estimate

Following is the professional cost estimate prepared by ProDim of Kirkland, Washington, dated August 12, 2013.

2016 Stevenson Fire Hall Strike Team Report

Making Tactical Decisions to Improve Emergency Response

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Stevenson Fire Hall Strike Team Report

City of Stevenson, Washington

April, 2016

Prepared by:

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Acknowledgements

City of Stevenson, City Council

Frank Cox, Mayor
Scott Anderson
Paul Hendricks
Monica Masco
Julie Mayfield
Robert Muth
Mark Peterson
Jenny Taylor
Amy Weissfeld

Skamania County, Board of County Commissioners, Key Officials

Chris Brong, Commissioner
Bob Hamlin, Commissioner
Doug McKenzie, Commissioner

Dave Brown, Sheriff

Skamania County Fire District 2, Commission

Scott Griswold, Chair
Leonard Damian
Karl Russell

Stevenson Volunteer Fire Department, Officers

Rob Farris, Chief
Gordy Rosander, Assistant Chief
Wayne Martin, Captain
Cody Rosander, Captain
Karl Russell, Captain

Strike Team

Dave Brown, County Sheriff
John Carlson, Emergency Management Coordinator
Rob Farris, Fire Chief
Scott Griswold, District Commissioner
Nick Hogan, City Administrator
Robert Muth, City Councilmember
Cody Rosander, Fire Officer
Karl Russell, District Commissioner

Joel Battistoni, Firefighter (Alternate)

Ben Shumaker, Facilitator

City Staff

Nick Hogan, City Administrator
Ben Shumaker, Planning Director, Primary Author

Cover Photo

East Wind, John McSherry.

Executive Summary

This report summarizes the work of the Stevenson Fire Hall Strike Team's effort to identify suitable locations for a new fire station. Formed in October, 2015 and meeting over the course of five months, the Strike Team was formed by representatives of the City of Stevenson, Skamania County Department of Emergency Management, Skamania County Fire District #2, and Stevenson Volunteer Fire Department. Early in this process, the Strike Team members focused their purpose:

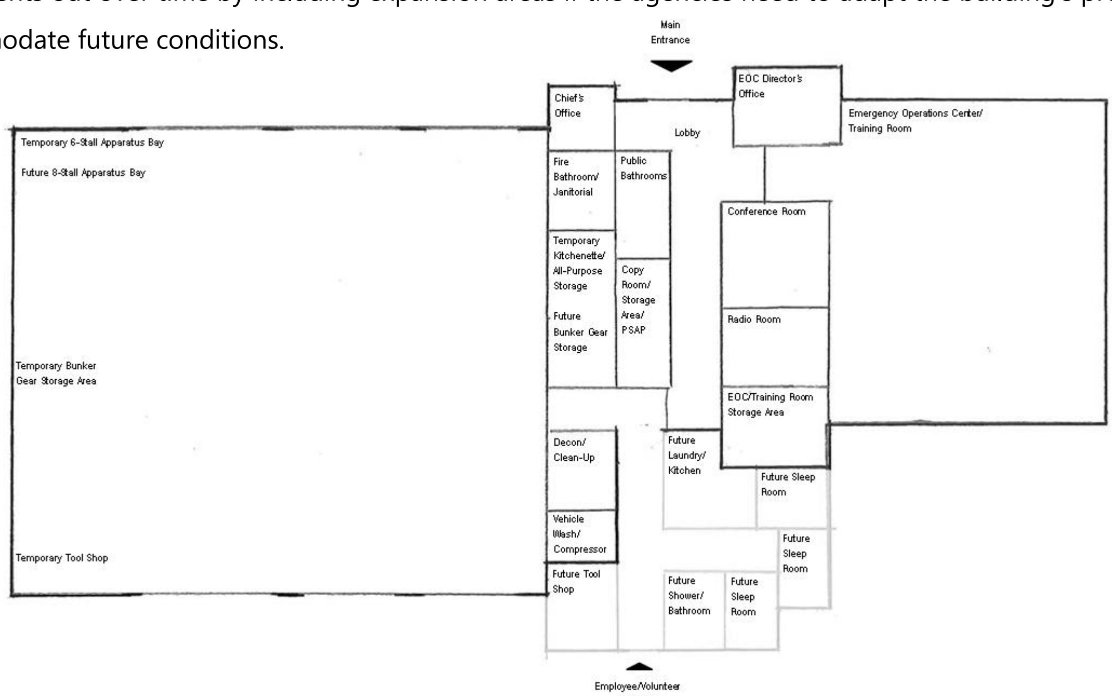
> **"The goal of the Stevenson Fire Hall Strike Team is short and simple: identify the best footprint and the best piece of dirt for a new fire hall."**

This goal is but one piece of a larger puzzle in replacement of the fire hall, but it is a necessary piece before taxpayer money or outside grant and loan funding is committed to construct the new facility.

With this report, the Strike Team believes it can compellingly state that it found "the best footprint and best *pieces* of dirt". Their thorough, needs-based, and communicative analysis is the subject of the following pages. Section 1 describes the Strike Team, the historical context of its work, and the process used to generate and communicate ideas and conclusions. Section 2 recommends a potential action plan for near-term next steps based on these conclusions. Section 3 details design considerations for the "Best Footprint". Section 4 describes the unweighted Site Selection Criteria and Evaluation Factors that were used to determine the "Best Piece of Dirt". Appendix A weights and rates the sites reviewed by the Strike Team. Appendix B catalogues the Strike Team's process.

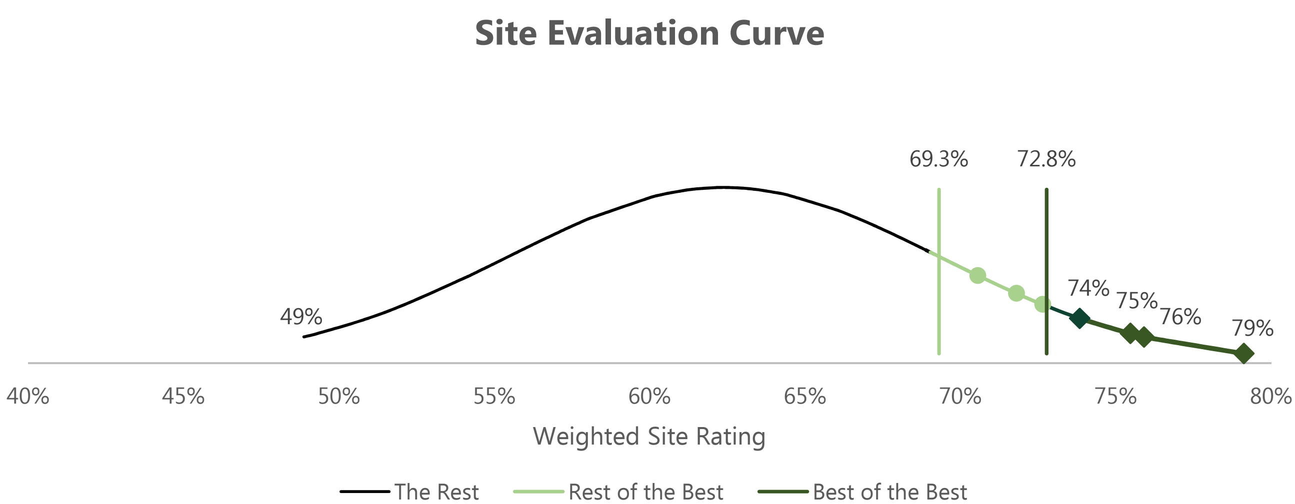
Best Footprint

Based on needs not wants, the Strike Team developed a conceptual footprint that would address current deficiencies in how the agencies provide emergency services. This best footprint also helps spread large investments out over time by including expansion areas if the agencies need to adapt the building's program to accommodate future conditions.



Best Piece of Dirt

With the best footprint in hand, the Strike Team set about identifying the best piece of dirt. Of all lots in the Fire Department's service area, the Strike Team narrowed their analysis down to 52 vacant or under-utilized sites. Each of these sites was evaluated based on 7 Site Selection Criteria (Property Characteristics, Response Access, Access Roads, Proximity to Hazards, Utility Availability, Land Availability, and Public Perception) and 31 Evaluation Factors that where developed which enabled consistent measurement of each site's suitability. The Strike Team's weighted Evaluation Factors are provided in Appendix A where the complete Site Selection Matrix is presented. The matrix categorizes 4 sites as "the Best of the Best", 3 sites as "the Rest of the Best", and the remainder as "the Rest". Unlike the other sections of this report, Appendix A is not made publicly available. As a result, the negotiating position of the partner agencies is not compromised and no "Best of the Best" property owner will know the value this report places on their property.



Terminology

This report interchangeably uses the terms "fire hall" and "fire station" to describe the facility envisioned by the Strike Team. These terms are notably inaccurate in describing the full "Best Footprint", which includes a new Emergency Operations Center where City, County, State and other higher-level incident commanders can assemble under the Skamania County Department of Emergency Management's coordinating efforts. Terms like "Emergency Services Center" or "Public Safety Facility" may more accurately describe that building. However, these terms have been deliberately avoided, in part because they are cumbersome, but also because the success of this study and the initiation of the next steps in Section 2 depend primarily on the Fire Department's need to replace its existing building, not on any assumed continued partnership with Skamania County to consolidate emergency response at a new site.

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Section 1—Introduction, Purpose, Process

Formed in October, 2015 and meeting over the course of five months, the Stevenson Fire Hall Strike Team was a collaboration by the City of Stevenson, Skamania County Department of Emergency Management, Skamania County Fire District #2, and Stevenson Volunteer Fire Department. As identified in Figure 1.0-1, each of these agencies was represented by two of its top leaders.

Figure 1.0-1 The Strike Team

City of Stevenson	Skamania County Department of Emergency Management	Skamania County Fire District #2	Stevenson Volunteer Fire Department
Nick Hogan City Administrator	**Dave Brown** County Sheriff	**Scott Griswold** District Commissioner	**Rob Farris** Fire Chief
Robert Muth City Councilmember	**John Carlson** Emergency Management Coordinator	**Karl Russell** District Commissioner	**Cody Rosander** Fire Captain

Early in their time together, the Strike Team members focused their purpose as described in Figure 1.0-2.

Figure 1.0-2 Strike Team Purpose

> **"The goal of the Stevenson Fire Hall Strike Team is short and simple: identify the best footprint and the best piece of dirt for a new fire hall."**

The historical context leading to this goal and the process used to achieve it are described in this section, which makes frequent references to the collection of documents and information presented in Appendix B – Strike Team Materials.

1.1 – Historical Context

The Stevenson Volunteer Fire Department primarily operates out of a ~4,300 sf building on 1st Street in downtown Stevenson. The fire hall site has been home to the department's activities since it was initially acquired in 1912, and the current building has housed its equipment since construction in 1967. These investments have seen fire response change from bucket brigades called to action by a large bell, to air-raid sirens rallying volunteers into open jump seats, to our current wireless connectivity and region-wide mutual aid expectations.

Figure 1.1-1 Historic Fire "Alarm" Bell

Despite the changes in technology and response areas over these 100 and 50 years the Department's investments in land and buildings have largely satisfied the it's requirements. However, time and urban growth are beginning to expose the site's shortcomings and more serious structural concerns—highlighted by a minor 2011 collision involving ~$600 damage to a firetruck's equipment panel and ~$20,000 damage to the building—are revealing the inadequacies of the building. The Strike Team was formed in acknowledgement of these issues and their work will help ensure the community is prepared for the next 50+ years of fire response.

This effort of the Strike Team is the second problem-solving attempt of the local emergency services community in recent years. This 2016 report builds on a 2013 effort which included the Skamania County Hospital District in addition to the current partners. The work at that time reconsidered how emergency services are provided in the county and whether these partners would benefit by consolidating services in one building.

The 2013 study determined the feasibility of sharing a centralized building from a constructability standpoint and estimated construction savings of ~17% for 1 facility instead of 3. However, in the process of considering their future needs, the Skamania County Hospital District, whose service area is far larger than the Fire Department's and whose headquarters had seen substantial recent investments, found greater value in establishing satellite ambulance halls instead of constructing a new headquarters building.

The Hospital District's decision to prioritize other projects removed a number of the 2013 report's site selection factors. The size of the facility and the lot needed for it was reduced. Proximity to Highway 14 waned in importance based on circulation within the Fire Department's smaller service area. Financial capacity to construct the facility became more limited. However, the Fire Department's need for a new facility remained, and the Strike Team was formed after the City Council chose to conduct a more thorough in-house review of current needs before devoting funds for outside consultant support on the decision-making process.

This report is the culmination of that effort, but it is only one piece of the larger puzzle of the fire hall replacement. In addition to satisfying the City Council's request for a more thorough review, the Strike Team believes it can compellingly state to the community and outside grant and loan funders that it found "the best footprint and best pieces of dirt".

1.2 – Strike Team Process

After the City assigned its representatives to lead the next steps on replacement of the fire hall, the Stevenson Planning Department established an internal project goal and scope of work for the site selection process (B.1-1). At this point the project partners were contacted about the formation of the "Strike Team" (B.1-2), and their first meeting was held shortly after each partner organization delegated two members. A key feature distinguishing this process from the 2013 effort was the selection of partner agencies. The Strike Team effort set the Stevenson Volunteer Fire Department and their firefighters on equal terms with the City and District #2 which jointly fund the department's operations. This deliberate action was taken to ensure the Strike Team's proposals contained actionable next steps for each agency and to close an unfortunate communication gap that hindered progress after the 2013 feasibility study concluded.

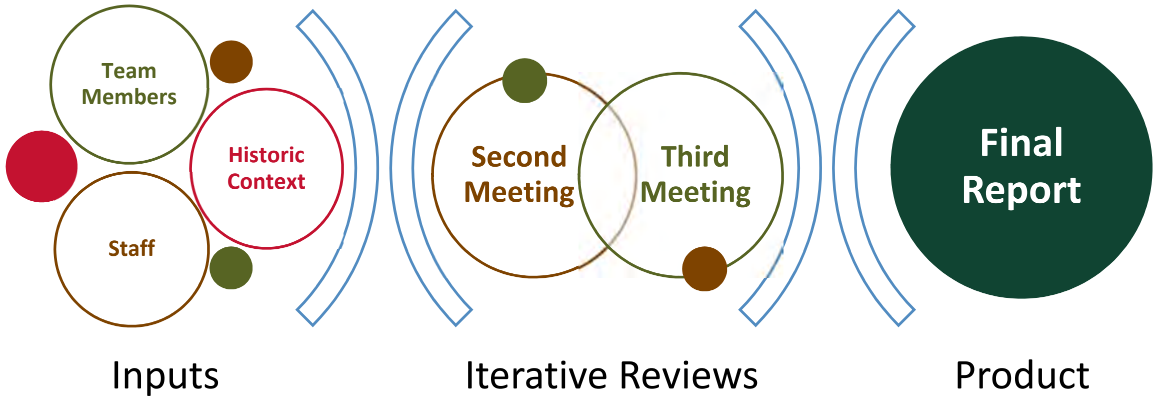
The Strike Team's duties were divided into 4 meetings and 2 extra-meeting activities. The first of their meetings (B.1-3) closed the book on the 2013 study and set the Strike Team up for success this time around. Key successes and failures from the previous effort were noted before the Strike Team described how their own effort should be judged (B.1-7). At the end of this meeting, the Strike Team described the current purpose (Figure 1.0-2) that would become the organizing factor for the remainder of their process.

Programmatic handouts (B.1-4) were provided to each Strike Team member at the first meeting. These handouts contained information on the conceptual building footprint described in 2013, data on Stevenson's growth trends, and several questions targeted to each agency's future needs. Answering these questions was the subject of the Strike Team's first extra-meeting activity. By conducting this fact-finding and opinion-sharing activity outside of the meeting and on their own timeline, each team member was able to contribute their unfiltered thoughts on the building they will need to build, which by that time was being referred to as "the best footprint".

Shortly afterward, the Strike Team members participated in the individual interviews (B.1-5) focusing on where that building should be built. These interviews were the second and final extra-meeting activity of the Strike Team, and they offered a secure and private setting for each team member to discuss and share their own knowledge and desires about the building's current and future location. The pooled knowledge was shared with the Strike Team as a whole, and the content of these interviews heavily influenced the first draft set of site selection criteria. The interviews also contributed to the list of sites evaluated in this report.

With the individual activities completed, the stage was set for equal participation in the remaining group meetings. The second Strike Team meeting (B.1-6) started the first cycle of the Strike Team's iterative reviews. After agreeing to their ground rules (B.1-7) this meeting introduced the framework of this final report, beginning with a review of the programmatic needs handout and the rooms contributing to the best footprint, continuing with a draft list of site selection criteria and site evaluation factors, and finishing with a draft list of potential sites to be reviewed. Several decisions were made at this meeting, and by finalizing the building's programmatic needs, the Strike Team achieved their first milestone, demonstrating how their process successfully combined historic context, staff guidance, and individual Strike Team member opinions to form group consensus.

Figure 1.2-2 Consensus Building and Decision Making Process



This dynamic, illustrated in Figure 1.2-2, was the template for the Strike Team's overall decision making efforts, and the third Strike Team meeting's (B.1-8) review of site selection criteria provides another prime example. The initial draft set of 38 evaluation factors had been developed by staff based on individual interviews and professional industry guidance. Through an intense group work session, the Strike Team eliminated unnecessary factors, discussed the method of measurement for each factor, and established the relative importance of each factor. The resulting 31 weighted evaluation factors form the basis for the Strike Team's final decision on "the best piece of dirt".

The fourth and final Strike Team meeting (B.1-9) collected all the previous decisions and focused on reviewing the draft "Best of the Best" site list, evaluating the success of their effort and discussing next steps. In the days following the meeting, the Strike Team settled on the final prioritization of sites as listed in Appendix A. The continued success of their work will depend on the actions taken by the partner agencies that formed the Strike Team.

Section 2—Action Plan

The Strike Team has successfully identified the best footprint and the best piece of dirt for a new fire hall, but their success will not directly lead to construction of a new station. A great deal of design, negotiation, and fundraising will be necessary for that to happen. This section identifies near-term next steps that should be considered to advance the Strike Team's effort toward final construction.

2.1 – Next Steps

This section includes 7-8 actions that will help ensure the Strike Team's work was not conducted in vain. Each of these actions is contained in the 4 columns of Figure 2.1-1 and includes information about how each action can be achieved. When viewed as a whole, the 4 columns serve as an action plan designating what, when and how steps should be taken and who should take them. Because the final determinations on this action plan rely on factors external to the Strike Team, this matrix presents only a template and potential actions for consideration by the 4 partner agencies in a larger group setting, but does not specifically recommend the actions listed.

Action

The first column of the matrix describes *what* should be done through a list of concise Actions.

Responsible Partner

The Responsible Partner column describes *who* is expected to undertake an Action by listing the name of one or more partner agencies. As lead, the agencies listed in this column should ensure each action is carried out in an appropriate manner.

Timeframe

The Timeframe column acts as a guide for future agency work plans by establishing priorities for implementation. The timeframe indicates *when* an Action should be undertaken by designating the increments of time after certain other actions are taken.

Funding

The final column, Funding, helps the partner agencies determine *how* each Action can be accomplished and sets the stage for future discussions on cost sharing for this project.

Figure 2.1-1 Action Plan

Action	Responsible Partner	Timeframe	Funding
1-Organize joint agency meeting to complete the remainder of this Action Plan.	City.	Days after final Strike Team meeting	>$100
2- Develop interlocal agreement regarding responsibilities and funding of final Action Plan's tasks.		Days after joint agency meeting	$100-$1,000
3- Contract with real estate professional to approach and negotiate with "best of the best" property owners.		Days after interlocal agreement	
4- Contract with Design professionals to refine building program and evaluate final site for feasibility.		Weeks after interlocal agreement	
5- Purchase final site.			$50,000+
6- Track financial and in-kind contributions to site selection and land development activities.		Concurrent with all above actions	>$100
7- Obtain outside grant, loan, or bond funding for above activities.		Concurrent with above actions	$1,000-$10,000
TBD- Conduct more in-depth feasibility studies of other appealing sites not on the "best of the best" list.		As necessary	$10,000-$50,000
TBD-			

Section 3—Programmatic Needs

The specific goal of the Stevenson Fire Hall Strike Team was to identify the best footprint and the best piece of dirt for a new fire hall. This section of the report describes the "best footprint", the process the Strike Team used to identify it, and the specific rooms considered for inclusion.

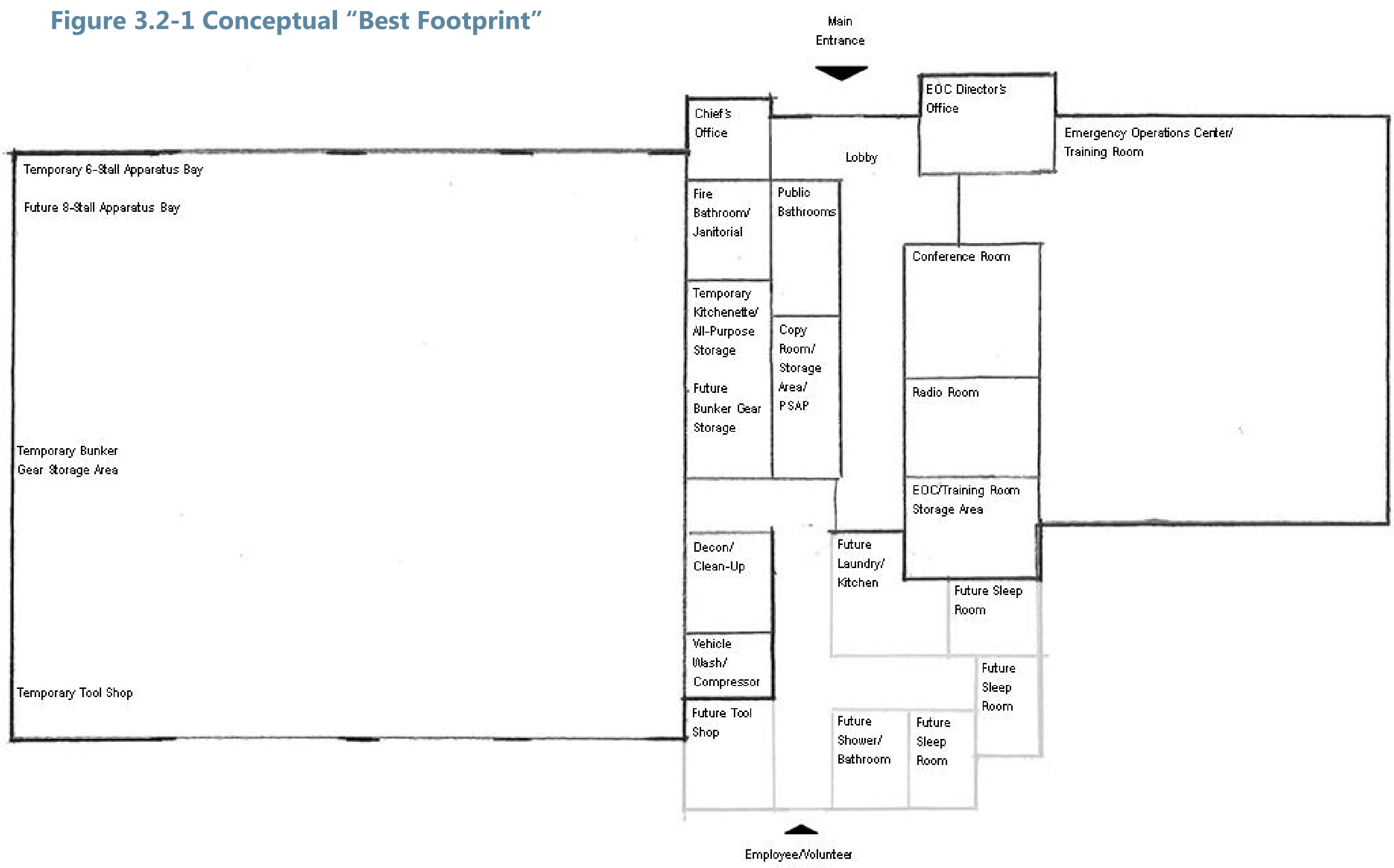
3.1 – RiceFergusMiller Contributions

The Strike Team lacked assistance from design professionals for the development of the footprint below. However, the detailed work done by RiceFergusMiller in 2013 provided an outstanding resource for the Strike Team to rely on when determining the appropriate size of rooms and the appropriate proximities of rooms with similar or conflicting purposes. The visualizations produced by that architectural firm gave form to the Strike Team's discussions and heavily influenced the illustrations of this chapter.

3.2 – Best Building Footprint

Figure 3.2-1 shows the conceptual "best footprint" based on the Strike Team's programmatic analysis. The footprint has a proposed initial first floor square footage of ~9,700 and programmed expansion could take the footprint to over 11,000 square feet if sleep and service rooms are added for career firefighters.

Figure 3.2-1 Conceptual "Best Footprint"



Based on this footprint alone, a lot measuring 90'x170' at a *minimum* is needed to house the building. More realistically, a second rectangle measuring 200'x170' was used to evaluate Buildable Area in the Site Selection Matrix. This larger area provides space adequate for ~30 parking spaces and full drive through bays if these amenities are included in the final program,

3.3 – Programmatic Analysis

The Strike Team conducted a two-part process to determine programmatic needs for the new facility. First, Strike Team members were asked to individually determine future facility needs. Afterwards, these collected needs were reviewed by the larger group.

As individuals, Strike Team members were given handouts tailored to the needs of the agency they represented (Appendix B.1-4). The handouts summarized current and future demographic trends, current facilities, and the programmatic needs established during the 2013 effort. Members were then asked to verify whether specific rooms recommended in 2013 should be kept or removed from the new facility's program. Other questions focused on predictable future changes to the services each agency provides, such as likely number of paid/volunteer staff and whether other agencies or functions should be included in the new facility's program.

The collected results of the individual programmatic handouts were reported back to the full Strike Team where wants were distinguished from needs before the best footprint was determined. The individual responses are included in Figure 3.3-1 and organized under headings to describe needs as "Current Priorities" and wants as "Future Priorities".

Figure 3.3-1 Programmatic Needs & Wants

	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 5	Respondent 6
Consensus Needs: Current Priorities						
8-Stall Apparatus Bay	Remove	Keep	-	Keep	Remove	-
Clean-up/ Decon Area	Keep	Keep	-	Keep	Keep	-
Fire Storage Area	Keep	Keep	-	Keep	Keep	-
Tool Shop	Remove	Keep	-	Keep	Keep	-
Fire Chief's Office	Remove	Keep	-	Keep	Keep	-
Restrooms	Keep	Keep	Keep	Keep	Keep	Keep
Lobby	Keep	Keep	-	Keep	Keep	-
Training Room/EOC	-	Keep	Keep	Keep	Keep	Keep
Training/EOC Storage	Remove	Keep	Keep	Keep	Keep	Keep
EOC Director's Office	-	-	Keep	-	-	Keep
Radio Room	-	-	Keep	-	-	Keep
Utility Rooms	Remove	Keep	-	Keep	Keep	-
Consensus Wants: Future Priorities						
Sleeping Room	Keep	Remove	Keep	Keep	Remove	Keep
Shower Room	Keep	Keep	Keep	Keep	Remove	Keep
Laundry Room	Remove	Remove	-	Keep	Remove	-
Copy Room	Remove	Keep	Keep	Remove	Remove	Keep

Consensus Removal: Unnecessary						
6-Stall Apparatus Bay	Keep	Remove	-	Remove	Keep	-
Library	Remove	Remove	-	Remove	Remove	-
Computer Lab	Remove	Remove	-	Remove	Remove	-
Kitchen/Dining Areas	Keep	Keep	Keep	Keep	Remove	Keep
Day Room	Remove	Remove	Keep	Keep	Remove	Keep
Fitness Room	Keep	Keep	Remove	Keep	Remove	Remove

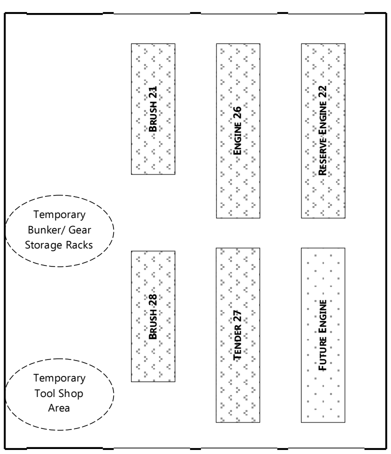
3.4 – Room Descriptions

The conceptual best footprint is a combination of the rooms in Figure 3.4-1. This figure collects in-depth descriptions of each room in the program and lists several design notes to be considered as the partner agencies refine the conceptual layout and design the final building. Many of these design notes are transferred directly from the 2013 report and others have been added based on the Strike Team's discussions. As the partner agencies finalize the purchase of the future fire hall site and determine the final building design, Figure 3.4-1 can be used as an important guide for decisions about what occurs when, where specific building components or programmed future additions are located, and how decisions were made during this effort.

Figure 3.4-1 Room-by-Room Analysis

Current Priorities

Apparatus Bay



Size:
80'x70'
5,600 sq ft

Accommodates:
6 Vehicles (initially)
8 Vehicles (future)

Agencies Sharing:
FD & DEM

Description:

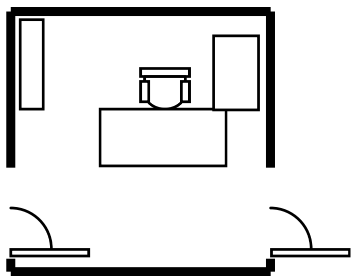
A necessity for firefighter operations, the only question about the apparatus bay is how many vehicles it should accommodate. Placement of the apparatus bay on the exterior wall of the building will enable future expansion if growth or other needs warrant.

Design Notes:

- Drive-through bays preferred.
- WAC 296-305 requires 5' clearance in front, behind, and between apparatus.
- All bays identical allowing maximum flexibility on vehicle arrangement and stacking.
- Apparatus bay can be vacated during EOC activation for gathering and media briefing space.
- Temporary bunker gear storage, tool shop, miscellaneous storage in expansion bay.
- Diesel exhaust capture system necessary.
- Overhead doors: 14' wide x 14' tall.
- Apparatus bay can be used from time to time for indoor training by FD & DEM.
- Apparatus bay can be used as a shelter during a regional disaster.
- Door headers for fourth bay may be roughed-in initially to allow future installation of doors when need arises.

Current Priorities

Fire Chief's Office

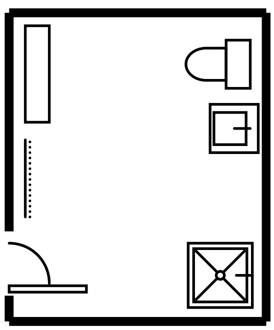


Size:
10'x10'
100 sq ft
Accommodates:
1-2 individuals,
Desk,
Cabinets, etc.
Agencies Sharing:
FD

Description:
Important to administrative functions of the fire department and for disciplinary meetings, this room will provide the volunteer or career fire chief with the space needed to perform required duties.

Design Notes:
- Direct access to apparatus bay is highly desirable.
- Direct access to public lobby is desirable.

Fire Restroom/Janitorial

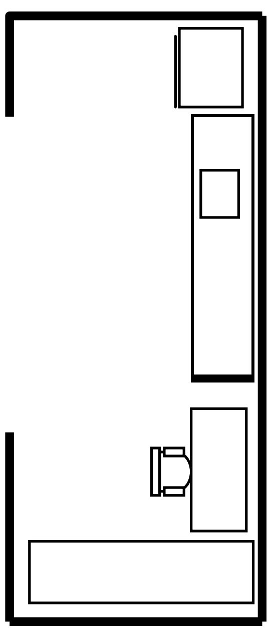


Size:
12'x10'
120 sq ft
Accommodates:
Single occupancy restroom,
Deep mop sink,
Mop rack,
Shelving
Agencies Sharing:
FD

Description:
This room serves an obvious need in the facility and allows for storage of other maintenance products and supplies.

Design Notes:
- Direct access to apparatus bay is highly desirable.
- Constructed with concrete floor and scrubbable wall panels, floor to ceiling.

Fire Storage Room



Size:
24'x10'
240 sq ft
Accommodates:
Kitchenette (temporary),
Desk (temporary),
Miscellaneous storage,
Bunker/gear storage (future),

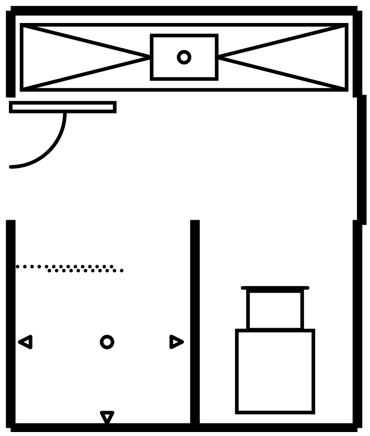
Agencies Sharing:
FD

Description:
A room built for the future but providing immediate benefits, the eventual bunker/gear storage room can be built with a small kitchenette and serve the functions of other rooms that are not initially constructed (office, copy room, storage).

Design Notes:
- Direct access to apparatus bay is vital.
- Future location of bunker/gear storage.
- Metal shelving and/or racks for miscellaneous equipment and supply storage.
- Interim use as office space, kitchenette, cot storage.

Current Priorities

Clean-up/Decontamination Room

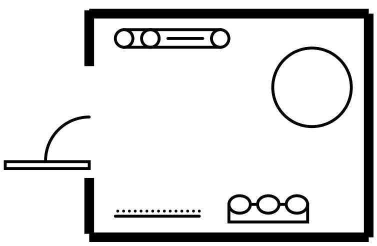


Size:
12’x10’
120 sq ft
Accommodates:
3 Shower heads,
Extractor,
Sink
Agencies Sharing:
FD

Description:
Emergencies see fire fighters put at risk of contamination from hazardous materials in structures or carried on the roads, from fecal coliform in flooded waterways, and from infectious diseases on the outside and inside of their turnout gear. The decontamination room ensures fire fighters and their turnout gear can be cleaned up when the emergency is over.

Design Notes:
- Direct access to apparatus bay is vital.
- Direct access to career firefighter living quarters/showers is highly desirable.
- Space is reserved for a stainless steel sink and drainboards and a walk-in shower for cleaning equipment and personal decontamination.
- Room includes space for an extractor to wash turnout/ bunker gear and contaminated clothing.
- Cabinet storage space is available above sink and along walls.

Utility Room (Sprinkler Risers, Vehicle Wash Equipment, Compressor)

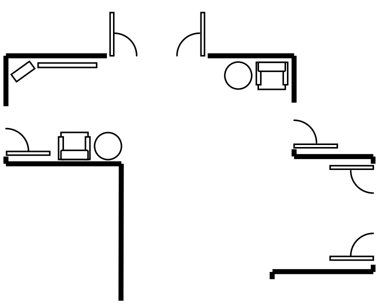


Size:
10’x8’
80 sq ft
Accommodates:
Air compressor (shop air),
Vehicle wash soap and brushes,
Sprinkler risers
Agencies Sharing:
FD

Description:
The fire department’s service vehicles require cleaning and refilling after call-outs. This room provides for conveniences not currently available and will allow firefighters to perform the necessary vehicle upkeep indoors.

Design Notes:
- Direct access to apparatus bay is vital.
- Exterior access to this room is desirable.

Public Lobby

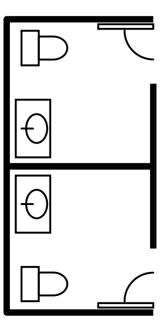


Size:
18’x7’
126 sq ft
Accommodates:
Public Education Material
Waiting chairs
Agencies Sharing:
FD, DEM

Description:
The fire department’s service vehicles require cleaning and refilling after call-outs. This room provides for conveniences not currently available and will allow firefighters to perform the necessary vehicle upkeep indoors.

Design Notes:
- Direct access to EOC is vital.
- Direct or line-of-sight access to EOC Director’s Office is vital.
- Direct access to fire chief’s office is desirable.
- All doors to Lobby can be locked down when EOC is activated.

Public Restrooms



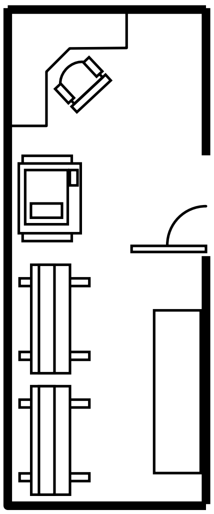
Size:
8’x8’ (x2)
126 sq ft
Accommodates:
2 single-occupancy restrooms
Agencies Sharing:
FD, DEM

Description:
These restrooms will serve the needs of the building’s employees and visitors.

Design Notes:
- Direct access to lobby is highly desirable.
- Convenient access to EOC is highly desirable.

Current Priorities

Copy/Supply/Storage Room



Size:
8′x20′
160 sq ft

Accommodates:
Alternate PSAP,
Copier,
Plotter,
Scanner
Office supply storage,
Work counter

Agencies Sharing:
FD, DEM

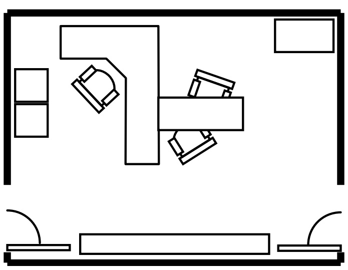
Description:

Described as a "want" more than a "need", this room can serve flexible purposes until a larger need arises. Possible uses include copy room, break room, Alternate PSAP, etc.

Design Notes:

- Convenient access to Fire Chief and EOC Director's offices is desirable.
- Room may house communications equipment
- Room can accommodate the PSAP (back-up 911 dispatch).
- Cabinet and shelf storage for books, files, and back-up equipment is available above equipment and along walls.

EOC Director's Office



Size:
12′x16′
192 sq ft

Accommodates:
1-3 individuals
Desks,
Cabinets, etc.

Agencies Sharing:
DEM

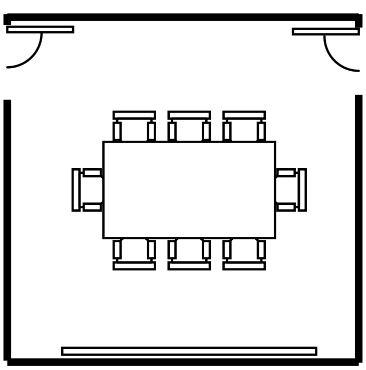
Description:

Initially, the EOC Director will be the only paid staff at the new facility. Dedicated and secure space for this position is important under normal circumstances and essential during emergencies.

Design Notes:

- Direct or line-of-sight access to Public Lobby is vital.
- Direct access to EOC is vital.
- Convenient access to Radio Room and Conference Room is vital.

Conference Room



Size:
16′x16′
256 sq ft

Accommodates:
Large conference table for 8+,
Whiteboard,
Projector hookups

Agencies Sharing:
DEM, FD

Description:

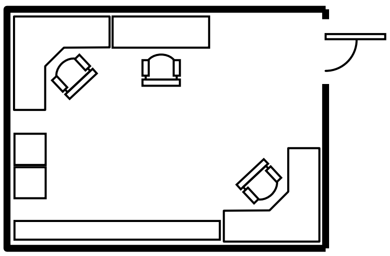
This multi-purpose conference room can be used by the fire department for board meetings and the quickly converted for use by the Planning Section of the EOC during activation.

Design Notes:

- Direct access to EOC is vital.
- Convenient access to Fire Chief's Office and Apparatus Bay is highly desirable.
- Doors to Lobby can be locked down when EOC is activated.

Current Priorities

EOC Radio Room

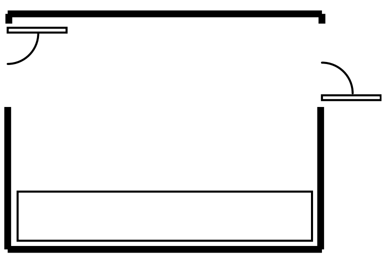


Size:
12'x16'
192 sq ft
Accommodates:
3 Individuals,
Alternate PSAP,
Multiple radio systems
Agencies Sharing:
DEM

Description:
The EOC coordinates the efforts of multiple emergency responders, policy makers, and other outside actors by establishing and communicating clear information, goals and tactics. This function cannot occur unless it is linked to those people with reliable modes of communication. The radio room serves that purpose.

Design Notes:
- Direct access to EOC is vital.
- Convenient access to EOC Director's Office is highly desirable.
- Room houses various radios and communications devices
- Room can accommodate the PSAP (back-up 911 dispatch).
- Cabinet and shelf storage for books, files, and back-up equipment is available above radios and along walls.
- Location with windows along an exterior wall allows radio and dispatch operators to rapidly assess/report environmental conditions (rain, smoke, snow, wind).

Training Room/EOC Storage Areas

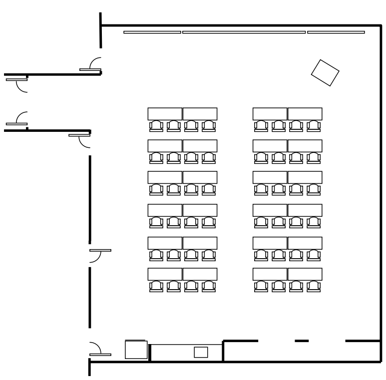


Size:
12'x16'
192 sq ft
Accommodates:
Movable furniture,
Office supplies
Agencies Sharing:
FD, DEM

Description:
This storage area allows quick and convenient activation of the EOC. Furniture set up in normal circumstances can be easily stowed away for maximum flexibility of uses and reconfigured when EOC is activated.

Design Notes:
- Direct access to EOC is vital.
- Convenient access to Apparatus Bay is desirable.
- Storage area size and dimensions are highly flexible and based on furniture size/stackability.

Joint Training Room/Emergency Operations Center



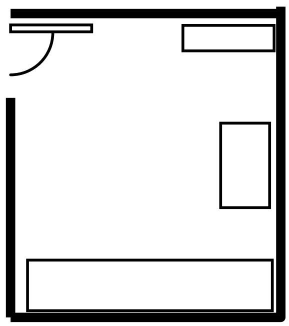
Size:
48'x36'
1,920 sq ft
Accommodates:
50 individuals,
Kitchenette,
Projector hookups,
Sound system
Agencies Sharing:
DEM, FD

Description:
Under normal circumstances, this room will be setup as a joint training room for the agencies or available for public meeting space. During emergencies, the movable partitions, tables, and chairs can be reconfigured as the Emergency Operations Center.

Design Notes:
- Direct access to Public Lobby is vital.
- Direct access to EOC Director's Office, Radio Room, and Conference Room is vital.
- Entries can be locked down and secured when EOC is activated.
- All furniture is mobile.
- Standard furniture layout accommodates 48 individuals.
- Alternate EOC layout accommodates 40 to 50 individuals when necessary.

Future Priorities

Tool Shop



Size:
10'x 11'
110 sq ft

Accommodates:
Work bench,
Tool chest for mechanic tools,
Flammable storage locker

Agencies Sharing:
FD

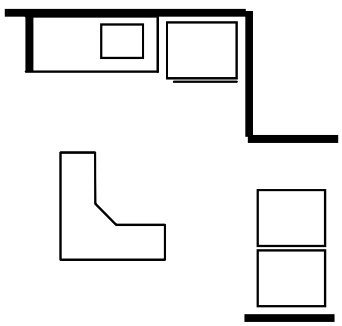
Description:

When the 4th stall of the apparatus bay is necessary, a new area will be needed for the tool shop. This small room will house the equipment necessary for maintenance of trucks and equipment.

Design Notes:

- Direct access to Apparatus Bay is vital.
- Exterior access is desirable.
- Minor vehicle repair and maintenance can occur with the tools in this shop.
- Storage for flammable liquids (paints, solvents, lawn mower gas, etc.) can be placed in the flammable storage locker.

Kitchen/Dining/Laundry Room



Size:
14'x 14'
196 sq ft

Accommodates:
Refrigerator,
Washer/dryer,
Pantry,
Counter spaces

Agencies Sharing:
FD, DEM

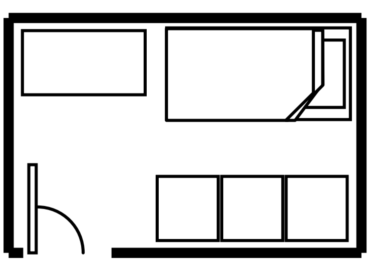
Description:

Necessary only if sleep rooms are added for career firefighters, this all-purpose area provides common living spaces for employees, including kitchen, dining, and laundry areas.

Design Notes:

- Convenient access to Apparatus Bay is vital.
- Convenient access to secondary entry door is highly desirable.
- Primarily used by the FD, the Kitchen can be used by DEM during extended EOC activation.

Sleep Rooms (x3)



Size:
9'x12'
196 sq ft

Accommodates:
Bed,
Desk,
Wardrobe lockers

Agencies Sharing:
FD, DEM

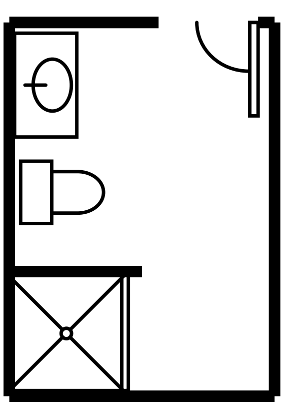
Description:

Necessary only if career firefighters are required, these rooms will allow for rapid 24-hour fire emergency response.

Design Notes:

- Convenient access to Apparatus Bay is vital.
- Convenient access to secondary entry door is highly desirable.
- Primarily used by the FD, the Sleep Rooms can be used by DEM during extended EOC activation.

Shower/Restroom



Size:
9'x12'
196 sq ft

Accommodates:
Single-occupancy bathroom & shower

Agencies Sharing:
FD, DEM

Description:

Necessary only if sleep rooms are added for career firefighters, this restroom includes a shower for employees to use after calls.

Design Notes:

- Convenient access to Apparatus Bay is vital.
- Convenient access to secondary entry door is highly desirable.
- Primarily used by the FD, the Shower/Restroom can be used by DEM during extended EOC activation.

Section 4 – Site Selection Criteria

The specific goal of the Stevenson Fire Hall Strike Team was to identify the best footprint and the best piece of dirt for a new fire hall. This section of the report describes the process, criteria, and assessment factors the Strike Team used to determine which property is the "best piece of dirt".

4.1 – Site Selection Criteria

In order to identify the "best" piece of dirt, the Strike Team first needed to determine what made any particular piece of dirt good or bad. This occurred over a 4-step process. The first step was conducted in-house by staff and based on professional industry guidance for site selection factors. The American Planning Association, the City of Scottsdale, Arizona, the journal *Natural Hazards and Earth System Sciences*, and the Orange County Fire Authority provided the most well-worn of the guidance documents. The information in them was used to frame the questions of the second part of criteria selection process, Individual Interviews (Appendix B.1-5). These interviews allowed each Strike Team member an opportunity to discuss the importance of specific factors for Stevenson's specific setting at this specific time.

The third part of determining Site Selection Criteria combined the efforts of the earlier work and presented the Strike Team with a list of 7 Site Selection Criteria: Property Characteristics, Response Access, Access Roads, Proximity to Hazards, Utility Availability, Land Availability, and Public Perception. These criteria depended on an extensive list of 38 distinct Evaluation Factors, which included several alternate and/or supplemental Factors. In the fourth part of this process, the Strike Team narrowed this list to the 31 most important and usable Evaluation Factors. These were then weighted to produce the final Site Selection Matrix. Figures 4.1-1 through 4.1-7 describe each Site Selection Criterion and Evaluation Factor.

Figure 4.1-1 Site Selection Criteria & Evaluation Factors—Property Characteristics

Property Characteristics
An obvious consideration in identifying the "best piece of dirt", this Site Selection Criterion focuses on the dirt itself based on Buildable Space, Property Depth, Property Width, Property Configuration, and Presence of Improvements.
Buildable Space – One of the single most important factors in this search, buildable space depends on a complex interrelationship between property size, property shape, programmatic layout, desired and required parking, zoning setback & build-to lines, and environmental constraints. As an Evaluation Factor, Buildable space has been substantially modified since the 2013 analysis, which was more generalized and characterized mostly in terms of parking needs. Though this reports gives only a few short words to the factor, completing the buildable space analysis, was a major task in the Strike Team's effort.
Property Width – Similar to Buildable Space, this Evaluation Factor helps determine if the "Best Footprint" from the Programmatic Needs analysis will fit on a site. This Factor relies on the SMC 16.16.130 to determine the location at which property width is measured.
Property Depth – This factor has been carried over from the RiceFergusMiller report after the Strike Team confirmed Programmatic Needs for the new facility. As described in that report: "It is desirable to have a paved apron in front of the apparatus bay equal in depth to the agency's longest vehicle. This provides maneuvering space in front of the station for these large vehicles, an outdoor place for rig checks, and good sightlines as the emergency vehicles

enter the road." Programmatic Needs carried over from the 2013 report include the desire to have "drive-through" apparatus bays 80' deep.
Property Configuration – This factor also helps determine whether a drive-through structure will be possible, by evaluating whether the property has multiple access points or other aspects facilitating the possibility of them. The subjective nature of this Evaluation Factor is partially offset by a numeric evaluation of the number of lot lines adjacent to streets.
Presence of Improvements – The ideal property for a new fire station may already be occupied by another use. This factor describes whether the properties have existing structures, and if so whether those structures would need to be removed before building the new fire station.

Figure 4.1-2 Site Selection Criteria & Evaluation Factors—Response Access

Response Access
When responding to a structure fire or motor vehicle accident, seconds mean the difference between life or death for those in need. The following Evaluation Factors focus on where sites are located in relation to where the fire fighters will respond: Distance to Structures, Distance to Highway, Intersections to Structures, Intersections to Highway, Relationship to BNSF Railroad, Relationship to Highway 14, and Relationship to 1st Street.
Distance to Structures – Responding to structure fires is a 12-month a year concern for fire fighters and the ideal fire station will be centrally located to the buildings it protects. This factor provides a map-based determination of the road miles between potential sites and the geographic center of all addresses in the fire service area.
Intersections to Structures – Most fire fighter injuries happen on the drive to or from an incident, and the number of intersections along that drive increases that injury risk. This factor evaluates the number of intersections separating potential sites from the geographic center of addresses.
Distance to Highway – The second primary concern for fire responders is to assist with motor vehicle accidents, most of which occur on Highway 14. This factor measures the road miles between potential sites and the east-west midpoint of Highway 14 within the service area.
Intersections to Highway – To ensure safety of fire fighters and others on the road, firetruck drivers must obey all traffic laws on the way to a scene. However, the community wants fire fighters to respond to calls for services, not sit at stop signs or get in accidents on their way. This factor helps establish a middle ground by counting the number of intersections separating potential sites from the east-west midpoint of Highway 14.
Relationship to BNSF Railroad – Losing lives or property because of delays caused by railroad cars is unacceptable, and the predictable number of incidents occurring on the north side of the BNSF railroad is far greater than those to the south. This all-important factor prioritizes properties on the north side of the tracks.
Relationship to Highway 14 – The volunteer fire fighters are subject to traffic-based delays both while rallying to the fire hall and while responding to the scene. Avoiding Highway 14's high traffic areas will improve response times in both of these instances. This factor helps prioritize properties on the north side of the highway.
Relationship to 1st Street – Similar traffic related concerns exist for properties south of 1st Street. This factor helps prioritize properties on the north side of that street, which one day may also be part of the highway system.

Figure 4.1-3 Site Selection Criteria & Evaluation Factors—Access Roads

Access Roads
The drive to and from incidents is more hazardous to fire fighters than their actual time at the scene. Many of these hazards are based on the road immediately serving the station. This Site Selection Criterion helps ensure that roads serving the fire station suitably avoid those hazards and evaluates: Functional Classification, Road Width, Road Direction, and Road Stewardship.
Functional Classification – Certain roads are intended, designed, and used to carry more traffic than others. The Federal Functional Classification System categorizes these roads, and helps further the Strike Team's effort to avoid, but have quick access to the highest traffic roadways.

Road Width – Fire trucks are big, far bigger than most other vehicles on Stevenson's roadways. This factor deals with the width of the roadway adjacent to potential sites because of its impact on firetruck turning movements and the safety of fire fighters and other users of the roadway.

Road Direction – Very few roads in Stevenson are one-way, and siting the new fire station on one of these roads would unnecessarily increase response times. This factor helps to avoid that outcome.

Road Stewardship – The type of road serving potential sites matters for short-term construction and long-term maintenance needs. By prioritizing public roads, this factor helps fire fighters concentrate on emergency response, not pothole repair or snow plowing.

Figure 4.1-4 Site Selection Criteria & Evaluation Factors—Proximity to Hazards

Proximity to Hazards

In a mass emergency, the public is counting on the operational capacities of the fire department, and the ideal site of a new station will ensure these capacities are available to serve others when hazards become disasters. Evaluating sites to avoid those hazards involves Floodplains, Landslide Hazard Areas, Contamination, Proximity to Railroad, Proximity to Pipelines, and Proximity to BPA Powerlines.

Floodplains – So little of Stevenson is subject to flood hazards that it makes finding sites outside of floodplains extremely easy, and unnecessarily prioritizing a site within them would be shameful. This Evaluation Factor helps avoid that shame.

Landslide Hazard Areas – Quite the opposite of floodplains, Stevenson has many geological hazards to deal with. This all important factor evaluates the hazard potential of sites under consideration based on the Stevenson Critical Areas Map.

Contamination – Pollution of soils and waters on former industrial sites or gas stations poses problems for fire hall construction based on health risks and clean-up costs. Not all contaminated properties are known, and not all former industrial sites are contaminated. This factor helps establish a rationale for avoiding known hazards and conducting additional investigation at unknown sites.

Proximity to Railroads – Railroad derailments are one of the major events predicted by Stevenson's emergency responders. Major derailments or derailments of trains carrying hazardous materials could render buildings in that area inaccessible. The community cannot afford to lose its fire fighters in such a scenario, and this factor helps avoid that outcome.

Proximity to Pipelines – Another predictable emergency event, gas pipelines could incapacitate a fire station if built too close to the known hazard. This factor evaluates the distance of sites to the gas transmission pipeline through Stevenson.

Proximity to BPA Powerlines – A potential hazard based on electrical current and sparks thrown from down lines, BPA's high voltage transmission lines also hinder wireless communications. This Evaluation Factor determines potential sites' vulnerability to these threats.

Figure 4.1-5 Site Selection Criteria & Evaluation Factors—Utility Availability

Utility Availability

The new fire station will require connection to a public water line and access to broadband (ideally fiber optic) communications networks. Connection to other utilities is also important, and this Site Selection Criterion evaluates the current availability of Water, Broadband/Fiber Optics, Sewer, and Natural Gas.

Water – Whether it arrives by truck, hydrant, pump, or bucket brigade, fire fighters need water. This Evaluation Factor determines whether an adequate water supply is available at the building site or if expansion of a water system is necessary.

Broadband/Fiber Optics – The communication ability of multiple emergency responders is extremely important and increases as the scale of the emergency increases. This factor ensures the Emergency Operations Center will have reliable access to high-speed communication networks.

Sewer – Septic systems require space on a property and ongoing maintenance by the system's owner. The Strike Team prefers to avoid these concerns by connecting to a public sewer system. This factor determines whether sewer is realistically available to potential sites.
Natural Gas – Natural gas provides reliable fuel for generators in electrical outages and a cost effective way to maintain temperatures suitable for firetrucks' diesel engines. This factor evaluates the availability of natural gas at potential sites.

Figure 4.1-6 Site Selection Criteria & Evaluation Factors—Land Availability

Land Availability
One of the major unknown costs in the pursuit of a new site for the fire hall is the value different land owners will place on their property. A key aspect of successful real estate transactions matches willing sellers with willing buyers who place similar values on the property changing hands. The Evaluation Factors below explain how the Strike Team determine where willing sellers exist and the value owners place on their property.
Current Listing – The simplest way to identify willing sellers, this Evaluation Factor describes whether properties are currently on the market.
Recent Sales – An imperfect proxy for likely purchase price, this Evaluation Factor describes the date the property last sold. A more recent sales date is assumed to have cost its owner more than an older date, and the sell-on profit motive is assumed to increase likely price.
Property Stewardship – Seeking properties that are publicly-owned presents easily identifiable benefits. Even more benefits can be realized if the potential site is owned by one of the Strike Team's Partner agencies. This factor describes current property ownership.

Figure 4.1-7 Site Selection Criteria & Evaluation Factors—Public Perception

Public Perception
Dollars are short, needs are many. The partner agencies constructing a new fire hall will be faced with their first big expenditure in many years, and there is a built-in desire to make sure the public is as satisfied as possible with the direction before and after that expenditure is made. This Site Selection Criterion accounts for the political realities faced by the partner agencies in terms of Community Visibility and Multiple Public Goods.
Community Visibility – A marquee location in the City could be an effective way to ensure the fire department is valued as a vital part of the community. This Evaluation Factor helps determine whether potential sites assist in that perception.
Multiple Pubic Goods – The more public goals that can be accomplished with the same public dollar, the more sustainable the Stevenson community will be moving into the future. This factor identifies where the construction of a new fire station creates a nexus to achieve other desirable public policies and goals.

4.2 – Potential Site List

Developing the list of sites to evaluate according to these criteria was an equally important action for the Strike Team. The final list of 52 properties was developed over a three part process. The first part, conducted during the Individual Interviews, presented Strike Team members with the list of 8 sites evaluated in detail by RiceFergusMiller in 2013 and asked if additional sites should be reviewed during this update. The second step was completed as part of a detailed staff review of vacant and underdeveloped properties in the Fire Department's service area. Group discussions at Strike Team meetings supplemented the earlier draft lists and completed this process. The full list of the 52 sites, their owners, and their addresses is available in Figure A.1-1.

4.3 – Site Selection Matrix

Appendix A includes the full Site Selection Matrix which evaluates each property from the Potential Site List according to the specifically weighted Site Selection Criteria. The aggregate score of each Evaluation Factor was then used to develop the final "Best of the Best", "Rest of the Best", and "Rest" lists. While the Strike Team is satisfied with the thoroughness of their effort, it is aware that new sites or relevant selection factors may reveal themselves before a property is purchased. The detailed descriptions in Appendix A enable rapid analysis of future sites and equally rapid incorporation or reweighting of evaluation factors in future analyses.

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Appendix B – Strike Team Materials

The following materials were reviewed and created by the Strike Team during the development of this report. This catalogue of materials is presented here in part to help demonstrate the Strike Team's planning process, in part to help future users evaluate the Strike Team's work, and in part to assist future planning efforts of fire and emergency service responders. This catalogue includes:

Figure B.1-1 – Planning Department Scope of Work

Figure B.1-2 – Strike Team Initiation Email

Figure B.1-3 – First Strike Team Meeting Agenda and Notes

Figure B.1-4 – Programmatic Handouts (Department of Emergency Management and Fire Department)

Figure B.1-5 – Individual Interviews

Figure B.1-6 – Second Strike Team Meeting Agenda and Notes

Figure B.1-7 – Strike Team Ground Rules

Figure B.1-8 – Third Strike Team Meeting Agenda and Notes

Figure B.1-9 – Fourth Strike Team Meeting Agenda and Notes

Figure B.1-1 – Planning Department Scope of Work

Joint Fire/Emergency Facility Site Selection-

Stevenson Planning Department Proposed Scope of Work

Purpose/Goal: The following scope of work is presented to assist the City of Stevenson, Skamania County Fire District #2, the Skamania County Sheriff's Office Department of Emergency Management, and Stevenson Fire Department as they assess future needs in this growing community and consider the development of a new building to serve those needs.

The specific goal of this project is to prioritize a list of real properties that could accommodate a new facility for fire response and emergency management services.

The Planning Department understands the project partners have attempted to reach a similar goal in the past. That effort was productive in that it collected and analyzed information on future needs and reduced the total number of partners and resulting complexity involved in the project. Unfortunately, that effort also strained the relationship of the project partners and the process has struggled to move forward as the need for a new analysis became clear.

As this renewed effort proceeds toward its stated goal, Planning staff will create a decision-making process whereby the following objectives are accomplished:

1) Reunite the partners as equal members of the decision-making effort,
2) Enable all partners to fully articulate their own needs and understand the needs of the other partners,
3) Develop consensus on the site selection criteria to be used to evaluate individual sites, and
4) Comprehensively evaluate all sites proposed by the partners.

The columns below represent the anticipated activities of the project partners and the Planning Department staff. These activities are subject to change but are preliminarily deemed necessary to accomplish each objective on the way to reaching the partners' goal.

Partner Activities & Deliverables	Department Activities & Deliverables
	• Coordinate with project partners to assemble project Strike Team
• Appoint agency representative(s) to the Strike Team	
	• Organize date and time of first Strike Team meeting
	• Develop individual interview script
	• Prepare meeting agenda and Programming materials
• Attend first Strike Team Meeting with the following basic agenda: ○ Introductions ○ Planning staff's description of its neutral role ○ Clear the Air session to discuss and move on from past missteps ○ Definition of Strike Team success ○ Programming homework	• Attend first Strike Team Meeting to conduct the following activities: ○ Moderate discussion ○ Describe neutral role ○ Record missteps to develop the Strike Team's draft ground rules ○ Record partner's definition of success ○ Hand out Programming homework
• Participate in individual interviews to discuss the following: ○ Important site selection criteria ○ Possible Sites	• Conduct individual interviews to record the following: ○ Participant's view of site selection criteria ○ Participant's list of possible sites.
	• Develop draft ground rules and definition of success
• Complete Programming homework	• Summarize changes in Programming needs

Partner Activities & Deliverables (Continued)	**Department Activities & Deliverables (Continued)**
	• Organize date and time of second Strike Team meeting
	• Prepare meeting agenda and draft list of site selection criteria
• Attend second Strike Team Meeting with the following basic agenda: ○ Agreement on ground rules and definition of success ○ Programming needs ○ Site Selection Criteria ○ List of Possible Sites	• Attend second Strike Team Meeting to conduct the following activities: ○ Present draft ground rules and draft definition of success ○ Present collective Programming needs ○ Present draft Evaluation Criteria ○ Record final list of Possible Sites
	• Evaluate list of Possible Sites according to Site Selection Criteria, begin drafting final report
	• Organize date and time of third Strike Team meeting
	• Prepare meeting agenda, draft evaluation matrix, and draft Executive Summary
• Attend third Strike Team Meeting with the following basic agenda: ○ Draft evaluation matrix reaction & weighting	• Attend third Strike Team Meeting to conduct the following activities: ○ Record commentary/weighting of draft evaluation matrix
	• Incorporate commentary and finalize draft report
	• Organize date and time of fourth Strike Team meeting
	• Prepare meeting agenda
• Attend fourth Strike Team meeting with the following basic agenda: ○ Final report ○ Success determination	• Attend fourth Strike Team Meeting to conduct the following activities: ○ Record commentary on final draft report ○ Review project versus definition of success
	• Incorporate commentary into final report
	• Organize date and time of Joint Agency Meeting on final report
	• Prepare meeting agenda
• Attend Joint Agency Meeting with the following basic agenda: ○ Process overview ○ Partner Programming Needs ○ Site Selection Criteria and List of Possible Sites, Executive Summary overview ○ Decision on Next steps – Architect, Land Purchase	• Attend Joint Agency Meeting to conduct the following activities: ○ Describe process ○ Moderate partners' review of Programming Needs ○ Describe Site Selection Criteria, list of possible sites and Executive Summary. ○ Moderate partner's decision on the partner(s) that will take the lead to hire an architect and/or purchase land

Figure B.1-2 – Strike Team Initiation Email

From: Ben Shumaker
To: Rob Farris; "Robert Muth (rcmuth88@gmail.com)"; Nick Hogan; "Scott Griswold"; "Leonard.damian@gmail.com"; Karl Russell; "Sheriff Dave Brown"; "johnc@co.skamania.wa.us"
Cc: "Amy Weissfeld"; "Frank Cox"; "Julie Mayfield"; "Monica Masco"; "Scott Anderson"
Subject: Fire Hall Strike Team
Date: Friday, October 02, 2015 3:09:00 PM

Hello All-

"Have you ever gone into a bar and found that your favorite bartender was replaced with a guy named Steve? ......Well I'm Steve, what can I get you?"

That joke was told by a relatively unknown Colin Quinn to the Saturday Night Live audience when he replaced the more popular Norm MacDonald as the Weekend Update anchorman.

As I wade into this project, I'm aware of how little involvement I've had in it when compared to all the detailed work you've all already done. I'm also aware that many of you were expecting the City to hire a consultant to facilitate these discussions. Well, even though I'm feeling a little like Colin must've, I'm still confident I can get you what you need and help you take next steps toward construction of a new fire station.

To do so, I've roughed out a process where the City, the District, the Fire Department, and the Sheriff's Office can reconvene as equal members of a group and:

1) Refine their assessment of future building needs,
2) Expand the list of potential properties that could accommodate the new building, and
3) Assess and prioritize the new property list so purchase negotiations can begin.

In order to complete this process in a manageable way, I'm hoping your four agencies will form a small but dedicated Strike Team whose members will represent their own agency's interests and work with the other agencies to find consensus on overall needs and the most suitable building sites. The work load for the potential team members would include:

1) Attending 3 to 4 Strike Team meetings,
2) Participating in one individual interview,
3) Reassessing/verifying the previous needs analysis, and
4) Communicating Strike Team activities and request to others in their agency.

These actions would occur over the course of approximately 3 months, and the majority of the work required of team members (the interview, the needs assessment) would occur during the first month.

The City Council has already asked Councilman Muth and Nick Hogan to serve on the Strike Team, and I offer the same level of representation to each of the other agencies. I'm asking you all to appoint up to two of your members to serve them on this small group. I am treating the Fire Department as a separate entity here, so I expect the final Strike Team to consist of 6 to 8 of you depending on 1) whether both Sheriff Brown and John Carlson elect to attend, and 2) whether the District is comfortable sending a quorum of its membership to the meetings. When you have appointed representatives, please let me know so I can coordinate scheduling of the first meeting, which I expect could occur by as early as the last week of October.

Thank you for your time, and I look forward to the helping Strike Team tackle this issue,

BEN "STEVE" SHUMAKER
PLANNING DIRECTOR
CITY OF STEVENSON, WASHINGTON
(509) 427-5970

Figure B.1-3 – First Strike Team Meeting Agenda and Notes

STEVENSON FIRE HALL STRIKE TEAM

Making Tactical Decisions to Improve Emergency Response

First Meeting Agenda

Date: Thursday, November 5th, 2015
Time: 5:30 PM to Unknown End Time
Location: Stevenson Headquarters Fire Hall

> "Here in America we are descended in blood and in spirit from revolutionists and rebels—men and women who dare to dissent from accepted doctrine. As their heirs, may we never confuse honest dissent with disloyal subversion."
>
> -Dwight D. Eisenhower

<u>Preliminary Matters</u>

1. INTRODUCE YOURSELF:
   a. Who you are
   b. Why your agency appointed you
2. NEUTRALIZE THE SCENE:
   a. Identify hazards, past successes, past failures, continued grievances

<u>Today's Work</u>

3. DEFINE STRIKE TEAM SUCCESS:
   a. Who we are
   b. Why we are here
   c. What we will accomplish
   d. What we will avoid
4. RECEIVE PROGRAMMATIC HANDOUTS:
   a. Discuss Programmatic Handouts and agree on due date

<u>Upcoming Work</u>

5. BEFORE THE NEXT MEETING:
   a. Participate in Individual Interviews
   b. Complete Facility Programmatic Analysis
6. AT THE NEXT MEETING (TENTATIVELY):
   a. Agree on Ground Rules
   b. Finalize Programmatic Needs
   c. Define Site Selection Criteria
   d. Inventory Potential Sites

<u>Adjourn</u>

STEVENSON FIRE HALL STRIKE TEAM

Making Tactical Decisions to Improve Emergency Response

First Meeting Notes/Fire District 2 Minutes

Date: Thursday, November 5th, 2015

Time: 5:30 PM to 7:27 PM

Location: Stevenson Headquarters Fire Hall

Attendees: City: Nick Hogan, Robert Muth. Department of Emergency Management: Dave Brown, John Carlson. Fire District 2: Scott Griswold, Karl Russell. Stevenson Volunteer Fire Department: Rob Farris, Cody Rosander. Facilitator: Ben Shumaker

"Here in America we are descended in blood and in spirit from revolutionists and rebels—men and women who dare to dissent from accepted doctrine. As their heirs, may we never confuse honest dissent with disloyal subversion."

-Dwight D. Eisenhower

Preliminary Matters

1. INTRODUCE YOURSELF:

   Strike Team members participate in a round-table introduction to describe who they are, who they represent, and why their agency appointed them. Key points from several members are shared about the inadequacies of the current fire department buildings and the need to provide better in the future. Department of Emergency Management (DEM) representatives highlight their support for the Fire Department/Fire District's (FD) effort to improve their facilities and ability to respond to incidents. They note a point of caution, though stating that "one of these [agencies] is not like the other ones". Still they state the desire to work toward common purposes where they exist.

2. NEUTRALIZE THE SCENE:

   The round-table discussion continues as the Strike Team reviews the 2013 report and the process leading up to it.

   The following successes of that effort are noted:

   - Highlighted why the FD should be thinking about future needs and foreseeable changes in community demographics.
   - It built understanding between the agencies.
   - It accomplished its goal (i.e. the joint facility was feasible if the partnership could be strengthened.)

- It simplified the discussion when it became clear the partnership wouldn't work out.
- By focusing on cost savings of a *joint* facility, the report revealed exactly what it set out to reveal through its scope of work (It was the scope of work that was the problem, not the report).

The following failures of the 2013 process are noted:

- The group's structure was confusing for participants. Executive committees, subcommittees, backdoor meetings, etc. Members of the group found it hard to understand the reasoning behind their involvement and who was responsible for what.
- Certain partners where inflexible in their approach and weren't committed as full players in a joint effort.
- By focusing on wants versus needs, the process lacked a reality factor.
- Future needs of the FD were not adequately considered. Little to no consideration was given to paid fire staff or community growth.
- The group didn't adequately consider a modular approach to spread expenditures out over a longer term. The "icing" could've been added later.
- The hefty price tag for all the "icing" was not realistic for this community. During the process, the writing was on the wall that costs were spiraling. Rumors spiraled out of control along with the costs.
- The report was unclear about why land was qualified or unqualified. It seemed the decision to move forward with a site was made before the analysis was done.
- The people who should've been informed about the group's actions weren't; group members didn't communicate with their constituents.
- The people who shouldn't have been informed were; confidential information was not kept confidential.

Today's Work

3. DEFINE STRIKE TEAM SUCCESS:

The Strike Team's discussion of the 2013 Report transitions into a discussion of how to avoid similar mistakes, how to avoid foreseeable pitfalls, and how they know they have been successful.

Decision Point: After discussing the need to avoid the type of confusion and misinformation that plagued the previous effort, the Strike Team reaches consensus to appoint Shumaker as its public information officer.

The following past mistakes and future pitfalls are identified:

- Clear communications. The needs of each organization will be different, but Strike Team members should provide better updates to the organization they represent. This will help avoid rumors and correct them once the mill starts spinning them.

- Thoroughness. Be thorough and don't jump to conclusions prematurely. This will also help avoid rumors and correct them once the mill starts spinning them.
- Quorum and Confidentiality. The representation of the Fire District is identified as a public meetings concern. The City volunteers to ensure public meeting notices and executive sessions are dealt with appropriately.
- Conflicting Roles. Shumaker's role as group facilitator and land use regulator is brought up as a concern. His role is to ensure open and equal communications amongst Strike Team members. In that sense he is working for the group as a whole and not for the City. His involvement will end when the final Strike Team report/joint agency meeting is complete. His knowledge of zoning and land use restrictions will be shared when possible, but he won't resume his role as land use regulator until well after the Strike Team finishes.
- Reality Factor. In part because of facilitation and in part because of members' inflexibility, the last effort was too big, to focused on a single agency, and generally out of touch with local realities. That should be avoided this time around.
- SMART. Specific, Measureable, Actionable, Reasonable, and Timely objectives need to be set for the Strike Team to keep the process moving forward and move on to bigger pieces of the puzzle.

The Strike Team discusses what success will look like if all those past missteps and future pitfalls can be avoided. Russell provides a definition of success that others support. The Strike Team will figure out "the best footprint and the best piece of dirt" for a new fire hall.

4. RECEIVE PROGRAMMATIC HANDOUTS:

Programmatic handouts are distributed which include analyses of future growth, the 2013 facility programmatic needs and a series of questions to update those needs. The group agrees complete these questions by Friday, November 13, 2015.

Approved____; Approved as Amended ______

____

Scott Griswold, Chair Date

Minutes by Ben Shumaker

Figure B.1-4 – Programmatic Handouts (Department of Emergency Management and Fire Department)

STEVENSON FIRE HALL STRIKE TEAM

Making Tactical Decisions to Improve Emergency Response

Department of Emergency Management Facility Programmatic Needs Analysis

This handout has been prepared to help the Skamania County Department of Emergency Management reevaluate and refine its future programmatic needs. The handout is based on the Programmatic Requirements developed during the 2013 *Skamania Public Safety Center Emergency Facility Feasibility Study* conducted by RiceFergusMiller but also includes future population and housing trends to assist in the reevaluation. The results of your analysis will be used to:

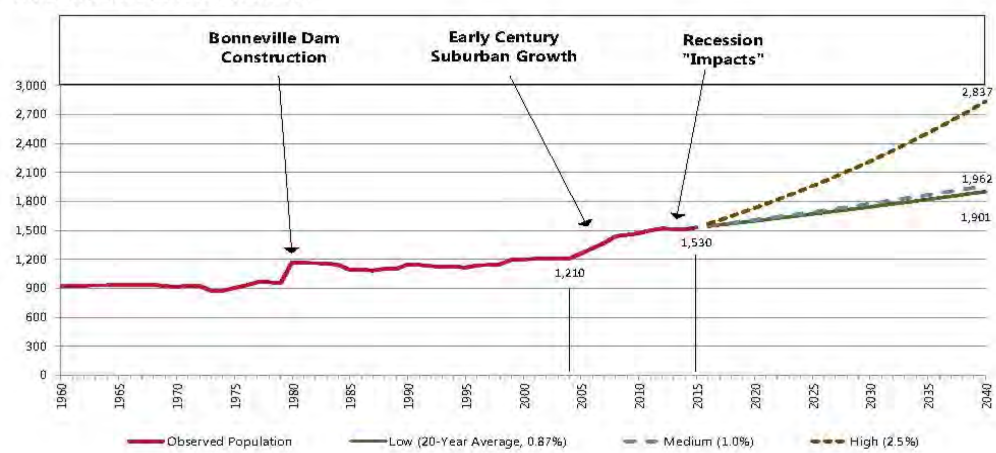
1) Determine the existence and extent of programmatic overlap with the fire department's needs as identified by the three other agencies represented on the Strike Team,
2) Determine the total building square footage required by a new fire and/or shared emergency response station, and, ultimately
3) Determine the size of the site needed to accommodate a new fire and/or emergency response station.

Future Trends

"While I take inspiration from the past, like most Americans, I live for the future."

-Ronald Reagan

Stevenson is growing. This growth changes the dynamics of emergency response. The following figures will help you determine how those changes affect your agency. The first provides a range of population projections based on average annual growth of 0.87% (the observed growth trend over the last 20 years), 1%, and 2.5%. Figure 2 bridges population growth with housing growth and projects the future number of homes that can be expected in our area over the next 25 years. The attached maps demonstrate potential growth of city boundaries over time, and compare the geographic center of 1) the City/Fire District #2 service area, 2) all addresses served in 2004 3) and all addresses served in 2015.



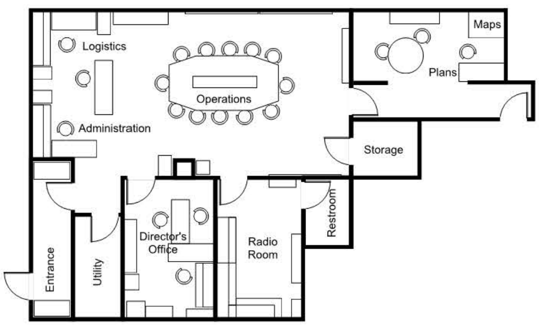
Page 1 of 3

City of Stevenson Population Growth

	1990	2000	2010	2015	2020	2030	2040
Population	1,147	1,200	1,465	1,530	1,598 - 1,731	1,743 - 2,216	1,901 - 2,837
Housing Units	457	523	703	730	735 - 797	818 - 1,040	893 - 1,333
Land Base, Sq Mi	1.11	1.38	1.52	1.52	1.63 - 1.77	1.79 - 2.28	1.93 - 2.88
Population Per Sq Mi	1,033	869	963	1,005	980	974	984
Units Per Acre	0.64	0.59	0.72	0.75	0.70	0.71	0.72

Source: 1990-2010: US Census Bureau. 2015: WA Office of Financial Management. 2020-2040: Stevenson Planning Department

<u>Existing Facility Floor Plan</u>



<u>Key Features:</u>

Location: Skamania County Criminal Justice Facility (Vancouver Avenue)

Facility Summary: <u>DEM-Only:</u> EOC/Conference Table, Radio Room, 3 Work Stations, Utility Rooms, Restroom, Storage Areas

Employees: 1 FTE

Volunteers: Up to 50

Benefits: Highly secure, protected from damage by major earthquake

Drawbacks: Too small

Size: 1,365 square feet

<u>Questions to Assist Programmatic Determination</u>

1) The 2013 facility program for the DEM's facility was based on the need to house one paid staff member in normal circumstances and then accommodate up to 50 volunteers during disaster events. Has the number of anticipated staff members changed? Has the need to accommodate up to 50 volunteers changed?

   ____

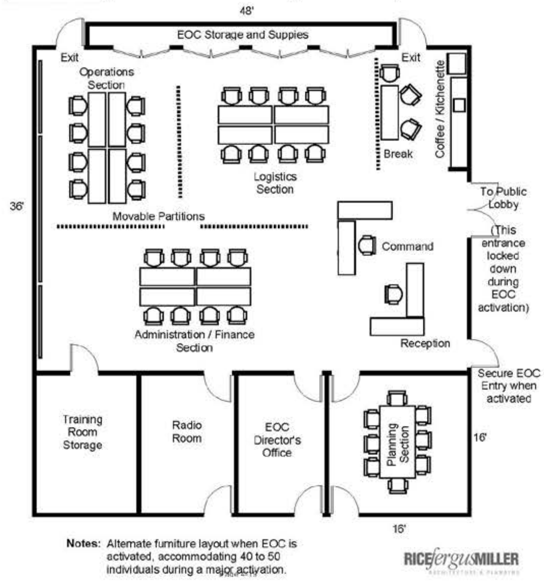
2) The 2013 report mentioned potentially colocating dispatch in a joint facility but did not directly assess the possibility or include square footage dedicated to that use. Does this possibility remain? Should larger parcels that could accommodate future building additions receive greater weight in the site selection matrix?

   ____
   ____
   ____

3) Similarly, are there new opportunities for colocation of other activities that were not explored or did not exist during the 2013 study? (This question is not limited to activities conducted only by your agency).

   ____
   ____
   ____
   ____
   ____

2013 Proposed EOC Facility (Partial)



Key Features:

Location: To be determined
Facility Summary:

DEM-Only:
- Director's Office ☐Keep ☐Remove
- Radio Room ☐Keep ☐Remove
- Storage Area ☐Keep ☐Remove

Primary Shared Area:
- Lobby ☐Keep ☐Remove
- Restroom ☐Keep ☐Remove
- EOC/Training Room ☐Keep ☐Remove
- Storage Areas ☐Keep ☐Remove
- Copy Room ☐Keep ☐Remove
- Utility Rooms ☐Keep ☐Remove
- Library ☐Keep ☐Remove

Secondary Shared Area:
- Apparatus Bays ☐Keep ☐Remove
- Tool Shop ☐Keep ☐Remove
- Computer Lab ☐Keep ☐Remove
- Kitchen/Dining Areas ☐Keep ☐Remove
- Day Room ☐Keep ☐Remove
- Fitness/Shower Areas ☐Keep ☐Remove
- Sleeping Area ☐Keep ☐Remove

Employees: 1 FTE — ___ **# Employees**
Volunteers: Up to 50 — ___ **# Volunteers**

(**2015 Reevaluation**)

Size: 385 DEM-Only square feet
3,110 Primary Shared square feet
2,345 Secondary Shared square feet
5,840 total square feet (Excluding Apparatus Bays)

4) With the Skamania County Hospital District considering other options, the facility's program may no longer be able to support some of the Shared Areas above. Which would DEM like to see continue as part of the program? Please check boxes in the box above.

5) Do the anticipated population increases or shifting geographic center of the community's structures impact the facility needs of the DEM?

____
____
____
____

STEVENSON FIRE HALL STRIKE TEAM

Making Tactical Decisions to Improve Emergency Response

City of Stevenson Fire Department Facility Programmatic Needs Analysis

This handout has been prepared to help the City of Stevenson Fire Department reevaluate and refine its future programmatic needs. The handout includes future population and housing trends, a summary of the existing facilities of your agency, and a summary of the Programmatic Requirements developed by RiceFergusMiller during the 2013 *Skamania Public Safety Center Emergency Facility Feasibility Study*. The results of your analysis and answers will be used to:

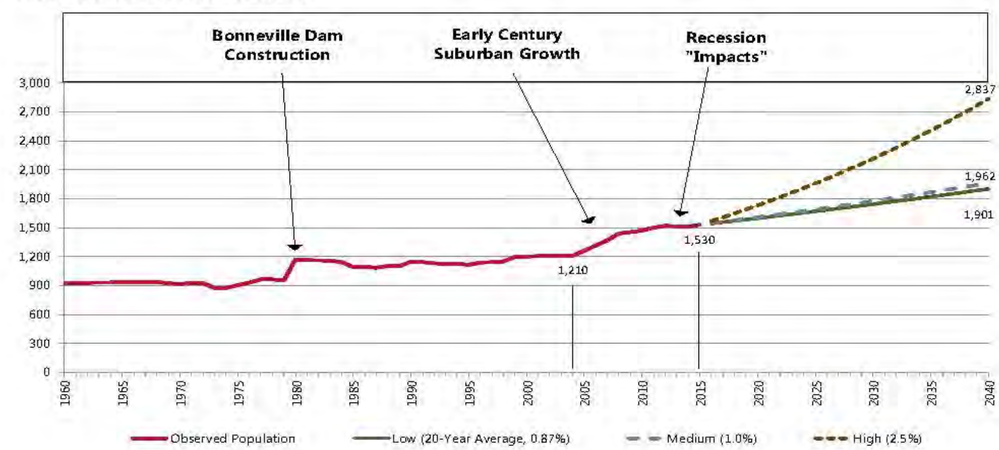
1) Determine the existence and extent of programmatic overlap with the needs identified by the three other agencies represented on the Strike Team,
2) Determine the total building square footage required by a new fire and/or shared emergency response station, and, ultimately
3) Determine the size of the site needed to accommodate a new fire and/or emergency response station.

Future Trends

"While I take inspiration from the past, like most Americans, I live for the future."

-Ronald Reagan

Stevenson is growing. This growth changes the dynamics of emergency response. The following figures will help you determine how those changes affect your agency. The first provides a range of population projections based on an average annual growth of 0.87% (the observed growth trend over the last 20 years), 1%, and 2.5%. Figure 2 bridges population growth with housing growth and projects the future number of homes that can be expected in our area over the next 25 years. The attached maps demonstrate potential growth of city boundaries over time, and compares the geographic center of 1) the City/Fire District #2 service area, 2) all addresses served in 2004 3) and all addresses served in 2015.



City of Stevenson Urban Growth

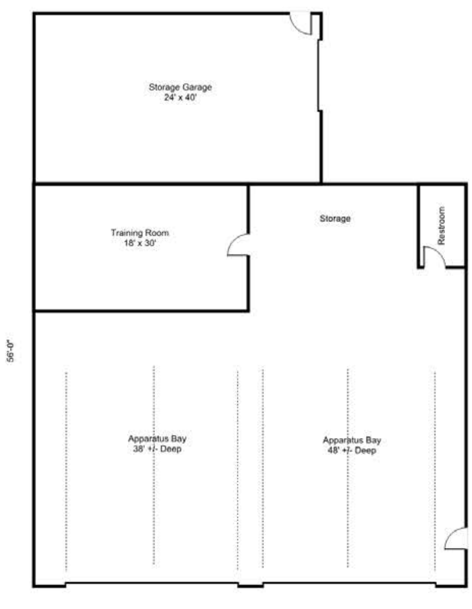
	1990	2000	2010	2015	2020	2030	2040
Population	1,147	1,200	1,465	1,530	1,598 - 1,731	1,743 - 2,216	1,901 - 2,837
Housing Units	457	523	703	730	735 - 797	818 - 1,040	893 - 1,333
Land Base, Sq Mi	1.11	1.38	1.52	1.52	1.63 - 1.77	1.79 - 2.28	1.93 - 2.88
Population Per Sq Mi	1,033	869	963	1,005	980	974	984
Units Per Acre	0.64	0.59	0.72	0.75	0.70	0.71	0.72

Source: 1990-2010: US Census Bureau. 2015: WA Office of Financial Management. 2020-2040: Stevenson Planning Department

Existing Facilities

The Stevenson Fire Department maintains partial ownership or operates from two buildings, both of which are described in the 2013 report as "antiquated and insufficient". The 30 foot by 40 foot satellite fire station is located near the Stewart Addition on Loop Road, equipped with two 12 foot-wide overhead doors, and used predominately as storage rather than an as an active station. The headquarters fire hall is described in more detail below.

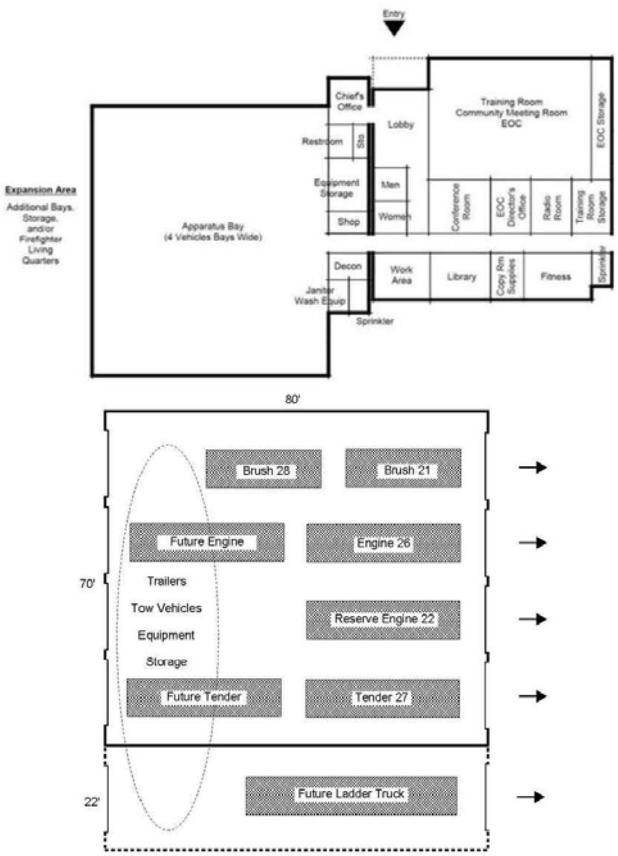
Headquarters Fire Hall Current Floor Plan:



Key Features:

Location: 160 SW First Street
Facility Summary: Shared by Fire, Stevenson Public Works
Employees: 0 FTE
Volunteers: Up to 35
Benefits: Proximity to Hwy 14
Drawbacks: Antiquated, No decon, No ventilation, Brittle, Not sprinklered
Size: 3,360 FD-Only square feet
960 square feet (Shared with PW)
4,320 square feet

2013 Proposed Facility & Apparatus Bay



Notes:
Drive-through bays preferred.
Diesel exhaust capture system necessary
WAC 296-305 requires 5' clearance in front, behind, and between apparatus
Overhead doors: 14' wide x 14' tall
All bays identical allowing maximum flexibility on vehicle arrangement and stacking
Apparatus Bay can be used from time to time for indoor training by both Fire and EMS
Apparatus Bay can be vacated during EOC activation for gathering space
Apparatus Bay can be used as a shelter during a regional disaster
Bunker Gear storage along apparatus bay walls

Key Features:

Location: To be determined
Facility Summary:

	2015 Reevaluation
Fire-Only:	
8-Stall Apparatus Bay	☐Keep ☐Remove
Storage Area	☐Keep ☐Remove
Chief's Office	☐Keep ☐Remove
Primary Shared Area:	
Decon Area	☐Keep ☐Remove
Tool Shop	☐Keep ☐Remove
Lobby	☐Keep ☐Remove
Restrooms	☐Keep ☐Remove
EOC/Training Room	☐Keep ☐Remove
Storage Areas	☐Keep ☐Remove
Copy Room	☐Keep ☐Remove
Utility Rooms	☐Keep ☐Remove
Library	☐Keep ☐Remove
Secondary Shared Area:	
6-Stall Apparatus Bay	☐Keep ☐Remove
Computer Lab	☐Keep ☐Remove
Kitchen/Dining Areas	☐Keep ☐Remove
Day Room	☐Keep ☐Remove
Fitness/Shower Areas	☐Keep ☐Remove
Sleeping Area	☐Keep ☐Remove
Laundry Area	☐Keep ☐Remove
Employees: Undefined	___ **# Employees**
Volunteers: Undefined	___ **# Volunteers**

Size: 5,940 Fire-Only square feet
3,450 Primary Shared square feet
7,360 Secondary Shared square feet
16,760 Total square feet (Excluding 6-Stall Apparatus Bay)

Questions to Assist Programmatic Determination

1) With the Skamania County Hospital District considering other options, the facility's program may no longer be able to support some of the Shared Areas above. Which would the Stevenson Fire Department like to see continue as part of the program? Please check "Keep" or "Remove" in the box above.

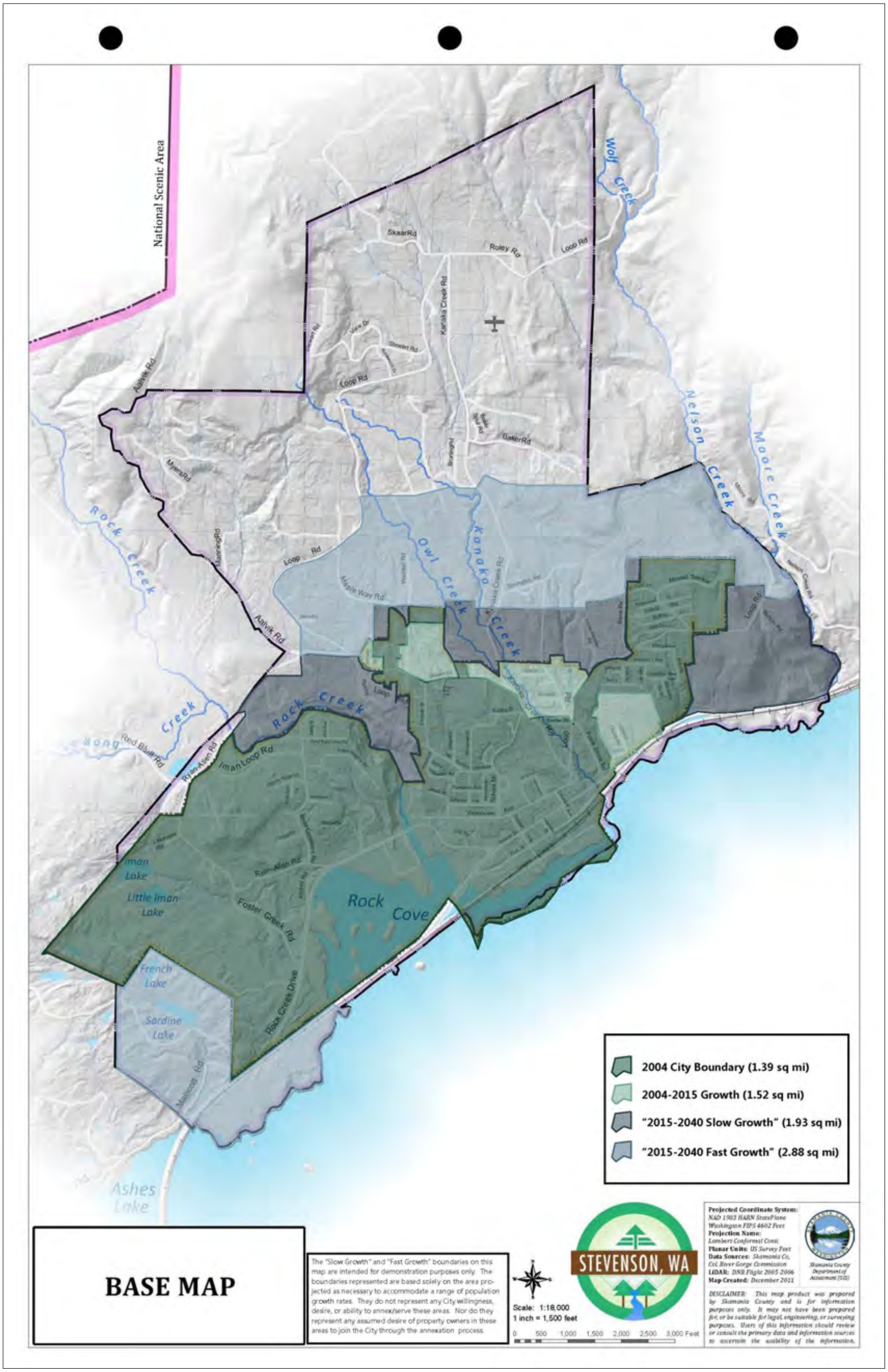
2) The 2013 facility program for the Fire Department's facility was based on the need to house up to 8 pieces of apparatus and an office for the Chief. The program also included use of the Emergency Operations Center for regular training/meeting space. Has the number of anticipated apparatus changed? Has the need for training/meeting space changed?

3) The 2013 report did not project future needs for paid Fire Department staff or growth of the 35-member volunteer force. Has the number of anticipated staff members changed? Has the number of volunteers changed? Please insert numbers in the box above.

4) The 2013 report mentioned potentially colocating dispatch in a joint facility but did not directly assess the possibility or include square footage dedicated to that use. Are there new or similar opportunities for colocation of other activities that were not explored or did not exist during the 2013 study? (This question is not limited to activities conducted only by your agency).

5) The current mission of the Stevenson Fire Department focuses on Fire Suppression. Many of the site selection criteria are based on this mission. When weighting wild land fire suppression vs. structure fire suppression, which is more important to the location of a new fire hall? If the Fire Department added Vehicle Extrication, or other components to its Mission, do the site building's programmatic needs change?

6) Do the anticipated population increases, the shifting geographic center of the community's structures, or the mission of the Fire Department impact the facility needs of the new fire station?


BASE MAP
2004 City Boundary (1.39 sq mi)
2004-2015 Growth (1.52 sq mi)
"2015-2040 Slow Growth" (1.93 sq mi)
"2015-2040 Fast Growth" (2.88 sq mi)
The "Slow Growth" and "Fast Growth" boundaries on this map are intended for demonstration purposes only. The boundaries represented are based solely on the area projected as necessary to accommodate a range of population growth rates. They do not represent any City willingness, desire, or ability to annex/serve these areas. Nor do they represent any assumed desire of property owners in these areas to join the City through the annexation process.
Scale: 1:18,000
1 inch = 1,500 feet
0 500 1,000 1,500 2,000 2,500 3,000 Feet
STEVENSON, WA
Projected Coordinate System: NAD 1983 HARN StatePlane Washington FIPS 4602 Feet
Projection Name: Lambert Conformal Conic
Planar Units: US Survey Feet
Data Sources: Skamania Co, Col. River Gorge Commission
LiDAR: DNR Flight 2005-2006
Map Created: December 2011
Skamania County Department of Assessment (GIS)
DISCLAIMER: This map product was prepared by Skamania County and is for information purposes only. It may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.
National Scenic Area
Wolf Creek
Nelson Creek
Moore Creek
Rock Creek
Owl Creek
Kanaka Creek
Rock Cove
Iman Lake
Little Iman Lake
French Lake
Sardine Lake
Ashes Lake
Skaar Rd
Loop Rd
Aalvik Rd
Iman Loop Rd
Foster Creek Rd
Rock Creek Drive
Red Bluff Rd

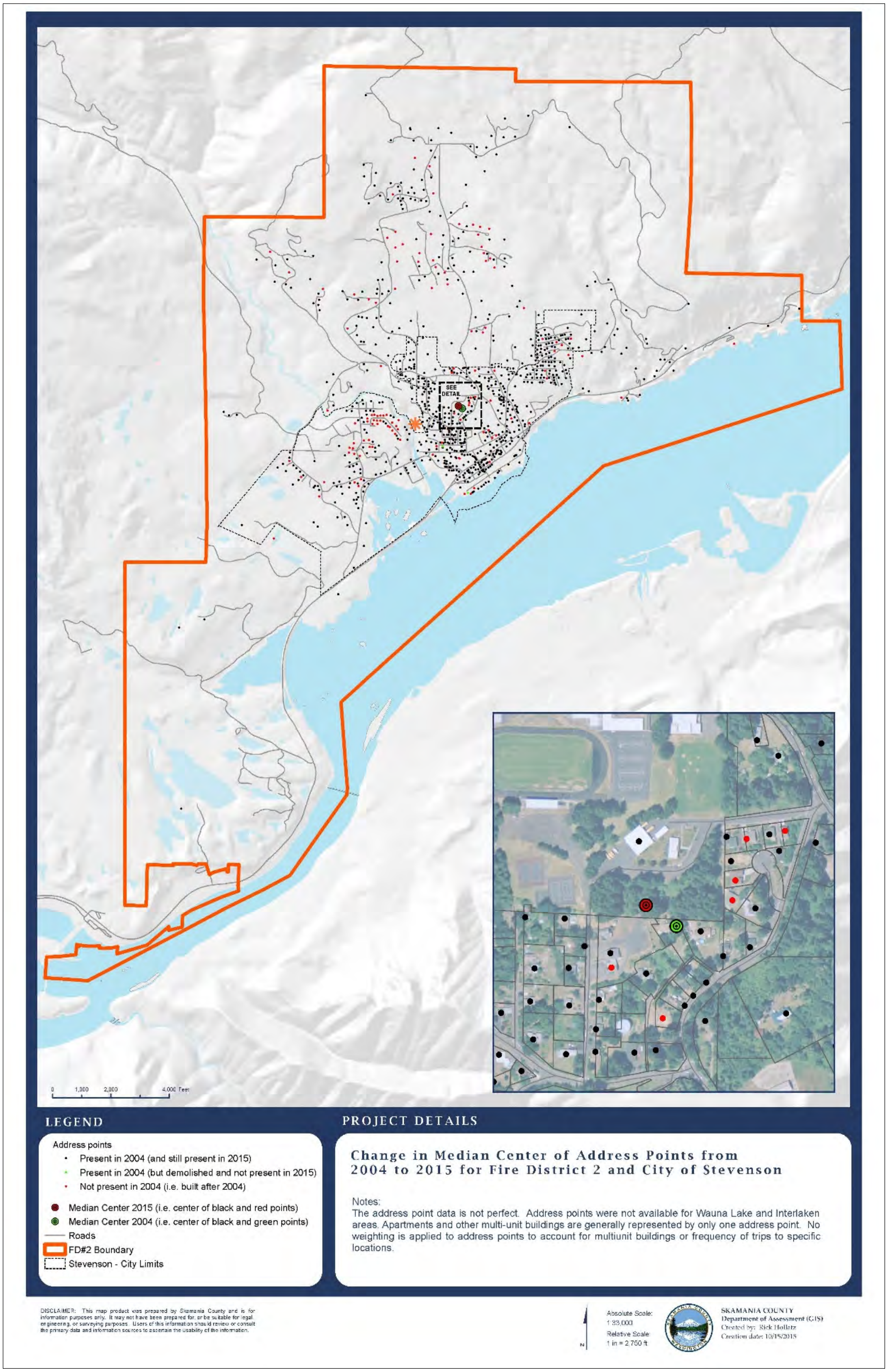

SEE DETAIL
0 1,000 2,000 4,000 Feet
LEGEND
Address points
Present in 2004 (and still present in 2015)
Present in 2004 (but demolished and not present in 2015)
Not present in 2004 (i.e. built after 2004)
Median Center 2015 (i.e. center of black and red points)
Median Center 2004 (i.e. center of black and green points)
Roads
FD#2 Boundary
Stevenson - City Limits
PROJECT DETAILS
Change in Median Center of Address Points from 2004 to 2015 for Fire District 2 and City of Stevenson
Notes:
The address point data is not perfect. Address points were not available for Wauna Lake and Interlaken areas. Apartments and other multi-unit buildings are generally represented by only one address point. No weighting is applied to address points to account for multiunit buildings or frequency of trips to specific locations.
DISCLAIMER: This map product was prepared by Skamania County and is for information purposes only. It may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.
N
Absolute Scale: 1:33,000
Relative Scale: 1 in = 2,750 ft
SKAMANIA COUNTY
Department of Assessment (GIS)
Created by: Rick Hollatz
Creation date: 10/15/2015

Figure B.1-5 – Individual Interviews

STEVENSON FIRE HALL STRIKE TEAM

Making Tactical Decisions to Improve Emergency Response

Strike Team Individual Interview Summary

Introduction

The members of the Stevenson Fire Hall Strike Team, provided the voices that will determine where the next fire station/joint emergency response facility should be located. The success of this effort relies on the pooled knowledge and of the Strike Team, and this interview summary will help the Strike Team more fully incorporation that knowledge into the site selection process. This summary is intended to advance the open and honest discussions of the Strike Team. To that end, the individual responses listed below are not organized according to respondent or attributed to specific Strike Team members.

Interview Questions

Question 1: Looking at the site of Stevenson's fire hall and emergency operations center today, what do you value most? What are the top three strengths of their location?

Fire Hall:

The site of the headquarters hall is in a good location, there is even some room for expansion in the back.

The headquarters fire hall has very few benefits, but the location of the satellite station is an important factor for fire district's insurance rating.

The downtown hall's proximity to 14 is probably its only plus, that and its close to restaurants and services for the volunteers and employees.

The satellite facility is rarely used, but it is nice to have it in place because we know more growth is coming to the area.

The Loop Road station has plenty of room for expansion but may not be the most central. It also has the benefit of being owned by the Fire District already.

EOC:

Internal to County functions, the connection to the Sheriff's Office facilitates the sharing of information and management of EOC duties. Close proximity to the Board of County Commissioners is important when emergency declarations or other important communications are necessary.

External to County functions, the facility is close to City Hall, the Chamber of Commerce/Stevenson Business Association, and other constituents that need to be involved/informed during emergencies.

The EOC is central to county offices and provides convenient communications.

The facility has no media briefing room, but this has not been a problem in past emergencies and the Hegewald Center can act as a back-up EOC, media briefing center, or PSAP if absolutely necessary.

It is central within the community.

Question 2: Are there any drawbacks or challenges associated with their current locations?

Fire Hall:

The location of the downtown hall is good because its so central to the city, and the upper hall is in a good location and will get more use as more growth occurs. Having the redundancy of two stations is also a big benefit.

The site is small and not developed with parking. Its location creates some traffic safety challenges.

The downtown location is too small to rebuild, and parking is a big concern. Sharing parking lots with the Eagles, Post Office and on the street has been a problem in the past, especially when those and other neighboring businesses are running. Typical turnout for incidents usually runs at about 15 volunteers, each in their own truck. Each apparatus carries between 2 and 5 firefighters to the scene.

The main drawback of the upper hall is that until more growth occurs, there are so few volunteers in that area that could respond to that hall.

The downtown hall has no parking and the building is crumbling already and there are seismic concerns about the building and the site, and its proximity to the railroad is more than just a noise concern, but a potential for catastrophic loss if there is a hazmat derailment.

Having to cross 2nd Street/Hwy 14 reduces response time, especially in the summer.

Shared parking on the street or nearby properties like the Eagles and Post Office has been unsuccessful, especially on certain nights or during certain hours of the day.

The lack of parking and the small size limit its usability for training and expansion options.

The lot is too small.

The location is not very central to the service area, and being on the south side of Hwy 14 is a barrier for volunteers responding when they have to wait for an opening to cross the highway, especially in the summer season.

EOC:

It's too small.

Terrain at the EOC is a problem for ADA compliance.

The facility and its parking areas are too small to handle very large emergencies and training programs.

Having a combined facility will benefit the firefighters because they will be able to do things like ICS training at their own building.

The location within the jail basement is too small, and even though it is centrally located for county functions, it is more susceptible to security concerns in the event of an attack/invasion.

The building's structural/seismic integrity is questionable, and the HVAC, plumbing and other critical systems are unreliable.

Question 3: [Focusing on the Fire Hall] The current Mission of the Stevenson Fire Department involves Fire Suppression. Many of the site selection criteria are based on this mission. If the Fire Department added Vehicle Extrication, or other components to its Mission, are there unique site selection criteria associated with those components? What components are likely to be added, and what site selection criteria are important for them?

All of the 2013 sites provide comparable response time, but defining a goal response time would help separate one site from another.

Structure fires remain the most important because they happen 12 months out of the year. Wildland fires only occur during 3 months out of the year, and there are other jurisdictions involved as first responders for many of these (DNR station at Fort Rains). If additional services are added to the fire department's mission, it will require extra space at the facility (lot size) but it shouldn't affect the location of the facility too much.

The demand for services has been trending toward more of an all-hazards response agency from the previous fire suppression focus. Hazmat response, scene safety at motor vehicle accidents, ropes rescue, and other non-structure fire responses are now relatively frequent..

Changes to the mission shouldn't impact its need to be close to 14.

Responding to structure fires is the most important part of the fire department's mission, and proximity to those structures is more important than proximity to the forest for wildland fire response.

Changes to the mission/location of the new fire hall should be based on response area needs and the number of callouts we have for motor vehicle accidents vs. structure fires vs. wild land fires, etc. and the importance of response time to those incidents. MVAs and structure fires require Johnny on the spot action, and wild land fires have a slower response need.

Question 4: [Focusing on the EOC] Emergency Management is described as a four phase process: Preparedness, Mitigation, Response, and Recovery. The location of the EOC is likely most important to the Response phase. Are there unique site selection criteria that are important for the EOC Response? Is location important for other phases?

The location of the EOC shouldn't matter too much. With their countywide focus it means the small differences within the Stevenson area don't affect things much.

The central location is still important, no special criteria should be necessary.

The Response Phase is the most important for the facility's location and being central to the City and County will be important.

The exact location of the EOC within the Stevenson doesn't matter as much as having enough available space to accommodate its functions.

Regardless of the building needs, collocating with the EOC will provide a huge upfront financial benefit from the state and federal funding programs for these critical facilities. However, it will likely add some ongoing maintenance and operations costs.

Access to fiber and communications utilities is more important for the EOC than other selection factors.

Locating the EOC in a highly visible location within the community is not a priority, because ensuring the public perceives that work is being done during an emergency can be accomplished in other ways.

Building designs based on security concerns are an important part of creating an EOC. Those design requirements may make it hard for the fire department and EOC to collocate or increase construction costs.

Question 5: [Reference maps] Looking at anticipated population increases, expansion of City boundaries, and the shifting geographic center of the community's structures, are any specific site selection criteria necessary to accommodate the trends?

Having some degree of visibility of surroundings is important so emergency responders can rapidly assess conditions (smoke, wind, weather, etc.).

Projecting the response area for the future is difficult, but the fire hall should try to locate near the center of the area.

The projected growth gives some credit to moving the fire hall uphill, but doesn't change much.

If the new site is in the center of downtown, the building should be built as a showpiece that could possibly serve double purposes as rental space for community events.

The new site should avoid landslide-prone areas, and will ideally not be on the south side of the railroad tracks. The tracks also pose an increased hazard because of the hazardous waste carried on them and a derailment near the facility could disable the EOC or Fire Department operations.

Being near the BPA powerlines is not necessarily a concern for the Fire Department, because the hazards the lines present (water from hoses and even smoke can transmit electrical current to the fire fighter) are not as likely to be encountered at the station.

We shouldn't need to be that picky. The upper hall is there to protect future growth and we should try to stay central to the downtown area instead of way out by the Lodge.

Insurance ratings are based on distances from the station to its service addresses. Including a distance breakdown will make sure the new location doesn't impact fire insurance rates. Likely though, anything within the city will be fine.

Question 6: [Summarize the 2013 site selection criteria, then...] Which of these criteria remains relevant for the current selection process? Should any be removed?

Property depth can be modified to consider configuration as well. As important s depth is , a site of less depth, but with pull-through capability, might require less depth.

Property depth is not a deal breaker, but desirable because it would add secure training space behind the station. Adequate size for the building and the parking is still very important.

Flat sites remain important.

Flat sites are important, but the flat parts of the site don't need to be right next to each other just as long as there are enough flat areas on the whole site to accommodate the building, maneuvering space and parking.

Flatness is important but not a dealbreaker.

Response access doesn't relay as much on Hwy 14, because our responsibility is to our taxpayers more than our mutual aid partners. Proximity to 14 is also a curse, because if the new hall is built on the outskirts somewhere, it could be a pole barn and cheaper.

A drive through facility is very important for vehicle safety, most of the accidents occur when firefighters return to the station and back rigs in.

Response access will still need to be close to SR 14 for responding to mutual aid requests, but should be centrally located for the City and the District.

A flat site is better because it will make training possible on the site too. The street topography around the site is not as important and won't impact response times.

Proximity to highway 14 remains beneficial and the vehicle speed limits should be taken into account.

A property having enough size for the building and the necessary parking is a must and should remain.

The speed of Highway 14 is the biggest difference it offers for response access, but really, the short distances travelled to incidents in the City means only a minute or two to response time. Because of that, proximity to the highway is not overly important.

The topography issue is still a concern and the flatter the site is, the better and cheaper it will be to develop.

A pull-through station is desirable, but not an absolute must. In addition to requiring a bigger site, it requires additional garage doors and other moving parts that could be expensive and subject to ongoing maintenance or periodic failures.

Question 7: [Summarize the site selection criteria revealed during the interview, then...] How can the Planning Department go about measuring sites using the site selection criteria? Should the analysis include...[speculate on specific measurement tools for each criterion]

Construction feasibility is an important factor and should consider issues like soil contamination, environmental/habitat buffers, and other known or apparent challenges.

Property availability is important and if its currently in public ownership it should make the purchase even easier.

Having access to City water is highly desirable.

Having a clear zone of 150' x 150' would allow life flight to use the new facility as well.

The current crossings of 1st and 2nd street reduce response times, but the barriers aren't a huge concern.

The bridges across Rock Creek aren't a very big barrier because there are three of them.

Proximity to existing and future neighborhoods is a concern based on the potential for noise complaints. Avoid if possible.

Traffic patterns/future growth will matter as more congestion on the highway occurs. One-way streets might improve but might hinder responses from a building on that road.

Avoid floodplains.

Having three bridges available to cross Rock Creek reduces the importance of that as a barrier.

Consider speed limits in the response time and review the In-First System for a better idea of the response callouts we are getting.

If we are going to build a new fire hall, it might be nice to have it visible to our citizens. A marquee facility should be put in a marquee location.

The fire hall is part of the community and it should be visible to the taxpayers.

The biggest factors in response time to an incident are distance and speed limits along roads leading to the incident. Current research based on Code 1 responses (no lights, no sirens) versus Code 3 responses (lights and sirens) doesn't show a great increase in response time. With all of the roads in the City at 25 mph, distance becomes the most important for us.

Availability/willing seller is a criteria that could be considered, but is less important with the wide range of sites we are looking at.

Barriers to access should be avoided, including the railroad tracks, the highway, and to a small extent bridges.

If building a new fire hall can kill two (or more) birds with one stone, we should look into it.

Presence of hazards should be avoided, including overhead utilities, floodplains, railroad (derailments), polluted former industrial sites.

Finding willing sellers is important to make sure the agencies aren't overpaying for property.

Future traffic patterns will be important, access directly onto a busy street is dangerous but can be dealt with using signage/lighting or other tools. Corner lots are preferable to allow access from two ways.

Distance is also an important factor for the volunteers who need to travel to the station before responding.

Properties that are already publicly-owned would be desirable, but acquiring private property should not be avoided on principle. Finding willing sellers, however, is a far better option than using the public's eminent domain/condemnation powers.

How the proposal fits in with other public policies is important, including considering the highest and best use of the site, which includes both the perception of the community and some level of proof from the real estate market.

Bandwidth for communications should be considered as well as other utility access.

Sites on the south side of the railroad track should be avoided unless clear access is possible.

Buildability of the site should be considered, including demolition costs of any current buildings, whether or not it is contaminated, and the presence of wetlands and very waterlogged areas, which may struggle to hold the weight of the facility or the trucks as they leave it.

The BPA lines interfere with radio communications, locations directly under them should be avoided. Locations with good sightlines to communications towers would be beneficial.

Access onto the street should be as easy as possible to get the trucks rolling. Midblock is better because drivers only need to look two ways—they would have to look four ways on a corner lot. Local streets are easier to pull onto than arterials. Location on a one-ways would make it easy as well, as long as there is enough connectivity in the street grid after the trucks are on the road.

The biggest hazards to firefighters are heart attack and traffic accidents. The site of the facility can help increase firefighter safety if it minimizes the likelihood of traffic accidents.

The location of a facility needs to consider future traffic growth and the likelihood for traffic control devices moving forward (stoplights, etc.).

Utility availability is an important consideration for the new facility, especially connection to fiber or broadband communications.

Stable ground and locations outside of floodplains or other hazards should be prioritized.

Question 8: The 2013 Report conducted a detailed review of 8 sites. Were any sites missed that should have been part of that analysis?

[redacted]

Expanding at EMS can be removed from future study.

Strike Team Participants Interviewed

- **Dave Brown,** Sheriff, Skamania County
- **John Carlson,** Director, Skamania County Department of Emergency Management
- **Rob Farris,** Chief, Stevenson Volunteer Fire Department
- **Scott Griswold,** Commissioner, Skamania County Fire District 2
- **Nick Hogan,** City Administrator, City of Stevenson
- **Karl Russell,** Commissioner, Skamania County Fire District 2
- **Cody Rosander,** Officer, Stevenson Volunteer Fire Department

Figure B.1-6 – Second Strike Team Meeting Agenda and Notes

STEVENSON FIRE HALL STRIKE TEAM

Making Tactical Decisions to Improve Emergency Response

Second Meeting Agenda

Date: **Wednesday, December 16th, 2015**
Time: **5:30 PM to ~7:00 PM**
Location: **Skamania County Emergency Operations Center**

"Each generation goes further than the generation preceding it because it stands on the shoulders of that generation. You will have opportunities beyond anything we've ever known."

-Ronald Reagan

Past Work

1. REVIEW FIRST MEETING:

2. SUMMARIZE OUTSIDE UPDATES/DISCUSSIONS:

Today's Work

3. AGREE ON GROUND RULES:
   a. How we communicate with each other
   b. How we communicate with our agencies
   c. How we know we've finished

4. FINALIZE PROGRAMMATIC NEEDS:

5. DEFINE SITE SELECTION CRITERIA:

6. INVENTORY POTENTIAL SITES:

Upcoming Work

7. BEFORE THE NEXT MEETING:
   a. Update agency

8. AT THE NEXT MEETING (TENTATIVELY):
   a. Refine/Weight Site Selection Matrix
   b. Refine Potential Site Inventory

Adjourn

STEVENSON FIRE HALL STRIKE TEAM

Making Tactical Decisions to Improve Emergency Response

Second Meeting Notes

Date: Wednesday, December 16th, 2015

Time: 5:30 PM to 7:02 PM

Location: Skamania County Emergency Operations Center

Attendees: City: Nick Hogan. Department of Emergency Management: Dave Brown. Fire District 2: Scott Griswold. Stevenson Volunteer Fire Department: Rob Farris, Cody Rosander. Facilitator: Ben Shumaker

> "Each generation goes further than the generation preceding it because it stands on the shoulders of that generation. You will have opportunities beyond anything we've ever known."
>
> -Ronald Reagan

Past Work

1. REVIEW FIRST MEETING:

   Strike Team members take time to review the first meeting notes and meeting packet. No changes to the meeting notes are requested. A copy of the notes will be sent to Fire District 2 for use as meeting minutes.

2. SUMMARIZE OUTSIDE UPDATES/DISCUSSIONS:

   Shumaker discusses his communications with the *Pioneer*, including providing the draft Ground Rules. **Brown** is speaking with the 911 Coordinator to determine size requirements of an alternate PSAP. **Hogan** summarizes Muth's report to the City Council about starting the process off on the right foot.

Today's Work

3. AGREE ON GROUND RULES:

   Beginning with the discussion of ground rules, the meeting proceeds according to a tight timeline. The Ground Rules are described as fluid, and subject to change at the will of the Strike Team. The definition of consensus is discussed in detail, including each Strike Team member's ability to veto a proposal or decision and the corresponding need to reach some level of agreement before decisions are made.

   Decision Point: Consensus agreement: To adopt the Ground Rules as written.

4. FINALIZE PROGRAMMATIC NEEDS:

The bulk of the meeting time is devoted to this topic, which ranged broadly from the expected lifespan of the new building as compared to the new jail building, how to focus on immediate needs versus long term needs versus immediate or long term wants, and which rooms/building components should be roughed in or constructed immediately. Strike Team members understand the current group's lack of expertise in cost estimation, and the resulting difficulty of making cost-based decisions. Imagination shouldn't be limited by assumed costs, and neither should determination of needs.

Decision Point: Consensus agreement: To plan for 1 paid fire chief in the near term, but to anticipate the possibility of additional employees for 24 hour coverage.

Decision Point: Consensus agreement: To anticipate building's use for public meeting space, but avoid usage by the general community for parties/events.

Decision Point: Consensus agreement: To plan for future growth by reserving areas or roughing in likely future improvements (electrical, plumbing, garage door headers, etc.).

Decision Point: Consensus agreement:

To keep as needs: 8-stall apparatus bay, fire storage area, clean-up/decon area, restrooms, lobby, EOC, radio room, EOC director's office, fire chief's office, tool shop, EOC storage area, utility rooms, enhanced kitchenette

To keep as wants/future needs: sleeping rooms, copy room, shower/bathroom, laundry room

To remove: fitness room, day room, 6-stall apparatus bay, library, computer lab, dining room

5. DEFINE SITE SELECTION CRITERIA:

The Site Selection Criteria handout is provided to Strike Team members who are asked to review it in detail prior to the next meeting. The Site Selection Matrix is based on Property Characteristics, Response Access, Access Roads, Proximity to Hazards, Utility Availability, Land Availability, and Public Perception, and the measurement of each criteria is provided so the process can be repeated if new sites are identified. Some of the "supplemental" and "alternate" criteria are discussed, including whether response *distance* should be converted to response *time*.

Decision Point: Consensus agreement: To use response distance as an adequate proxy for response time instead of actually calculating distances at posted speed limits.

6. INVENTORY POTENTIAL SITES:

The draft list of 50 properties is presented, but too little time is left to discuss this agenda item, which includes sensitive information about specific sites. No

Specific decision is made, but the length of the list is generally accepted as a tactic to ensure the results of the Strike Team's analysis are confidential/secure.

Notes by Ben Shumaker

Figure B.1-7 – Strike Team Ground Rules

STEVENSON FIRE HALL STRIKE TEAM

Making Tactical Decisions to Improve Emergency Response

Strike Ground Rules

Strike Team Goal

The goal of the Stevenson Fire Hall Strike Team is short and simple: identify the best footprint and the best piece of dirt for a new fire hall.

Easy Peasy (ECPC) Guidelines

To successfully reach its goal, the Strike Team seeks to ensure:

1) **Equality.** Each organization represented on the Strike Team as well as each individual representative are equals; it is the needs and desires of each organization or individual which may not be equal. The Strike Team, as a group, must first understand the root of those needs and desires before it can prioritize or change them.
2) **Communication.** "It's all communication's fault." If communication was clear, everything else would be. Communication is also a two-way street, and Strike Team members must be able to provide their viewpoint and respectfully ask and answer questions of each other before communication can be considered clear.
3) **Professionalism.** The community and taxpayers are relying on the Strike Team to make decisions in their best interest. If it wants its conclusions to stand up to community scrutiny, the Strike Team's work must be thorough, unbiased, and based on a clear articulation of needs.
4) **Confidentiality.** Certain information presented to the Strike Team is sensitive. On the way toward reaching its goal, the Strike Team will be dealing with information that could be used by individual property owners in a way that would hinder the agencies' ability to affordably or adequately buy the best pieces of dirt. Strike Team members must do their best to keep this from occurring.

Definition of Success

The Stevenson Fire Hall Strike Team exists for a very specific purpose. The Strike Team's final report is but one piece of a larger puzzle, but a piece that is necessary before taxpayer money or outside grant and loan funding is committed. The conclusions of that report will be judged on their ability to compellingly state we found "the best footprint and best pieces of dirt". That argument will hinge on 1) how thorough the Strike Team is in its analysis and 2) how well Strike Team members communicate and evaluate needs versus desires.

The process of producing the report will be judged on 1) how well each Strike Team member updates his constituents and 2) how well the Strike Team is able to keep sensitive information confidential.

The work of the Strike Team will not be judged on 1) assumed and unverified cost concerns (Needs are needs regardless of cost, and the Strike Team lacks expertise projecting construction costs) or 2) continued partnership between the agencies (FD needs and DEM needs may not coincide, properly evaluating whether there are joint needs, is a determinant of success whether or not those joint needs are actually found).

Page 1 of 2

Strike Team Do's and Don'ts

As a member of the Strike Team I will:	As a member of the Strike Team I will not:
Just be an adult about it.	
Clearly articulate my positions or statements.	Disrespect the positions or statements of other Strike Team members.
Ask questions when something is not clear to me.	Be offended when asked to clarify my position or statement.
Communicate Strike Team activities and requests to others in my agency.	Reveal any information from the analysis that could jeopardize site acquisition or increase acquisition costs.
Be flexible with agency needs and desires. Balance "wants" with "needs".	
Balance "future needs" with "existing needs".	
Work toward consensus.	
Accept consensus when it is reached.	

Decision-Making by Consensus

Consensus agreement is best for the group as a whole. The following descriptions will help Strike Team members know when consensus has been reached.

1) Decisions of the Strike Team will be made based on consensus. Consensus will first be sought by seeking an informal show of thumbs-up, -down, or neutral. If an issue has any thumbs-down, or, at the request of any member, a vote will be used as part of the decision-making process forward. Voting should be treated as a last resort.
2) Consensus voting will occur as set out in "Facilitator's Guide to Participatory Decision-Making," 1996. Strike Team members will have the option to utilize any of the seven categories within the continuum:

Definition of Consensus for Stevenson Fire Hall Strike Team

Consensus is defined in terms of agreement along a continuum. Team members may register the degree of their agreement according to the language in any of the first six columns. The last (shaded) column on the right side of the continuum is *not* considered acceptable for consensus in this process. Issues where all participants respond with anything to the left of this is considered "agreement by consensus."

Endorse	Endorse with a minor point of contention	Agree with Reservation	Abstain	Stand Aside	Formal Disagreement but will go with the majority	Block
"I like it"	"Basically I like it"	"I can live with it"	"I have no opinion"	"I don't like it but I don't want to hold up the group"	"I want my disagreement to be noted in writing but I'll support the decision"	"I veto this proposal"

Adapted from: "Facilitator's Guide to Participatory Decision-Making," 1996.

Figure B.1-8 – Third Strike Team Meeting Agenda and Notes

STEVENSON FIRE HALL STRIKE TEAM

Making Tactical Decisions to Improve Emergency Response

Third Meeting Agenda

Date: Wednesday, January 7th, 2016
Time: 6:30 PM to 8:00 PM
Location: Stevenson City Hall

"Give me six hours to chop down a tree and I will spend the first four sharpening the axe."

-Abraham Lincoln

Past Work

1. Review Second Meeting:

2. Summarize Outside Updates/Discussions:

Today's Work

3. Refine/Weight Site Selection Matrix:
   a. Which are (un)necessary
   b. Which are (im)possible
   c. Which are most important

4. Refine Potential Site Inventory
   a. What sites are missing
   b. Which are (im)possible

5. Introduce Draft Programmatic Needs Chapter/Best Footprint:

Upcoming Work

6. Before the Next Meeting:
   a. Update agency

7. At the Next Meeting (Tentatively):
   a. Review Full Draft Report
   b. Determine Strike Team Success

Adjourn

Ground Rules

As a member of the Strike Team I will:	As a member of the Strike Team I will not:
Just be an adult about it.	
Clearly articulate my positions or statements.	Disrespect the positions or statements of other Strike Team members.
Ask questions when something is not clear to me.	Be offended when asked to clarify my position or statement.
Communicate Strike Team activities and requests to others in my agency.	Reveal any information from the analysis that could jeopardize site acquisition or increase acquisition costs.
Be flexible with agency needs and desires. Balance "wants" with "needs".	
Balance "future needs" with "existing needs".	
Work toward consensus.	
Accept consensus when it is reached.	

Consensus

Definition of Consensus for Stevenson Fire Hall Strike Team

Consensus is defined in terms of agreement along a continuum. Team members may register the degree of their agreement according to the language in any of the first six columns. The last (shaded) column on the right side of the continuum is *not* considered acceptable for consensus in this process. Issues where all participants respond with anything to the left of this is considered "agreement by consensus."

Endorse	Endorse with a minor point of contention	Agree with Reservation	Abstain	Stand Aside	Formal Disagreement but will go with the majority	Block
"I like it"	"Basically I like it"	"I can live with it"	"I have no opinion"	"I don't like it but I don't want to hold up the group"	"I want my disagreement to be noted in writing but I'll support the decision"	"I veto this proposal"

Adapted from: "Facilitator's Guide to Participatory Decision-Making," 1996.

STEVENSON FIRE HALL STRIKE TEAM

Making Tactical Decisions to Improve Emergency Response

Third Meeting Notes/Fire District 2 Minutes

Date: Thursday, January 7th, 2016
Time: 6:30 PM to 8:01 PM
Location: Stevenson City Hall
Attendees: City: Nick Hogan. Department of Emergency Management: John Carlson. Fire District 2: Scott Griswold, Karl Russell. Stevenson Volunteer Fire Department: Rob Farris, Cody Rosander. Facilitator: Ben Shumaker

"Give me six hours to chop down a tree and I will spend the first four sharpening the axe."

-Abraham Lincoln

Past Work

1. REVIEW SECOND MEETING:
   Strike Team members read through second meeting notes. No changes to the meeting notes are requested.
2. SUMMARIZE OUTSIDE UPDATES/DISCUSSIONS:
   Hogan discusses his update to City Council, describing it as a thorough and complete process. **Farris** recalls his discussions with **Griswold** about the merits of keeping the same two properties currently owned by the FD, expanding at the upper hall and using the lower hall as the satellite facility. **Farris** also discusses a concern raised by one of his firefighters who heard we might request a tax levy for new building. He told the person that it far too early to know whether that would be necessary, but it is a possibility that will be considered later, and ignoring that as a possibility would be irresponsible. **Shumaker** discusses upcoming City Planning Commission meeting where the parking requirements for fire stations will be discussed. He will not be wearing his Strike-Team-Facilitator "hat" at that meeting and recommending a parking standard based on best practices of other communities. He tells Strike Team members that he will provide them with the staff recommendation ahead of time and encouraged their attendance or submittal of written comments at the Planning Commission's January meeting (1-11-16).

Today's Work

3. REFINE/WEIGHT SITE SELECTION MATRIX:

   Strike Team members review each draft Site Selection Criteria and weight them from 1 (least important) to 5 (most important). To prevent property owners from repeating the entire matrix, specific weightings will be reported as sensitive information at the fourth meeting. Three draft criteria are removed from the rating matrix: Property Access Location, Electricity Availability, Proximity to Homes. Property Width and Potential for Joint Parking Lots are added as rating criteria. Three criteria are described as "go/no go" to eliminate sites from consideration: Buildable Space, Relationship to BNSF Railroad, and Landslide Hazard Areas.

4. REFINE POTENTIAL SITE INVENTORY:

   Two sites are added to the initial list to bring the total number to 52. Strike Team members are encouraged to add sites freely as they come up.

5. INTRODUCE DRAFT PROGRAMMATIC NEEDS CHAPTER/BEST FOOTPRINT:

   Draft Chapter 3 is provided to Strike Team members for review and future comments. Very little discussion occurs on the chapter, but the draft "Best Footprint" is detailed which programs which rooms can be built initially and which can be added in the future when needed.

Approved____; Approved as Amended ______

____

Scott Griswold, Chair   Date

Minutes by Ben Shumaker

Figure B.1-9 – Fourth Strike Team Meeting Agenda and Notes

STEVENSON FIRE HALL STRIKE TEAM

Making Tactical Decisions to Improve Emergency Response

Fourth Meeting Agenda

Date: **Thursday, March 24, 2016**
Time: **6:00 to 7:30 PM**
Location: **District 2 Upper Fire Hall**

> "Progress has brought us both unbounded opportunities and unbridled difficulties. Thus, the measure of our civilization will not be that we have done much, but what we have done with that much."
>
> -Theodore Roosevelt

Past Work

1. Review Third Meeting:

2. Summarize Outside Updates/Discussions:

Today's Work

3. Review Draft Report:
    a. Where's the "best of the best"
    b. How to read the report
    c. What are the next steps

4. Determine Strike Team Success
    a. How thorough was your analysis
    b. How effective was the group's communication
    c. How effective was the group's evaluation of needs versus desires

Upcoming Work

5. Before the Next Meeting:
    a. Schedule joint agency meeting?

6. At the Next Meeting (Tentatively):
    a. Review redacted Final Report
    b. Agree on Action Plan & project leads

Adjourn

Ground Rules

As a member of the Strike Team I will:	As a member of the Strike Team I will not:
Just be an adult about it.	
Clearly articulate my positions or statements.	Disrespect the positions or statements of other Strike Team members.
Ask questions when something is not clear to me.	Be offended when asked to clarify my position or statement.
Communicate Strike Team activities and requests to others in my agency.	Reveal any information from the analysis that could jeopardize site acquisition or increase acquisition costs.
Be flexible with agency needs and desires. Balance "wants" with "needs".	
Balance "future needs" with "existing needs".	
Work toward consensus.	
Accept consensus when it is reached.	

Consensus

Definition of Consensus for Stevenson Fire Hall Strike Team

Consensus is defined in terms of agreement along a continuum. Team members may register the degree of their agreement according to the language in any of the first six columns. The last (shaded) column on the right side of the continuum is *not* considered acceptable for consensus in this process. Issues where all participants respond with anything to the left of this is considered "agreement by consensus."

Endorse	Endorse with a minor point of contention	Agree with Reservation	Abstain	Stand Aside	Formal Disagreement but will go with the majority	Block
"I like it"	"Basically I like it"	"I can live with it"	"I have no opinion"	"I don't like it but I don't want to hold up the group"	"I want my disagreement to be noted in writing but I'll support the decision"	"I veto this proposal"

Adapted from: "Facilitator's Guide to Participatory Decision-Making," 1996.

STEVENSON FIRE HALL STRIKE TEAM

Making Tactical Decisions to Improve Emergency Response

Fourth Meeting Notes/Fire District 2 Minutes

Date: Thursday, March 24th, 2016

Time: 6:00 PM to 7:00 PM

Location: Skamania Fire District #2 Upper Fire Hall

Attendees: City: Nick Hogan. Department of Emergency Management: Dave Brown, John Carlson. Fire District 2: Scott Griswold, Karl Russell. Stevenson Volunteer Fire Department: Rob Farris, Cody Rosander. Facilitator: Ben Shumaker

"Progress has brought us both unbounded opportunities and unbridled difficulties. Thus, the measure of our civilization will not be that we have done much, but what we have done with that much."

-Theodore Roosevelt

Past Work

1. REVIEW THIRD MEETING:

   Strike Team members are presented with third meeting notes. Changes are not discussed.

2. SUMMARIZE OUTSIDE UPDATES/DISCUSSIONS:

   Three attendees express their need to leave early, and this agenda item is skipped.

Today's Work

3. REVIEW DRAFT REPORT:

   a. The Strike Team's discussion begins with the sensitive information in Appendix A which is presented to them for the first time. The 3 "Best of the Best" and the 6 "Rest of the Best" sites are reviewed so all members are aware where the property is, and whether it was reviewed in the 2013 Report. Discussion centers on how the final site list in A.1-1 relates to the evaluation matrices in A.2-1 through A.2-7. Strike Team members take no action but generally accept the validity of the prioritized site list. Members agree to contact Shumaker if they have questions.

   b. Shumaker describes the report's 100 pages, but assures the group that most users will only need to read the executive summary and the first 1 to 2 pages of the 6 sections (4 body, 2 appendices). Carlson describes the remaining 90+ pages as the Prego Principle—"its in there"—referring to the details they provide if anyone needs to look for them.

c. Attention turns to Section 2 of the report to understand what's next for this process.

Consensus Decision Point: The first draft action from the action plan is fully supported by the Strike Team. Recognizing its limited role in formulating the final action plan (which will rely on formal action from 3 boards), the remaining actions are supported as suggestions—not recommendations—for the partner agencies to consider.

4. DETERMINE STRIKE TEAM SUCCESS:
   a. The Strike Team is satisfied with the thoroughness of the analysis. Several members note that there will be naysayers who question why one site scores better than a neighboring site, but they see that the detail provided in Appendix A will allow those questions to be answered. Members also note that the report will help justify taxpayer and grant agency funding on this project.
   b. The Strike Team is generally quite satisfied with the levels of communication. However some aspects could've been better. Organizing schedules of 9 individuals proved difficult, and, while somewhat understandable based on the depth of the analysis, the final presentation of the report occurred too long after November's First Meeting.

      Consensus Decision Point: Hogan and Griswold will contact Muth to give updates on the conclusion of the process. Shumaker is available to assist with any questions that emerge.
   c. The effectiveness of the group's evaluation of wants versus needs is not discussed in detail, but some members express their satisfaction with the group's decisions this time compared to 2013.

Upcoming Work

5. BEFORE THE NEXT MEETING:
   a. Hogan offers to work with Mayor Cox to set up a joint meeting between the Stevenson City Council, Fire District 2 Commission and Skamania County Commission. Shumaker is available to assist facilitating the meeting.

      Brown will brief County Commissioners on process and to expect the request for joint meeting next week.

      Shumaker will add detailed site analyses for the 9 "best" sites and reserves the right to add additional evaluation methodology to Figures A.3-1 through 7.

Approved____; Approved as Amended ______

______________________________________ ___

Scott Griswold, Chair Da

Minutes by Ben Shumaker

2016
Stevenson Fire Hall
Strike Team Report

Making Tactical Decisions to Improve Emergency Response

MACKENZIE.

DESIGN DRIVEN | CLIENT FOCUSED

Stevenson Fire Department

Needs Assessment

May 2019

OUR HISTORY. OUR FUTURE. OUR PROMISE.

The values of our founder, Tom Mackenzie, remain the hallmarks of our firm.
Upon this foundation we have, steadily and intentionally, built
leaders in architecture, interiors, engineering, and planning, focused on
delivering the highest level of design excellence in service to our clients.
This mark is our signature and our promise.

CONTENTS

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PROJECT TEAM

CITY OF STEVENSON FIRE DESIGN TEAM

- Leana Kinley, City Administrator
- Rob Farris, Fire Chief
- Karl Russell, Commissioner, Building Inspector, Fire Inspector, Water System Manager
- John Carlson, Skamania County, Department of Emergency Management

MACKENZIE

- Jeff Humphreys, Project Principal
- Cathy Bowman, Project Architect

SUBCONSULTANTS

- Ethan Spoo - BergerABAM
- Steve Gunn - Cost Estimator, CFI
- Greg Burr - Cost Estimator, CFI

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Introduction

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PROJECT INTRODUCTION

The Stevenson Fire Department is seeking to address serious issues at their existing Fire Station, built in 1967. The objective is to develop a facility to better meet their needs and goals; provide a more efficient operational model and layout; better align with the current space demand for the Fire Department; and allow for future prospective staff and facility growth. The improved facility will be located on a new site on the corner of SW Rock Creek Road and Foster Creek Road.

To aid the City of Stevenson with these efforts, the City selected Mackenzie to assist with an evaluation of the site conditions and work with Department staff to determine the operations-based needs.

Mackenzie, established in 1960 and based in Portland, Oregon, provides an integrated design approach to projects, including architecture, structural engineering, landscape architecture, civil engineering, land use planning, transportation planning and interior design services. Mackenzie's Public Projects team specializes in municipal and emergency response facility design, space needs evaluations, and bond campaign assistance. In the past decade, Mackenzie has worked on publicly funded projects in Oregon and Washington for more than 50 counties and municipalities, providing design and engineering services for more than 80 fire facilities, 20 police facilities and six municipal office buildings.

At the start of the design process, the goal was to develop a facility to meet the 50-year needs of the Fire Department and Skamania County's Department of Emergency Management. The validated facility program includes spaces identified in the Stevenson Fire Hall Strike Team Report for the Fire Department (completed in 2016), and ideally would also include the relocation of the Emergency Operations Center. This new facility is envisioned to be appropriately scaled and respectful of its surrounding site context and will be developed to meet the current and future needs of the Stevenson Fire Department.

The information contained within this report provides a detailed overview of Mackenzie's work with the City of Stevenson, Stevenson Fire Department, and Skamania County's Department of Emergency Management. All steps involved in this process have been documented and organized based on the associated task and are contained within the pages of this report for the City of Stevenson's consideration. Recommendations for next steps have been outlined at the end of the Executive Summary.

EXECUTIVE SUMMARY

Public facility design, specifically fire station projects, is unique in that the building and all its functions are tools required to most effectively and efficiently enhance agency operations and safety. Fire station design focuses on functionality and meeting the stringent requirements associated with protection and security of the building, its staff, and the communities they serve. Jurisdictional, state, and federal criteria for safety, security and operational procedures drive these requirements and invariably impact design considerations. These criteria ensure that this facility not only is able to improve operational efficiency on a day-to-day basis, but is capable of evolving over the life of the building, resisting and responding to emergency events, providing critical services for the citizens of Stevenson, enhancing the built environment of the surrounding area with a strong civic presence, and encouraging investment in the community.

The following report encompasses the primary tasks requested by the Stevenson Fire Department to determine the feasibility of a replacement facility for their Station in meeting the criteria stated above including:

1) Program Development

2) Visioning / Public Outreach

3) Plan Development

4) Conceptual Design

5) Project Cost Development

Process and Methodology

Mackenzie employed programming, communication, consensus-building, and goal-setting techniques to ensure that the final report meets the expectations of the stakeholders involved in the process. Using a multidisciplinary approach, extensive public project experience, and lessons learned on previous fire station and public building projects, the team provided architectural, structural, space planning, site planning and land use planning services to meet the project objectives and deliverables.

Mackenzie worked with the City of Stevenson and Fire Department staff to confirm the key stakeholders who needed to be involved throughout the design process and to support and strengthen dialogue between the Design Team and the City.

Task #1: Program Validation

Mackenzie worked closely with the Stevenson Fire Department staff and Department of Emergency Management to better understand the current space needs and projected those needs out based on a 20-year and 50-year growth forecast. The facility program was created using the previously completed Programming and Needs Assessment (2016), while incorporating comments from current Department staff. It includes circulation space and requirements for utilitarian areas, such as mechanical, electrical, and data room spaces; and a projection of growth with the expectation that the building will be in use for 50 years. It also includes identified site-related requirements (secure parking, visitor parking, staff patio area, recycling and trash enclosure, fueling, emergency generator, etc.).

Mackenzie guided the Fire Department through the process of space needs identification and their required space allocations. From that, the Design Team developed a program matrix that identified the required spaces, their approximate size, and amenities to be provided within them. Upon development of this document and prior to gaining Department staff approval, Mackenzie reviewed the findings with the Department to clarify any questions or comments brought up over the course of creating the matrix. During this review, as a comparison tool, Mackenzie also shared project information of similarly-sized fire facilities. The Stevenson Fire Department currently operates out of a 4,300 square foot station on First Street. It consists primarily of an apparatus bay (2 38-feet deep bays and 2 48-feet deep bays), a small meeting room, and a small storage area.

The initial 2013 program totaled 17,840 SF shared with Stevenson Fire Department, Department of Emergency Management, and Skamania Hospital District. After rigorous staff review with the City, Fire Department, and Department of Emergency Management, the facility size pared down to approximately 12,388 SF. As part of this calculation, the building square footage total includes an average 20% increase for general building circulation and interstitial space (i.e. wall thicknesses), which has been found to be a typical escalation for facilities of this type. As the design progressed past program validation, Mackenzie was able to optimize the building's circulation space and therefore bring down the total square footage to 11,800 SF. Projections for the site indicate a 20-year demand of 30 paved parking stalls for public and staff vehicles. Mackenzie further validated these identified growth projections and space needs through the use of comparable jurisdictions and newly constructed facilities in the region (see page 01-16 for trending spreadsheet).

Task #2: Visioning / Public Outreach

The next step was meeting with the stakeholder groups, including the Fire Hall Design Committee, to discuss the massing and aesthetics of the project through a series of public outreach to solicit community input. The community outreach was conducted at a city of Stevenson Fair booth where members of the community who have a vested interest in the aesthetics of the facility as well as fire staff who aren't active participants in the design meetings could vote on the aesthetics of the facility through precedent images.

Task #3: Plan Development

After programming had been confirmed, Mackenzie prepared a series of site development scenarios to evaluate the operational flow and larger programming adjacencies of the site and building. To allow for a comprehensive analysis, the Design Team advanced the two adjacency concepts that best met the functional needs of the department to illustrate in more detail the spatial adjacencies and relationships specific to the requirements of the Fire Hall. These concepts were developed to graphically represent programming functions and their relationships to each other while also taking into consideration department culture, work philosophies, and general circulation.

Mackenzie evaluated the site and building program with the Department and used it to identify the strengths and weaknesses of a few initial alternative concepts for the new facility. Preliminary site plans and floor plans were developed based on the information gathered during the programming task and reviewed with the Fire Department to obtain input on a selected scheme and required refinement.

Task #4: Concept Design

Based on the selected scheme and input that incorporates the massing and aesthetics identified in the visioning process, the Design Team developed conceptual site plans, floor plans, and elevations for the station. This was a collaborative process where the design team worked with the Department to refine the preferred scheme. The refined design enabled Mackenzie to establish a more accurate cost estimate in the next task.

Task #5: Project Cost Development

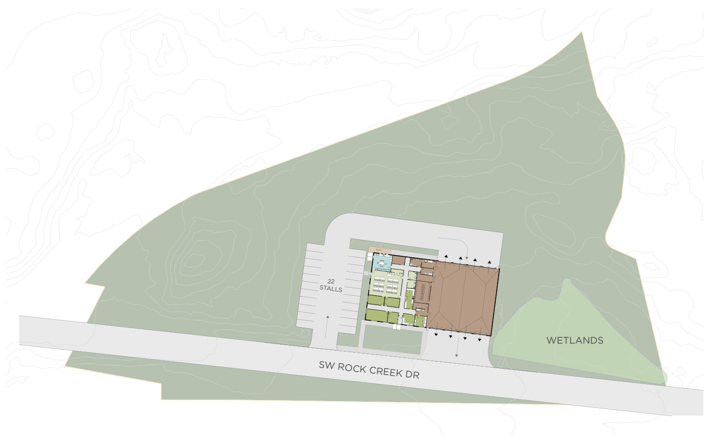
Based on the selected conceptual design, Construction Focus, Inc., developed an opinion of probable construction cost for the new Fire Hall and associated site development improvements for the project. These cost projections were comprised of the range of costs related to the anticipated raw construction costs and anticipated general contractor margins based on a publicly funded project requiring prevailing wage rates for construction.

In conjunction with the development of the construction costs, Mackenzie prepared cost forecasts for consultant costs, including architectural/engineering fees, construction management fees, special inspections, geotechnical inspections, etc. Additionally, Mackenzie worked with the Fire Hall Design Team to evaluate and compile potential owner costs, including fixtures, furnishings and equipment, lockers and shelving, moving costs, and applicable permit fees. A final cost matrix was prepared that provides a comprehensive look at all anticipated costs associated with the project summarized to reflect the construction cost, consultant costs, and owner costs.

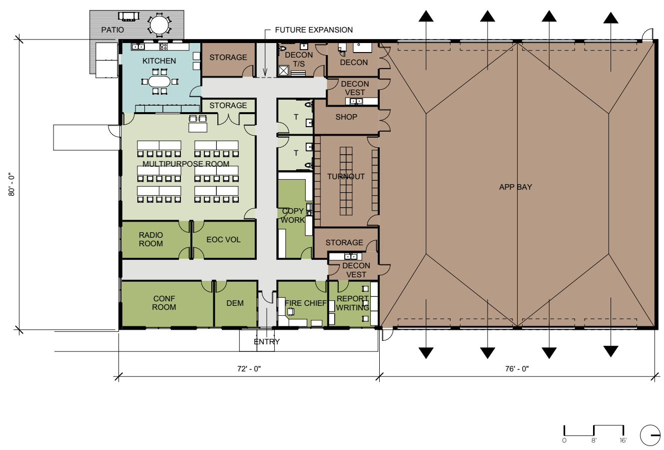
Stevenson Fire Hall		
Construction Cost - Building		$2,841,806
Construction Cost - On-Site		$916,103
Construction Cost - Off-Site		$83,820
Total Construction Cost		**$3,841,829**
Total Consultant Cost		**$905,363**
Total Owner Cost		**$172,045**
	LOW	**HIGH**
Contingency	$494,203	$1,072,847
Sales Tax (7.7%)	$333,874	$373,417
Total Project Cost Range	**$5,747,314**	**$6,300,406**

SUMMARY OF RECOMMENDATIONS

Our recommendation is for the Stevenson Fire Department to move forward with a replacement of the headquarters station promptly with a new facility that meets their operational and essential facility requirements.



Site Plan



Floor Plan

NEXT STEPS

- **Establish a desired time line and budget for the project:**

  Based on the findings of Mackenzie's analysis, it is determined that the overall projected costs of the project as described in this report are estimated to be between $5,747,314 and $6,300,416. It is encouraged that the Department agree on an expectation of project costs and schedule development to provide clear direction to those that represent the Department and their consultants.

- **Determine funding mechanism:**

  Confirm the funding mechanism(s) the Department expects to pursue to complete the project. Once determined, the Department should assess the financial impact, if any, to the local community in comparison to previous voter approvals, and the timing for pursuing the selected funding mechanism.

- **Begin the Public Outreach/Campaign Process:**

  Begin the process of presenting the need for the project to local community. This effort should entail community visioning sessions to allow attendees to observe the condition of the existing station, as well as presenting the findings of the Needs Assessment process. A process for outreach to local community organizations and private business with an interest in the project should be developed and executed. Provide consistent updates and feedback to the community to ensure that the message reaches as many people as possible. Identify advocates for your project and solicit their participation in the assembly of a Public Advisory Committee (PAC). This committee should be comprised of local community members, either active in, or supportive of the needs of the City of Stevenson and the Stevenson Fire Department.

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Program Development

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PROGRAMMING SUMMARY

Mackenzie began the programming effort by working closely with Stevenson Fire Department staff to review the previously completed Fire Hall Programming and Needs Assessment (2013). Using a combination of this document and past experience with fire facilities, all while incorporating current staff feedback, Mackenzie determined current space needs and forecast future needs that will accommodate Department functions for the next 20 years, and beyond.

The initial 2013 program totaled 17,840 SF and after rigorous staff review, the Fire Department pared down the facility size to 12,338 SF - all while retaining the necessary spaces for functionality. Mackenzie has developed space standards (see pages 01-11 to 01-13) that are used to organize and indicate the spaces and sizes typically required by a fire facility of this size.

As previously mentioned, completion of the space needs assessment indicated a total requirement of 12,338 SF of building area, with a total of 4,674 SF that is comprised of the apparatus bay and its support functions. As part of the calculation, the building square footage requirement includes a 20% increase for general building circulation and interstitial space (i.e. wall thicknesses), which has been found to be an average escalation for facilities of this type.

	Square Footage at Move-In
Apparatus Bay and Support	4,674 SF
Living Quarters	2,148 SF
Administration and Building Support	1,662 SF
Community	1,798 SF
Total (Includes 20% circulation)	**12,338 SF**

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City of Stevenson Fire Hall, WA 9/13/2018

Space / Room Use	Staffing Requirements			Space Requirements			Space Size			Room Type	Total Required Square Footage			Comments
	Exist	2018	2038	Exist	2018	2038	W	L	Area		Exist	2018	2038	
City of Stevenson Fire Hall, WA														
Apparatus Bay and Support Rooms												4,674	4,674	
Administration and Support												1,662	1,662	
Living Quarters												2,148	2,148	
Community / Training Rooms												1,798	1,798	
														Acres
SUBTOTAL												10,282	10,282	
GENERAL CIRCULATION (20%)												2,056	2,056	
TOTAL BUILDING SQUARE FOOTAGE											4,320	12,338	12,338	0.28
TOTAL EXTERIOR REQUIREMENTS												44,704	44,704	1.03
TOTAL SITE REQUIREMENTS												57,042	57,042	1.31

PREVIOUS SQUAREFOOTAGE ASSUMPTIONS	
Existing Fire Station	4,320
2016 Fire Hall Study	11,000
Mackenzie Assessment (9/11/18)	12,338

City of Stevenson Fire Hall, WA 9/13/2018

Space / Room Use	Staffing Requirements			Space Requirements			Space Size			Room Type	Total Required Square Footage			Comments
	Exist	2018	2038	Exist	2018	2038	W	L	Area		Exist	2018	2038	
Apparatus Bay and Support Rooms														
Apparatus Bay														
Apparatus Bay					4	4	14	70	980			3,920	3,920	*4 double deep apparatus bay, 14'x14' overhead doors, exhaust ventilation system, required clearnace per WAC*
Group Total												3,920	3,920	
Apparatus Support Rooms														
Turnouts					1	1	18	22	396			396	396	*(30) Lockers @ 24" wide; Open Lockers*
Decontamination					1	1	10	12	120			120	120	*Floor Sink, Eyewash, Stainless steel counter & sink, extractor, hooks for drying*
Equipment Supply/General Storage					1	1	6	8	48			48	48	*Truck cleaning supplies; flares; chains;2x4 Fire/Hazmat locker; etc.*
Shop					1	1	10	11	110			110	110	*Tools and workbench & compressed air (FUTURE BUILD OUT)*
Decon - Unisex Toilet/Shower Room					1	1	8	10	80			80	80	*Include Decon shower, can be combined with Decon Room*
Fire Riser					1	1	0	0	0			0	0	*In Apparatus Bay*
Mezzanine					1	1	0	0	0			0	0	*Above Support Rooms; Accessed by Fork Lift; Additional Storage (Wish list) compressor/storage if mezzanine is built out*
Group Total												754	754	
TOTAL SQUARE FOOTAGE *(Apparatus Bay and Related Rooms)*												4,674	4,674	

City of Stevenson Fire Hall, WA 9/13/2018

Space / Room Use	Staffing Requirements			Space Requirements			Space Size			Room Type	Total Required Square Footage			Comments
	Exist	2018	2038	Exist	2018	2038	W	L	Area		Exist	2018	2038	
Administration and Support														
Fire Administration														
Fire Chief's Office	1	1	1		1	1	10	14	140	OFFICE		140	140	*Desk, credenza, guest seating for 2, windows*
Training Officer/Report Writing	1	1	1		1	1	12	16	192	OPEN		192	192	*(3) Workstations (Sit/Stand) / Report Writing / Radio Charging Station*
Fire District Office - District Secretary	1	1	1		1	1	8	10	80	OFFICE		80	80	*Workstation and file storage area*
Secure Storage					1	1	3	6	18	SECURE		18	18	*Secure storage for billing, personnel, payroll, open storage for office supplies, etc.*
Group Total	3	3	3									430	430	
DEM/EOC Administration														
DEM Coordinator	1	1	1		1	1	10	14	140	OFFICE		140	140	*Desk, table, multi guest seating, filing cabinets, white board*
Radio Room/Alternative PSAP					1	1	15	20	300	OFFICE		300	300	*Radio operator room, storage of all high frequency radios, secure room, noise filter, (3) workstations*
EOC Staff (volunteer)		6	8		1	1	12	16	192	OPEN		192	192	*Drop in Workstations, file storage, white board,*
EOC Secure Storage					1	1	8	10	80	SECURE		80	80	*EOC Storage to be accessible from the multi-purpose room*
Group Total	4	10	12									712	712	
Building Support														
Work / Supply / Copy / Mail / Breakroom /Kitchenette					1	1	10	16	160	OPEN		160	160	*Volunteer mail boxes, bulletin board for postings; Adjacent to entry; Copy/fax machine; plotter; supply cabinet; open area that flows with a large island or counter space and additional storage. Kitchenette to include fridge, microwave, coffee maker, and sink*
Conference Room					1	1	16	16	256	CLOSED		256	256	Table and Seating for 8; double as incident response planning room for EOC/DEM.
Electrical / Data (IT)					1	1	8	10	80			80	80	
Mechanical									0			0	0	*On Roof / Attic Space*
Janitor Closet					1	1	4	6	24			24	24	*Close to Toilets & Kitchen*
Group Total												520	520	
TOTAL SQUARE FOOTAGE *(Administration and Building Support)*												1,662	1,662	

City of Stevenson Fire Hall, WA 9/13/2018

Space / Room Use	Staffing Requirements Exist	Staffing Requirements 2018	Staffing Requirements 2038	Space Requirements Exist	Space Requirements 2018	Space Requirements 2038	Space Size W	Space Size L	Space Size Area	Room Type	Total Required Square Footage Exist	Total Required Square Footage 2018	Total Required Square Footage 2038	Comments
Living Quarters														
Living Quarters														
Bunk Rooms					3	3	10	12	120	CLOSED		360	360	*Bed with nighstand; exterior window for egress (FUTURE BUILD OUT)*
Restroom/Shower					1	1	10	10	100	CLOSED		100	100	*Unisex - the decon toilet/shower room to be close to future bunk rooms for use as additional toilet shower room*
Kitchen/Day Room/ Dining					1	1	24	40	960	OPEN		960	960	*(1) Dishwasher, Fridge, Range, Double Oven, Coffee Maker, etc. shift pantry; Great Room. (FUTURE BUILD OUT) - Kitchen to be shared between the multi-purpose/training room and Living Quarters.*
Laundry Room					1	1	8	10	80	CLOSED		80	80	*1 washer / 1 dryer - mop sink and utility sink*
Fitness					1	1	20	30	600	CLOSED		600	600	*(FUTURE BUILD OUT)*
General Storage					1	1	6	8	48			48	48	*Shelves both sides (FUTURE BUILD OUT)*
Group Total												2,148	2,148	
TOTAL SQUARE FOOTAGE *(Living Quarters)*												2,148	2,148	

Space / Room Use	Staffing Requirements Exist	Staffing Requirements 2018	Staffing Requirements 2038	Space Requirements Exist	Space Requirements 2018	Space Requirements 2038	Space Size W	Space Size L	Space Size Area	Room Type	Total Required Square Footage Exist	Total Required Square Footage 2018	Total Required Square Footage 2038	Comments
Community / Training Room														
Community / Training Room														
Entry / Lobby					1	1	8	10	80			80	80	
Training / Multi-Purpose Room					1	1	36	40	1440			1,440	1,440	*Accommodate 40x people / Conference table and chairs / Video conferencing with A/V capabilities / EOC / Adjacent to EOC training storage / adjacent to kitchen / adejcent to conference room or proximity*
Training Storage					1	1	10	15	150			150	150	*Table / Chairs*
Public Restrooms					2	2	8	8	64			128	128	*ADA compliant*
Group Total												1,798	1,798	
TOTAL SQUARE FOOTAGE *(Community / Training Rooms)*												1,798	1,798	

City of Stevenson Fire Hall, WA 9/13/2018

Space / Room Use	Staffing Requirements			Space Requirements			Space Size			Room Type	Total Required Square Footage			Comments
	Exist	2018	2038	Exist	2018	2038	W	L	Area		Exist	2018	2038	
Exterior Requirements														
Parking														
Visitor/Personnel Parking					30	30	9	18	162			4,860	4,860	*Combined Staff and Visitory Parking*
Group Total					30	30						4,860	4,860	
Site Elements														
Apparatus Bay Aprons					10	10	15	40	600			6,000	6,000	*Either side if Drive-Thru Bay*
Flag Pole					1	1	4	4	16			16	16	*Flag Pole area with small gathering space*
Generator					1	1	8	12	96			96	96	*Dual Fuel - Natural Gas/Diesel or Propane/Diesel to back up entire building*
Trash / Recycling					1	1	6	3	18			18	18	*Store roll out carts*
Ground Maintenance Equipment Storage					1	1	9	10	90			90	90	*Lawn mower, weed eater, power washer, exterior door (Wish List)*
Patio					1	1	8	12	96			96	96	*Gas grill, covered*
Group Total												6,316	6,316	
SUBTOTAL												11176	11176	
GENERAL CIRCULATION (300%)												33528	33528	
TOTAL SQUARE FOOTAGE *(Exterior Requirements)*												44704	44704	

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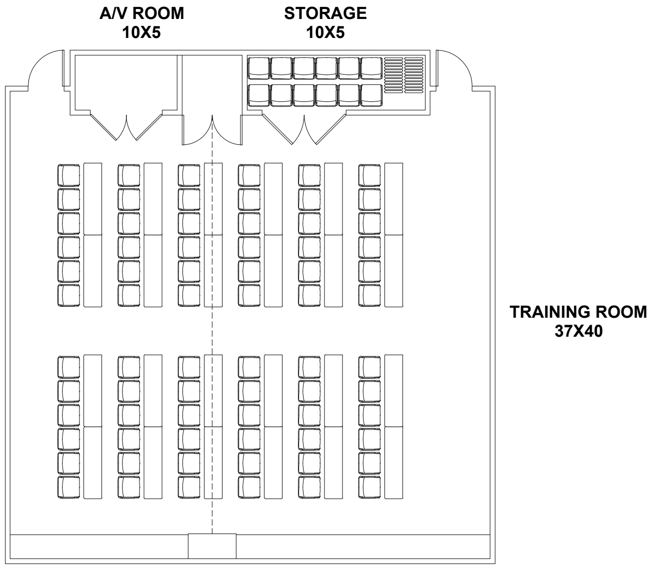
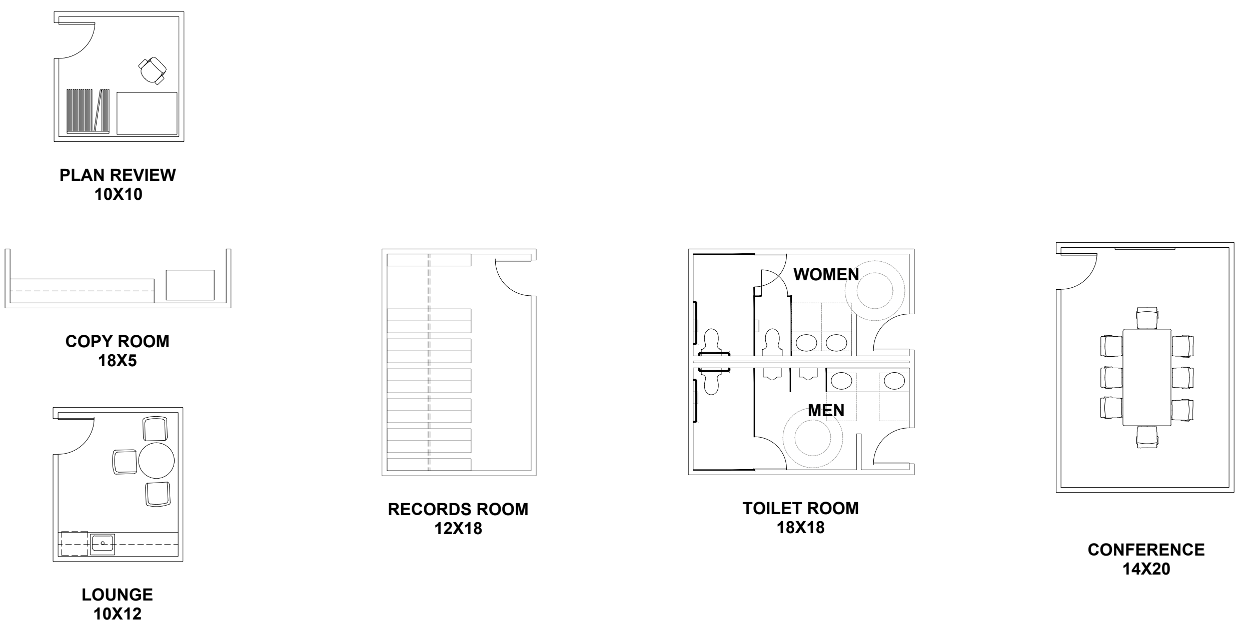
SPACE STANDARDS

- Based on existing emergency response facilities, past experience, and general architectural standards, space standards have been developed and depicted to aid in efficiently comparing space sizes for offices, support spaces, and primary functions unique to this particular type of facility, a fire station.
- These space standards have been utilized in the development and validation of identified program elements.

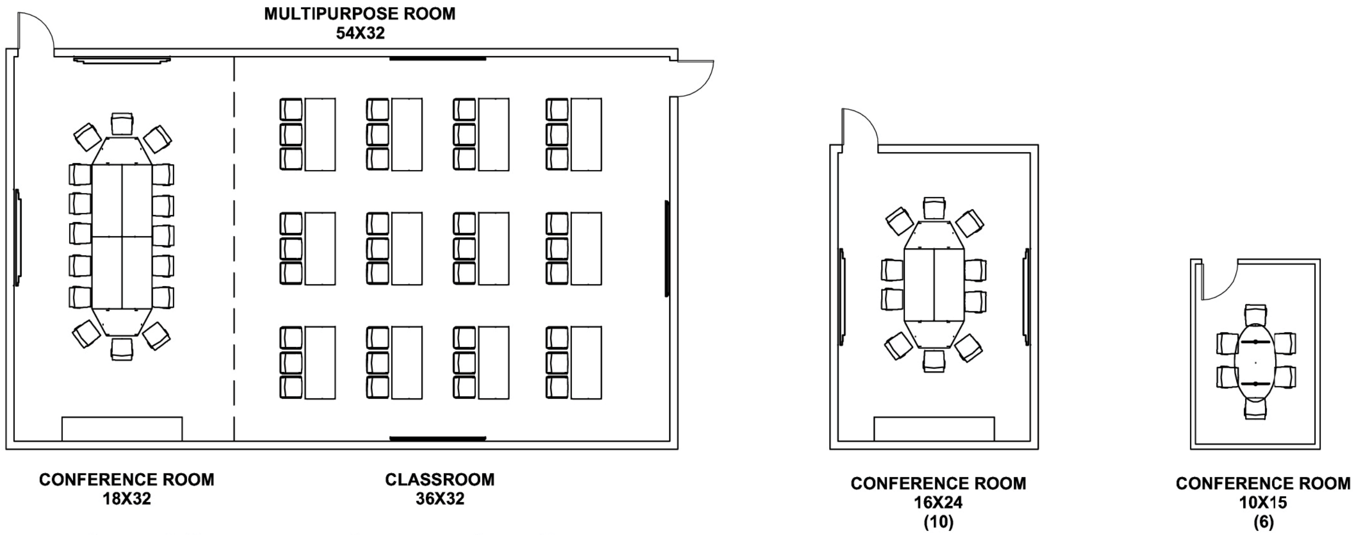


SHARED ROOM LAYOUTS

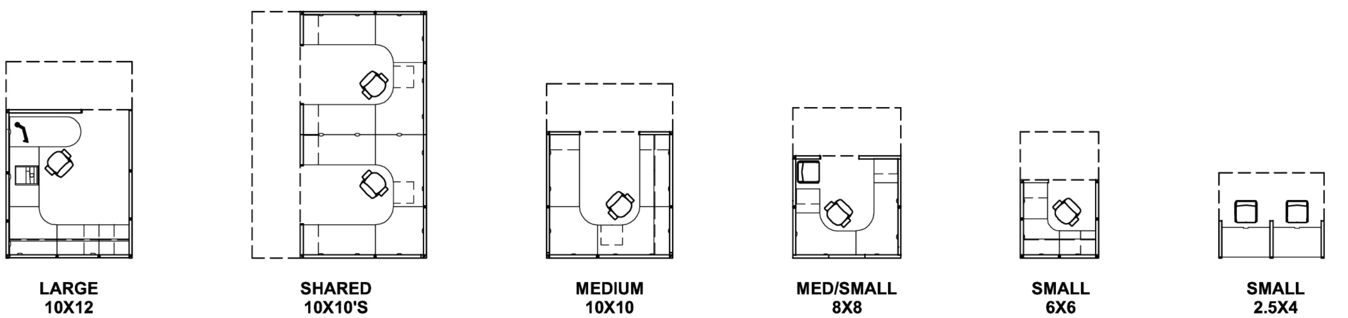


TYPICAL OFFICE SUPPORT ROOM LAYOUTS

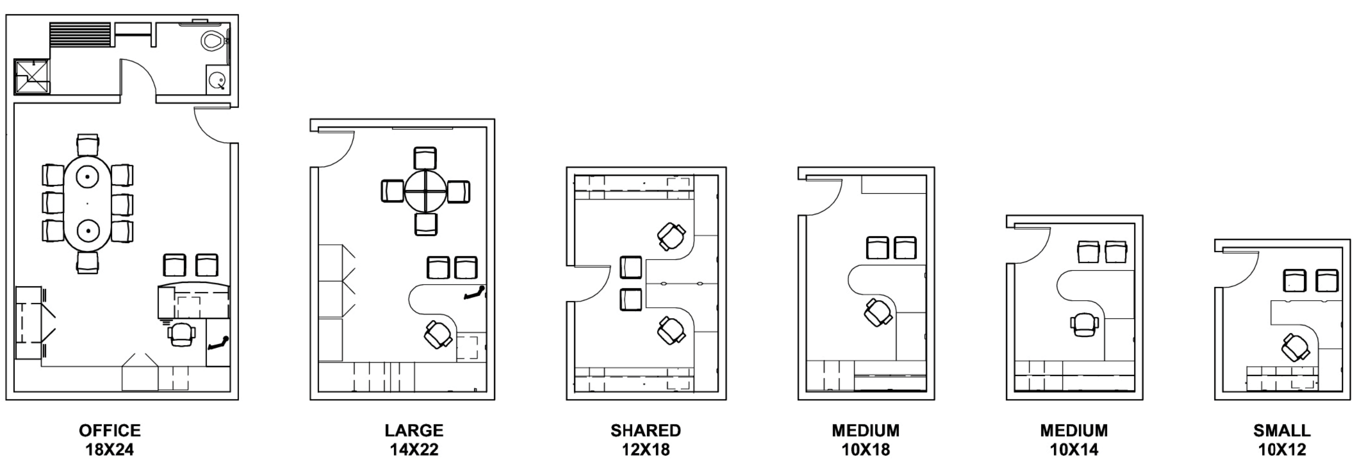
Scale 1/16” = 1’-0”



TYPICAL CONFERENCE LAYOUTS

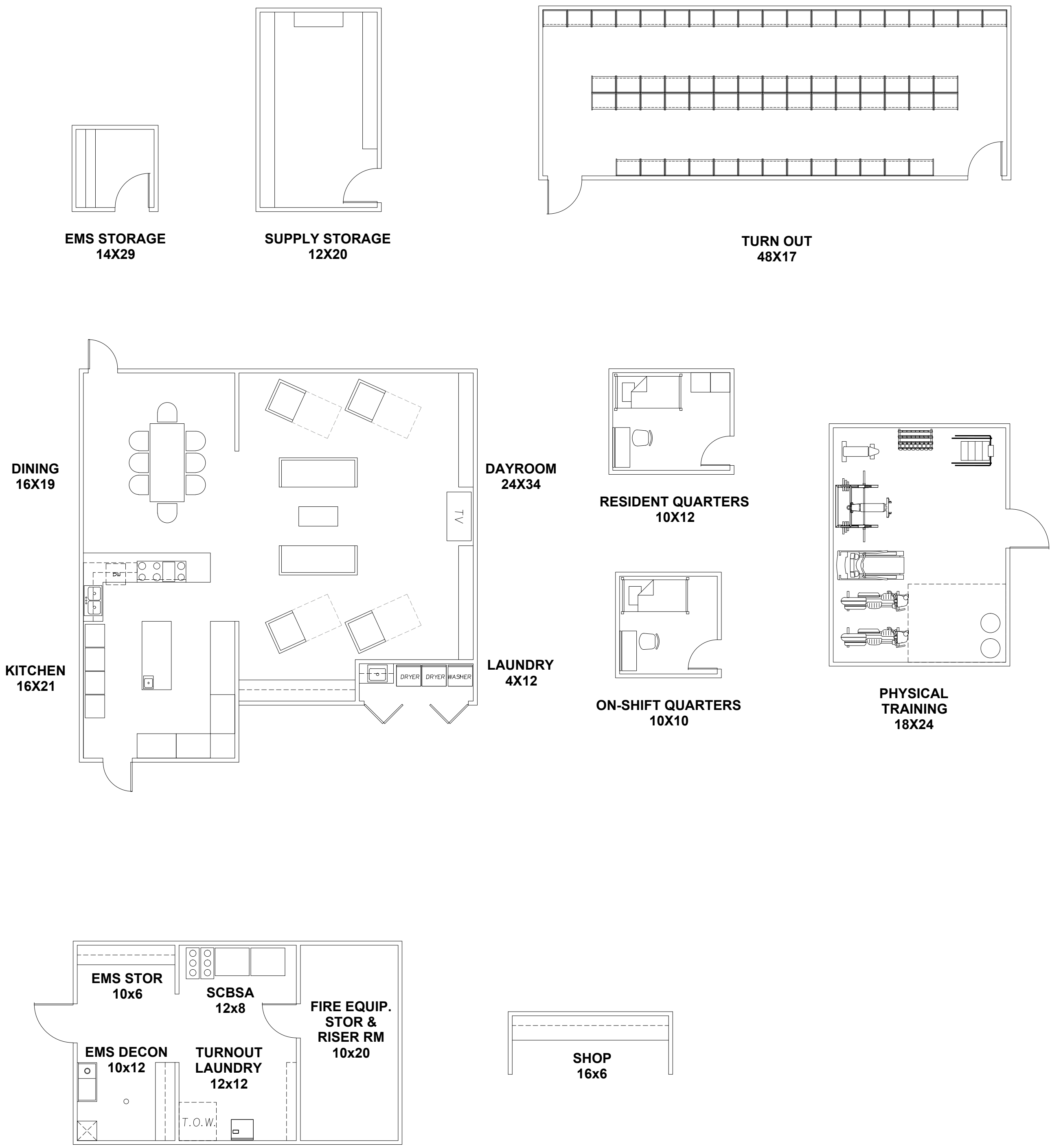


TYPICAL CUBICLE LAYOUTS



TYPICAL OFFICE LAYOUTS

Scale 1/16” = 1’-0”



TYPICAL APPARATUS BAY SUPPORT ROOM LAYOUTS

Scale 1/16” = 1’-0”

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PRECEDENT FACILITIES

Facility Comparisons

The following chart on pages 01-16 and 01-17 presents a comparison of Stevenson Fire Hall to other fire station facilities to both illustrate differences and show commonalities among them.

Individual fire station programs, and thus space needs, can vary greatly due to a number of factors, including:

- Primary function(s) of the station.
- Number of staff on duty or housed in the facility.
- Department/district structure.
- Staffing approach (e.g., volunteer, career, combined).
- Unique or specialized elements (e.g., resident program, EMS, water rescue, training elements).

Differences among these elements impact the layout and size of a facility and make direct, apple-to-apple comparisons between stations challenging. The size of the apparatus bay—driven by the quantity and type of equipment it houses—is a key variable in station size. For example, a single fire station may be responsible for responding to commercial and residential structure fires, wildland fires, or water rescue calls, with specialized rigs to respond to these varying emergency needs. The presence of ladder trucks, as an example, will necessitate a greater bay depth than is typical. There may be the need for tender rigs if the department serves an area without hydrants; the greater the extent of that area the larger the number of required tender rigs may be.

The rooms and support functions off the apparatus bay will vary correspondingly in size and quantity to meet the service and support needs of the specific rigs housed in the facility. The size and makeup of the staff will, in turn, drive the size and layout of the administrative areas and living quarters. The more staff on duty at one time, the greater the needed quantity of bunk rooms, showers and toilets and the larger the day room, kitchen and dining areas will likely be. The ways in which a department interacts with the public will also influence station size. For example, a rural district providing preliminary triage or basic medical screening and care will require facilities that a station without these services would not.

FACILITY COMPARISON

PROJECT	N. LINCOLN ROSE LODGE STATION	DUNDEE FIRE & RESCUE
LOCATION	Lincoln City, OR	Dundee, OR
YEAR COMPLETE	Remodel 2018	2014
SITE SIZE	0.69 acres	1.5 acres
APPARATUS BAY	3,257 sf	8,184 sf
LIVING QUARTERS	0 sf	2,850 sf
ADMINISTRATION	789 sf	2,797 sf
PUBLIC	0 sf	1,574 sf
TOTAL SQ. FT.	4,046 sf	17,623 sf †
RESIDENT PROGRAM	YES	YES
BUNK ROOMS	0	4
RESPONSE AREA	80 sq. mi	13 sq. mi
POPULATION SERVED	12,000	5,500
QUANTITY OF STATIONS IN DISTRICT	6	1
STAFFING	Volunteer	Career/Volunteer
STATION TYPE	Satellite	Headquarters

* Response Area is not reflective of surrounding rural areas for EMS.

CLARK COUNTY FIRE STATION 62	MCKENZIE FIRE	VANCOUVER FIRE STATION 2
Vancouver, WA	Leaburg, OR	Vancouver, WA
Remodel 2018	2013	2018
2.03 acres	0.99 acres	2.15 acres
3,979 sf	5,237 sf	6,003 sf
1,758 sf	284 sf	4,488 sf
1,334 sf	3,268 sf	1,212 sf
98 sf	94 sf	750 sf
7,169 sf	11,031 sf	13,350 sf
YES	YES	YES
3	3	10
37 sq. mi	35 sq. mi	91 sq. mi
69,000	9,000/12,000 (tourist/yr)	246,000
4	5	10
Career/Volunteer	Career/Volunteer	Career/Volunteer
Satellite	Headquarters	Satellite

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Visioning/Public Outreach

2

PUBLIC OUTREACH

Columbia Gorge Interpretive Center A1

Skamania Lodge A2

Consumer Power Initiative - Mackenzie A3

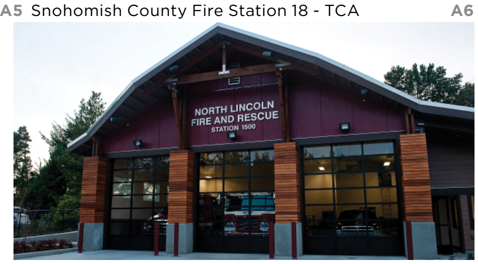
Cascade Locks Fire Station A4

Rock Cove Assisted Living A5

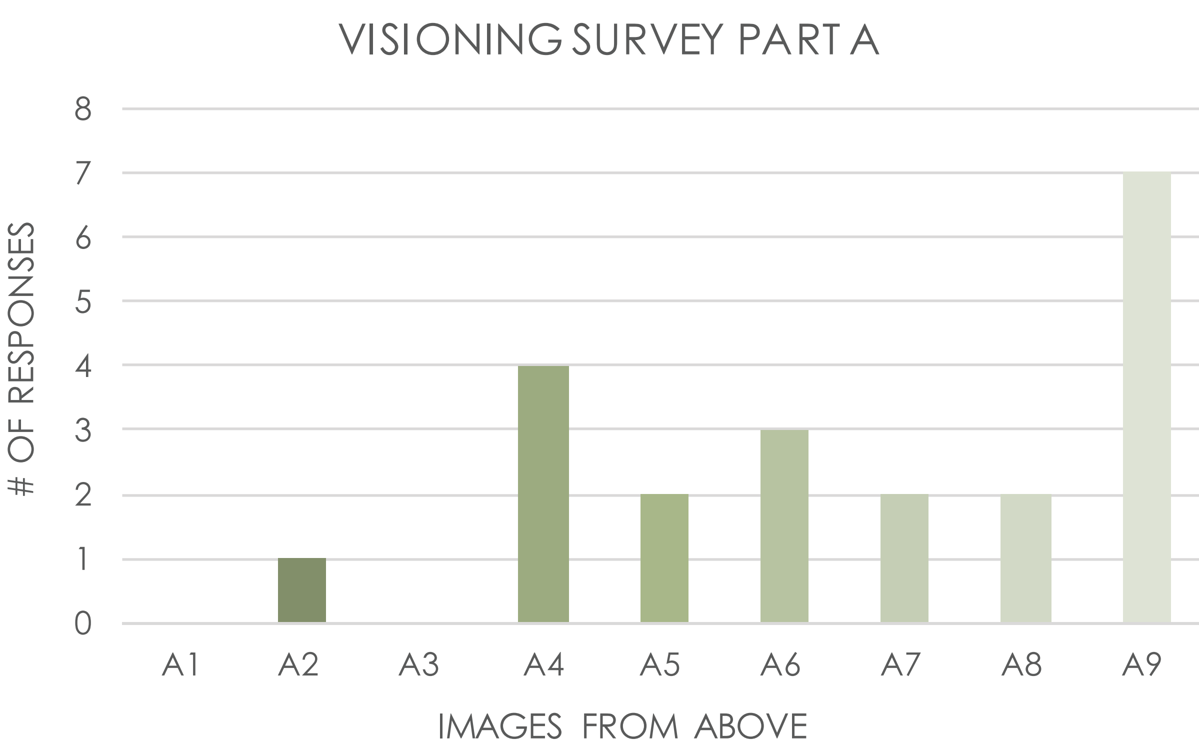
Snohomish County Fire Station 18 - TCA A6

Gresham Fire Station 76 - Hennebury Eddy A7

Roanoke Island Fire Department A8



NLFR - Delake Station - Mackenzie A9




Stevens County Station 8 - Mackenzie B1


McKenzie Fire Leaburg Station - Mackenzie B2


Canby Utility - Mackenzie B3


Salem Fire Station 7 - Mackenzie B4


Vancouver Fire Station 2 - Mackenzie B5

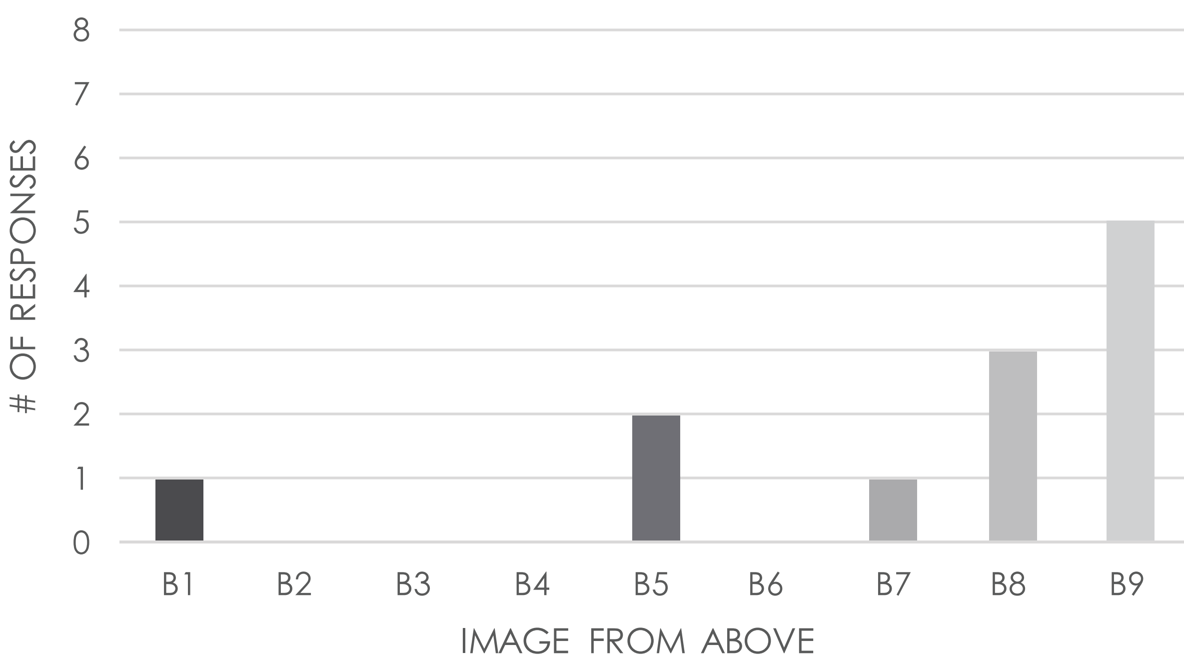

Montrose Fire Protection District Station 2 B6

Hood River Fire Station - Mackenzie B7


Snohomish County Fire Station 21 - TCA B8


SHED - Jensen Architects B9

VISIONING SURVEY PART B



VISIONING IMAGERY

PNW STYLE

North Lincoln Fire and Rescue Delake Station
MACKENZIE

Vancouver Fire Station 2
MACKENZIE

AFFORDABILITY

Rock Cove Assisted Living

WARM AND RUSTIC

Snohomish County Fire Station 21
TCA

Cascade Locks Fire Station

Snohomish County Fire Station 18
TCA

Shed
JENSEN ARCHITECTS

CONSTRUCTABILITY

Hood River Fire Station
MACKENZIE

LOW LIFE-CYCLE COST

Roanoke Island Fire Department
PREMIERE CONTRACTING

The preferred images from the public visioning meeting were compiled here to represent the vision of the new Fire Hall. These precedent projects were utilized to aid in the development of perspectives of the building in the following concept design section of this report.

In additional to taking note of building elements such as materiality, amount of transparency, and scale, it is also important to incorporate design ideas early on in the process about the surrounding site in which the building resides. When considering the nature of the Fire Hall site, its history, and the anticipated use by the Fire Department, it is important to closely examine and understand the outside environment and the community in which the building will reside within.

The Fire Hall site provides opportunities for shared open space. The incorporation of gathering space of all varieties is important, whether as a group or for an individual. As the building will be a pre-engineered metal building structural system, the massing will be simple, yet functional.

- Utilize local PNW style and materials.
- Reflect character of Stevenson while incorporating modern elements.
- Ease of constructability and affordable to the community.
- Support the existing neighborhood fabric.
- Create warm and inviting space.

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Plan Development

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PLAN DEVELOPMENT

Fire station facilities are unique in that the relationships of all elements are closely linked to the ability of the fire department to efficiently and effectively serve the community. Having an understanding of the relative sizes, proximity, and relationships between spaces is key. In conjunction with developing the space-needs program (see Section 1) for the Stevenson Fire Hall, Mackenzie prepared a series of site development scenarios to evaluate the operational flow and larger programmatic adjacencies of the site and building. To allow for a comprehensive analysis, the Design Team advanced the two adjacency concepts that best met the functional needs of the Department. These block diagram concepts were developed to graphically represent programming functions and their relationships to each other while also taking into consideration department culture, division work philosophies, and general circulation.

The initial site development scenarios (page 03-07) looked at locating the Apparatus Bay in line with SW Rock Creek Rd to provide easily accessible drive-thru bays with access onto SW Rock Creek Rd. The options subsequently compared the position of the living quarters, administrative functions, and community spaces in relationship to the Apparatus Bay as well site access and parking (both staff and public parking).

When evaluating these options, a key criteria that was considered was "turnout time": how fast emergency response staff can get from where they are located in the facility to the Apparatus Bay when a call comes in. The adjacency diagrams (pages 04-08 and 04-09) and block diagrams (pages 03-08 through 03-09) specifically looked at separation of operational traffic flow and public traffic, access points to the site, apparatus turning radius, and the sequence of entry for the public.

While the adjacency and block diagrams were developed based on the relative sizes of each programmatic element, expectations of proximity, and general anticipation of building circulation; further development of the site and floor plans took into consideration many additional aspects of the context. Some examples of these aspects include building orientation, site elements (i.e. public vs. secure parking; site access points; public plaza space); zoning restrictions, and overall impact on the neighborhood. The selected site and floor plans (pages 03-10 through 03-11) reflect more refinement and development to meet Department expectations - honing in on programmed square footages, increasing efficiencies, and anticipating future growth.

1

Skamania Lodge

2

Rock Cove Assisted Living

3

Downtown Stevenson

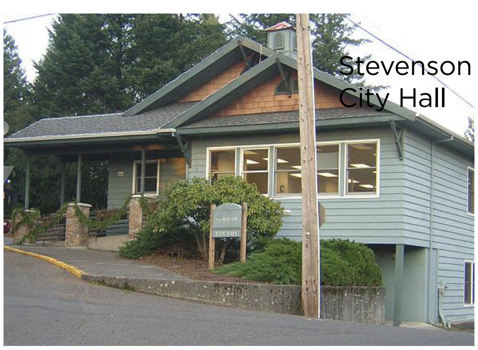
4

Bridge of the Gods

5

Columbia Interpretive Center

6

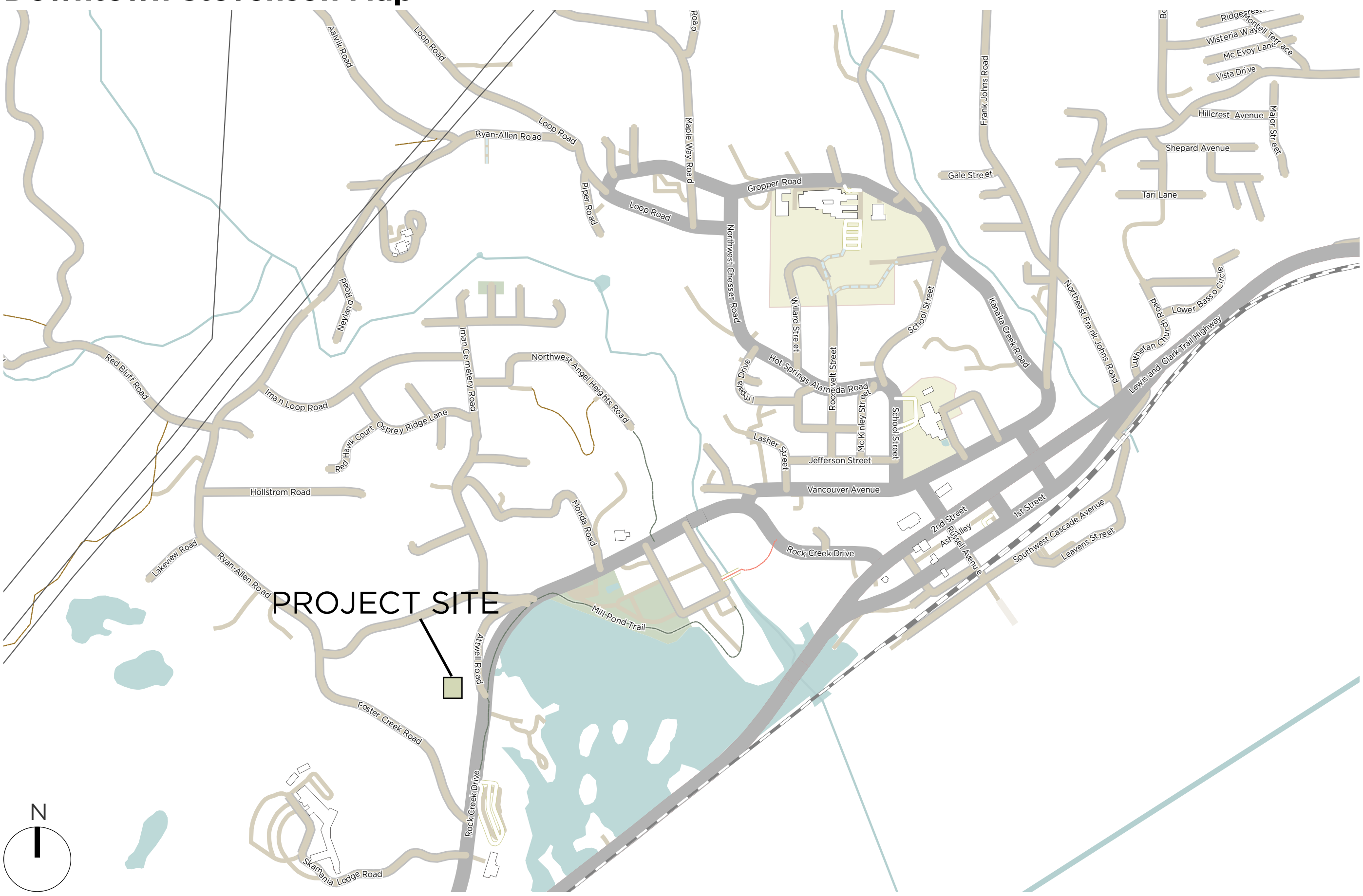


Stevenson City Hall

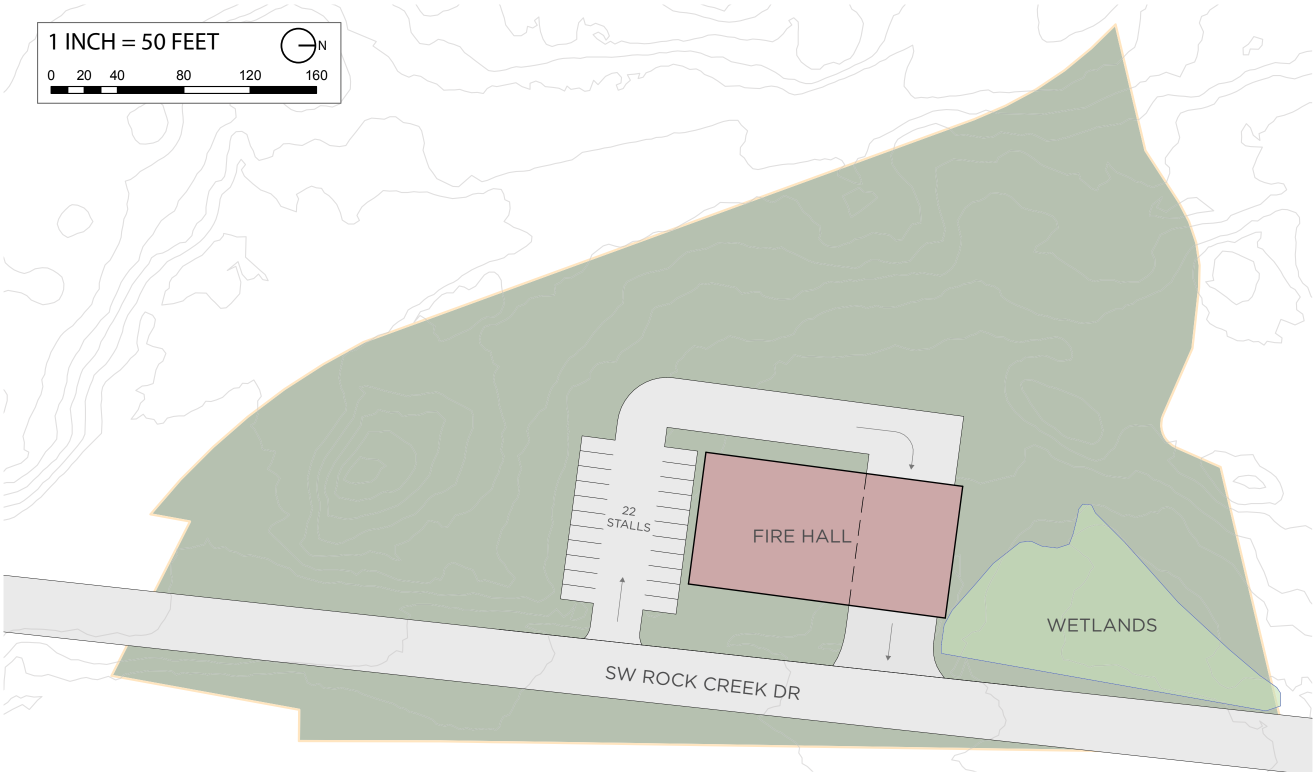
SITE ANALYSIS

The new fire facility will be located on the corner of SW Rock Creek Road and Foster Creek Road. It is located across the street from the Columbia Gorge Interpretive Center. Mackenzie spent time on and around the site observing and photographing the surrounding buildings and context in order to better understand how best to design a new fire station well-suited Stevenson, Washington.

Downtown Stevenson Map



SITE DEVELOPMENT SCENARIOS



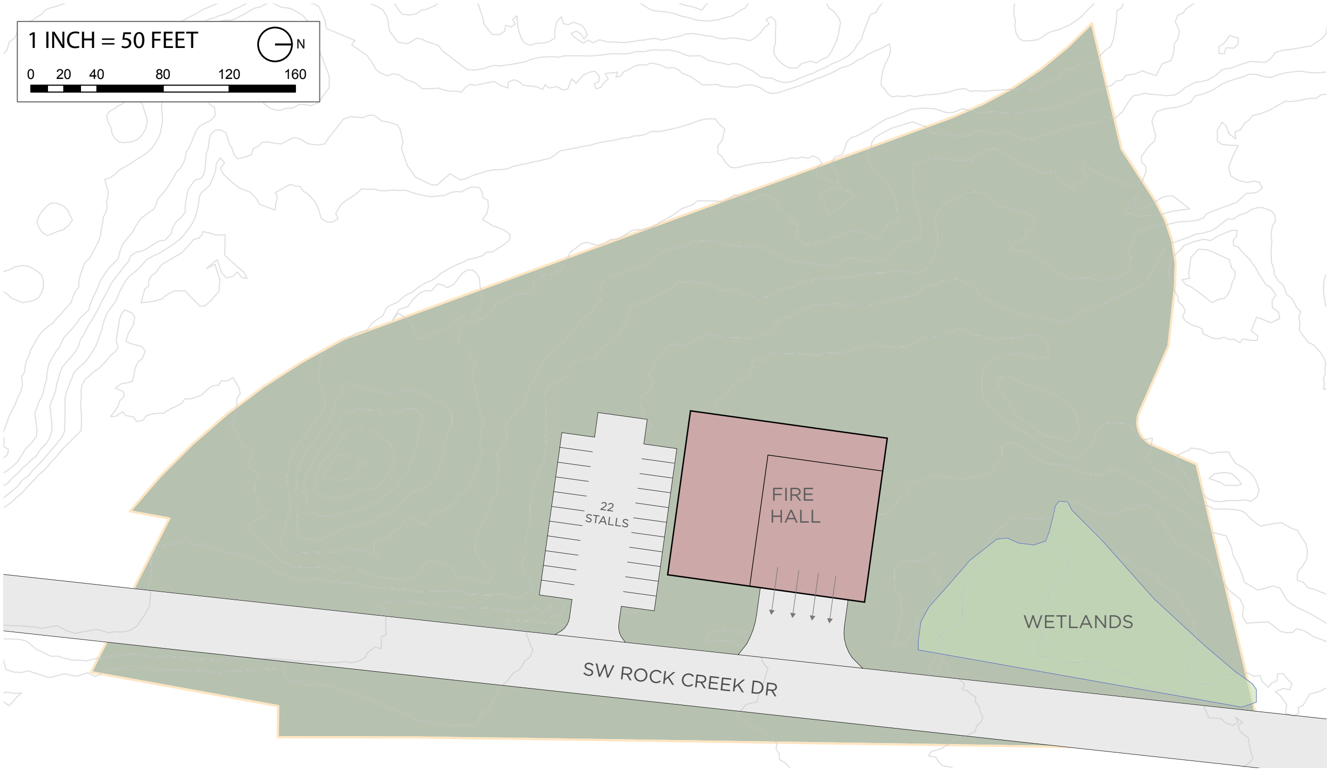
SITE OPTION A

Advantages

- Drive through bays.

Disadvantages

- Very close to the wetlands.
- Majority of the building facade faces West or East, which presents challenges with controlling glare and heat gain.



SITE OPTION B

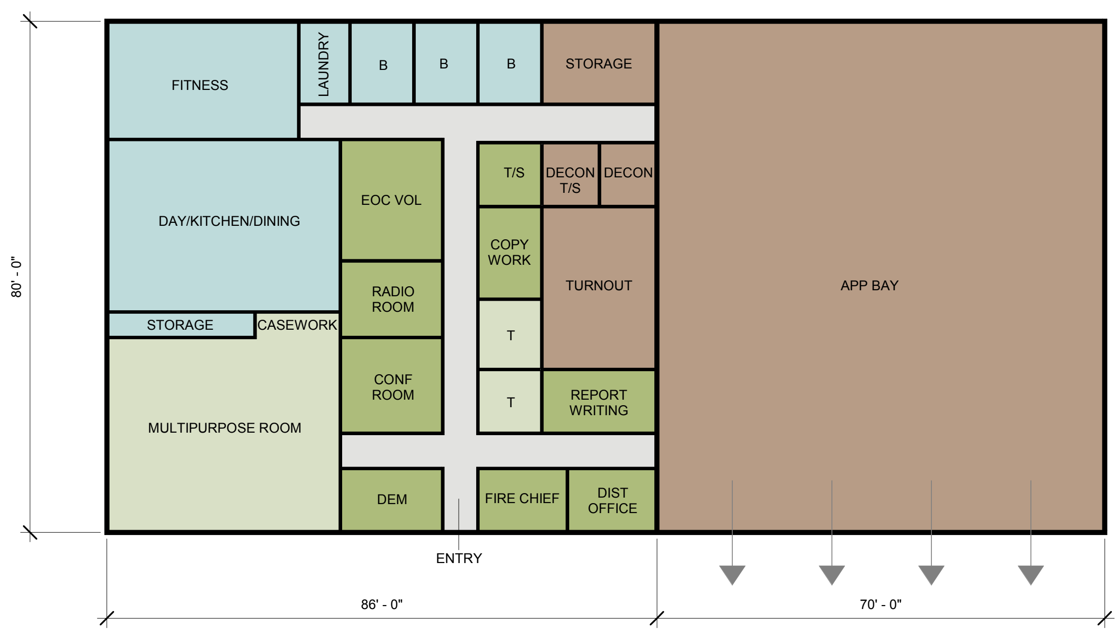
Advantages

- Optimal interior operational flow.

Disadvantages

- 70% of the building facade faces west or east, which presents challenges with controlling glare and heat gain.
- Challenging massing configuration due to square nature of the building
- Back in bays.

BLOCK DIAGRAMS

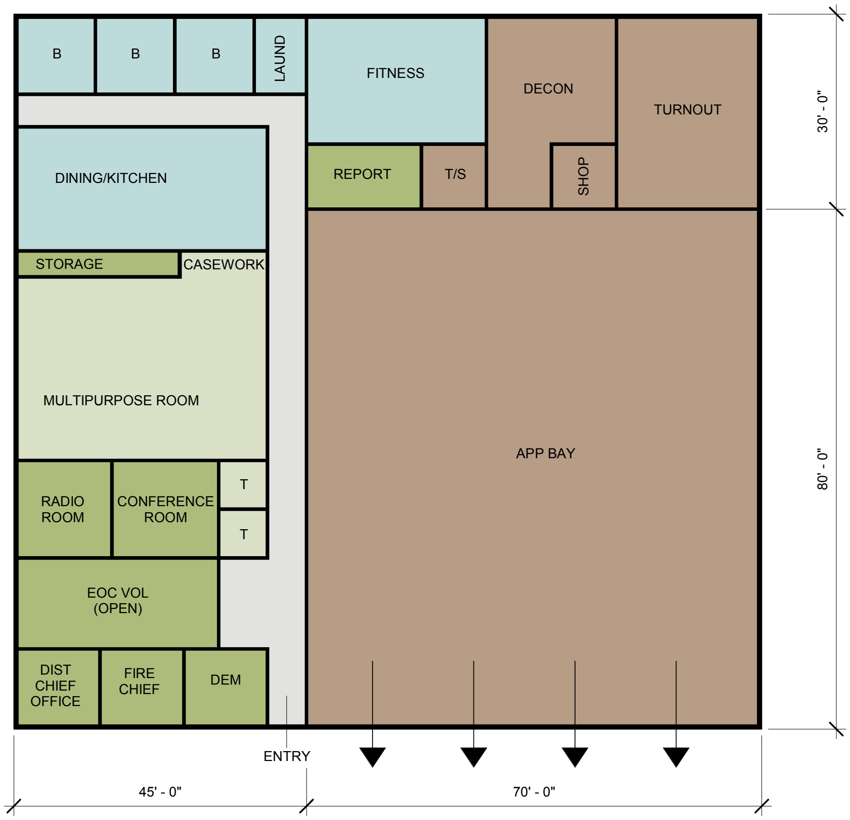


N

1" = 30'-0"

BUILDING OPTION A

Apparatus Bay and Support	6,318 SF
Living Quarters	2,019 SF
Administration and Building Support	1,494 SF
Community	1,322 SF
Total (Includes 20% circulation)	**11,153 SF**



N

1" = 30'-0"

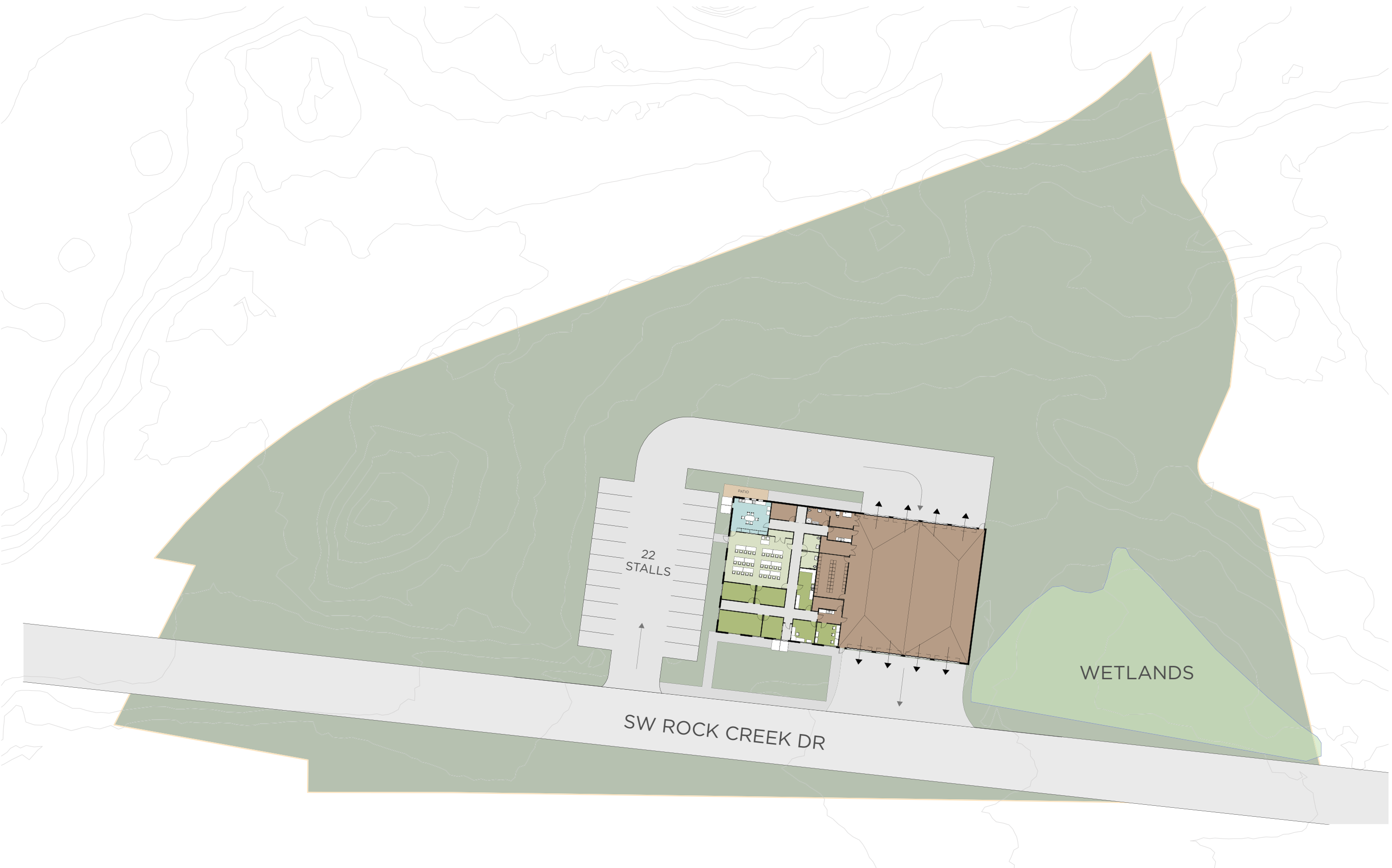
BUILDING OPTION B

Apparatus Bay and Support	6,748 SF
Living Quarters	1,726 SF
Administration and Building Support	1,372 SF
Community	1,213 SF
Total (Includes 20% circulation)	**11,059 SF**

SITE PLAN

A modified Option A was selected by the Department as the preferred adjacency and site plan.

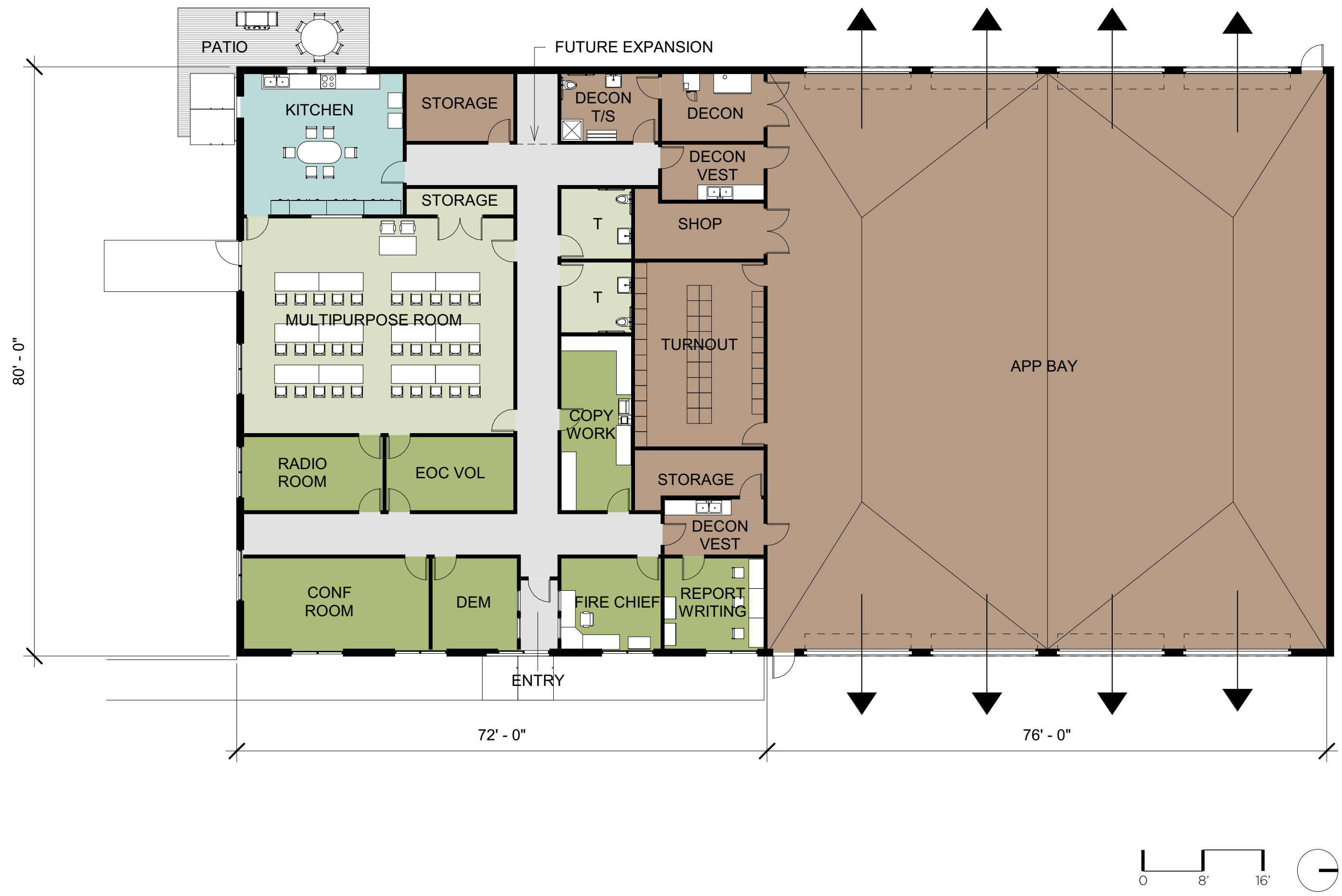
The approved site plan and floor plans were developed based on feedback received during review of the preliminary site plan options and block diagram schemes. During this discussion, additional site elements were identified and the plans were further refined to meet Department expectations, honing in on programmed square footages, increasing efficiencies, and taking into consideration future growth.



Site Summary

Total Site Area:	69,900 SF
Shared Parking:	30 Stalls

SELECTED PLAN



The block diagram for Option A was further refined to a floor plan level of detail in coordination with the Fire Hall Design Team. Access points into rooms, furniture, and equipment were added to further evaluate the proposed scheme and verify the design met the teams requirements.

As you enter the vestibule and small lobby area, the DEM and fire chief office affords a clear line of site to the front door, and access to the rest of the fire hall. The DEM support rooms are located with easy access to the multipurpose room, which will function as an E.O.C in an event of an emergency. The apparatus bay and its support rooms are located to the north. All access from the apparatus bay to administration areas have a hand washing station to remove contaminants.

Legend

- Apparatus Bay and Support
- Living Quarters
- Administration and Support
- Community
- Circulation

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Conceptual Design

4

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CONCEPTUAL DESIGN

Following cues from the visioning process, the Design Team worked with the District and Fire Department to craft a conceptual design molded from the key concepts. Stevenson Washington stands proud of the long and rich history that surrounds both the City and the Fire Department. Important considerations were that the building uses materials representative of the city, consider the neighboring properties for use and scale, and the building responds to a desire for street frontage. The construction techniques indicative of this design has sought to be responsible, cost-effective, long lasting, and low maintenance approaches to building construction.

To assist the Department to visualize design options, Mackenzie produced two massing studies of the new building, using the approved site and floor plans. The three massing options utilize similar material pallets to achieve aesthetic and formal massing that speaks to the variety of responses received from the community during the public visioning session. The selected material pallet reinforces the overall longevity of the building, both physically due to the durability of the materials and in terms of the external perception of the facility. The pre-engineered metal building structure allows for an open concept and simple exterior framing, while the fiber cement siding infuses a modern, minimalist aesthetic that responds to the community's desire for a low maintenance, cost-effective facility.

Responding to the rhythmic repetition of openings found at the overhead doors, Option 01 uses panel-like window openings in the panels and bays of the building, which captures the qualities found in pre-engineered metal buildings. To then break up the scale and provide larger daylighting and view opportunities at appropriate interior program spaces, wood panel and larger glass openings were introduced. The two different types of roof, one gabled and the other low slope.

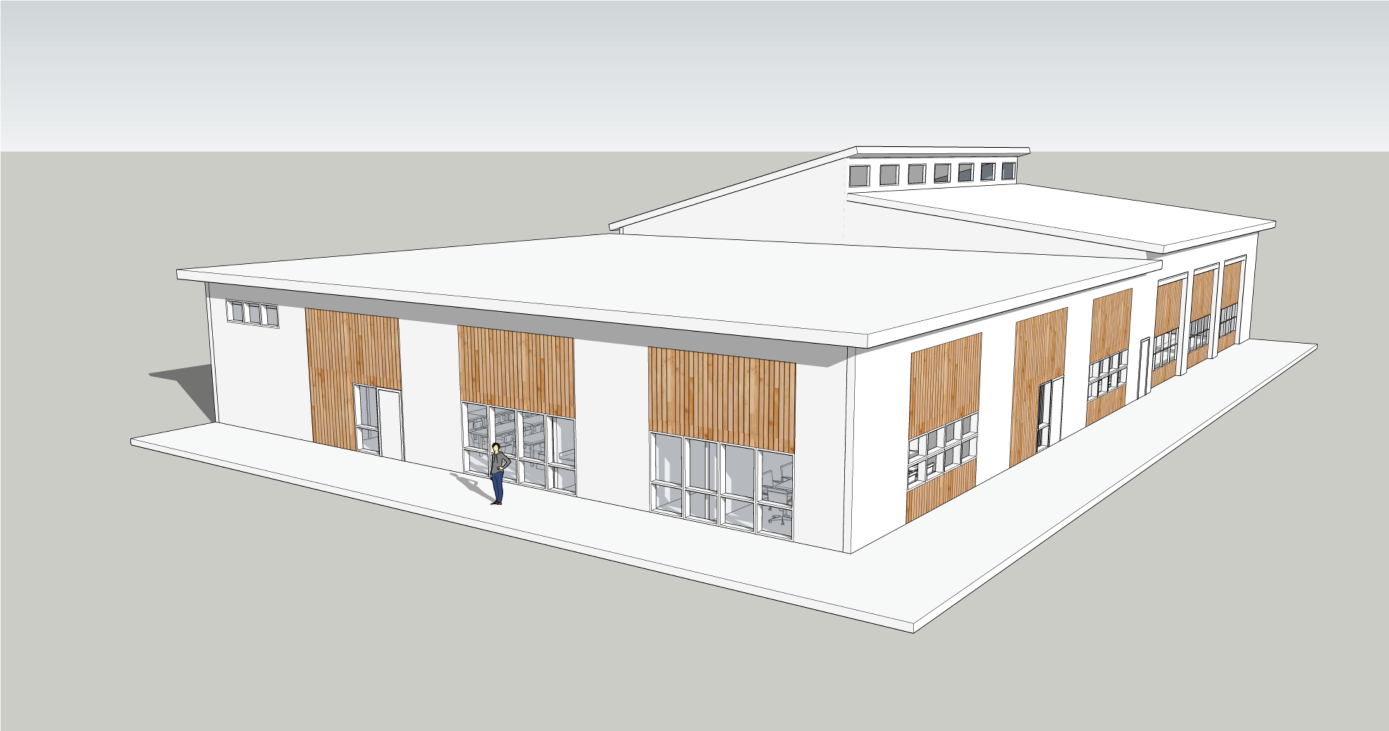
In contrast, Option 02 showcases the structural system at the south elevation with smaller individual window openings that match the glazing of the apparatus bay overhead doors. The roof is a simple gabled roof with a clerestory pop up gable to maximize natural light in the interior spaces.

Option 03 uses the same materiality of option 01 and 02, but with clerestory windows across the entire length of the building. The administration and public area are further defined by a wrapping motion of the wood siding to tie the facility with the Stevenson and Pacific Northwest look.

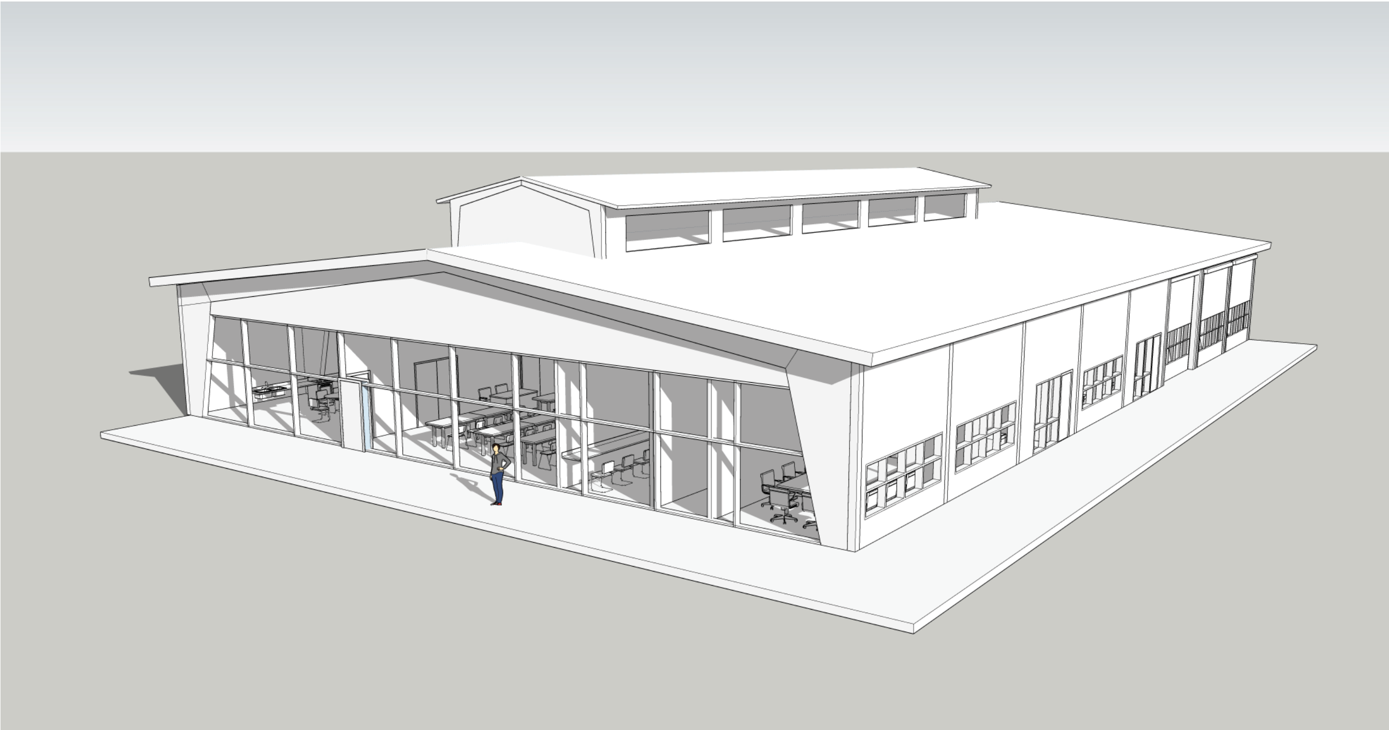
The Fire Department selected Option 03 as the preferred option for refinement and pricing. Revisions of note include adding a canopy at the entry and defining the entry to the building more clearly.

The following pages illustrate the progression of the design.

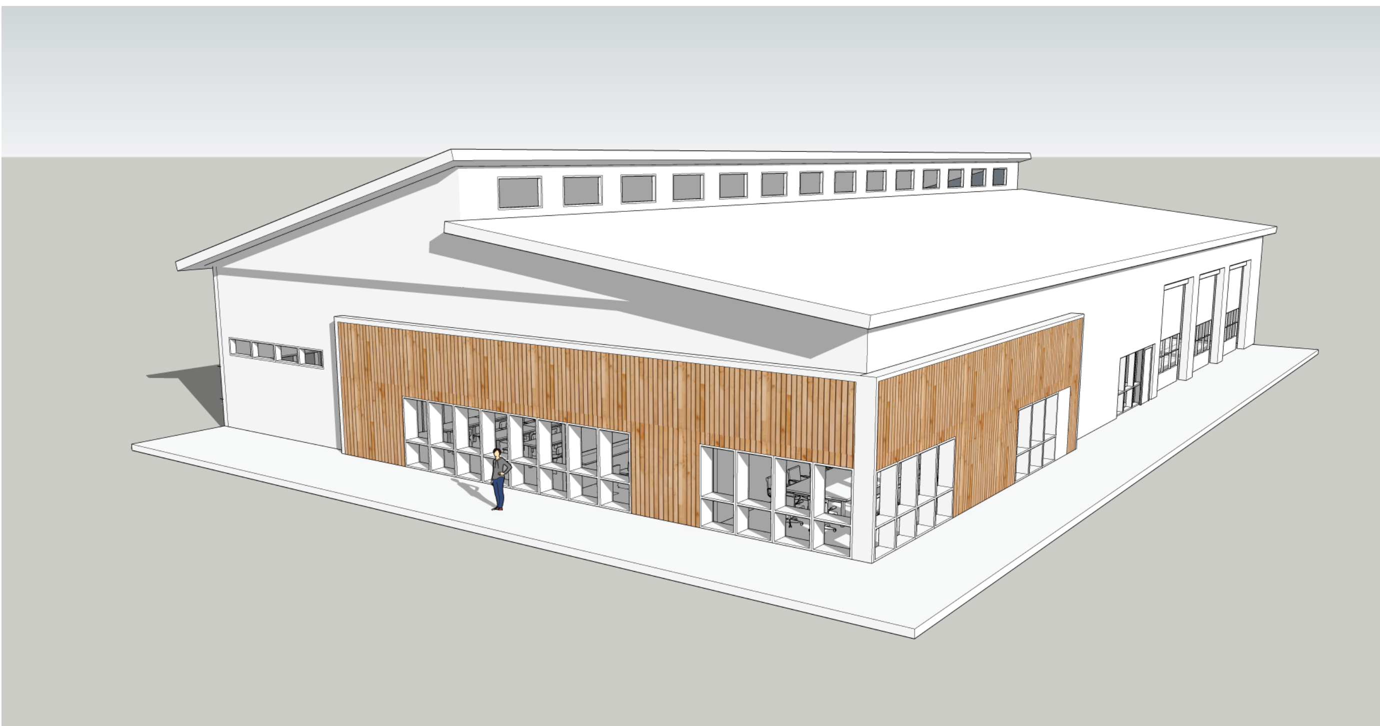
CONCEPT OPTION 01

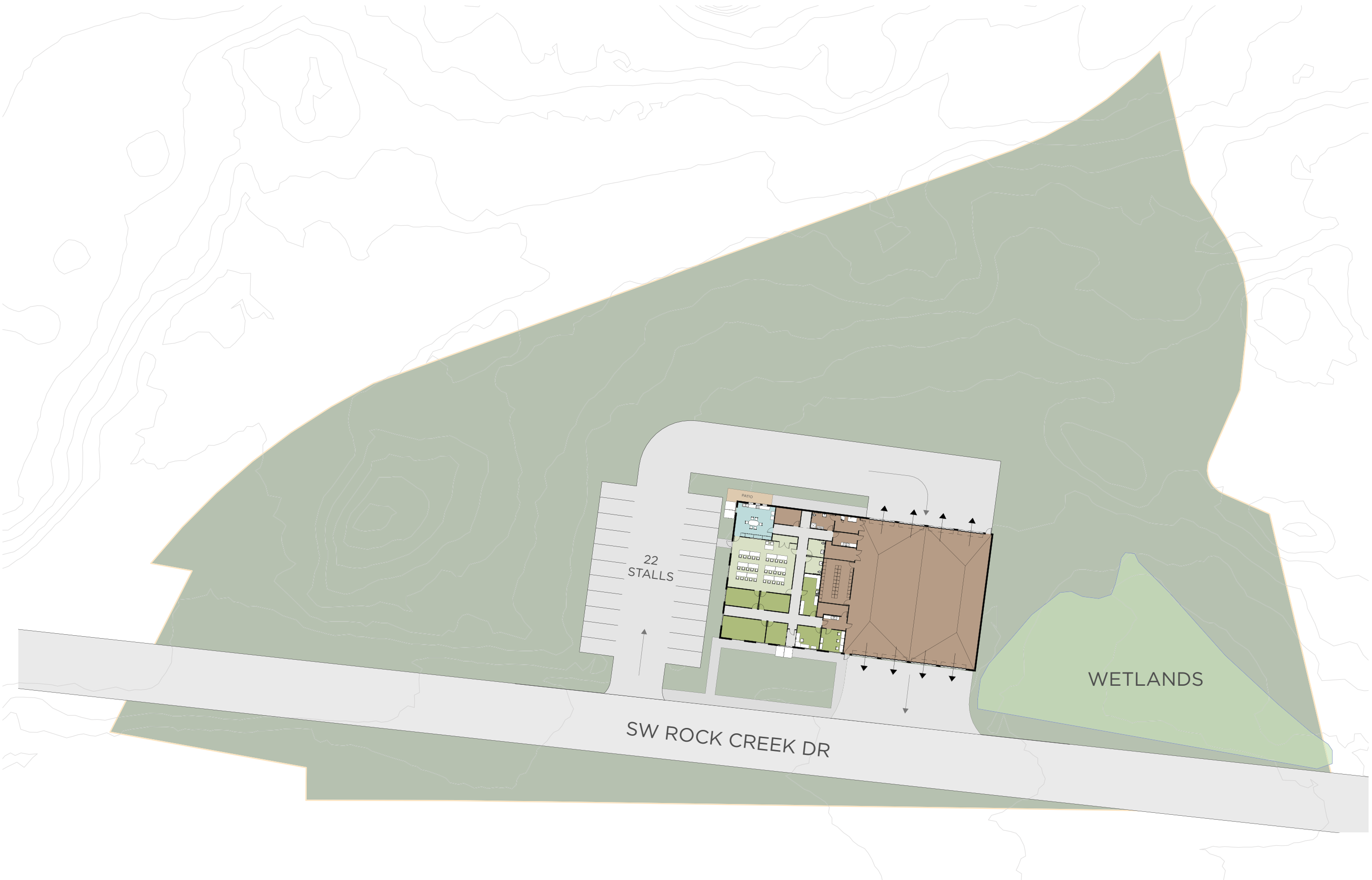


CONCEPT OPTION 02

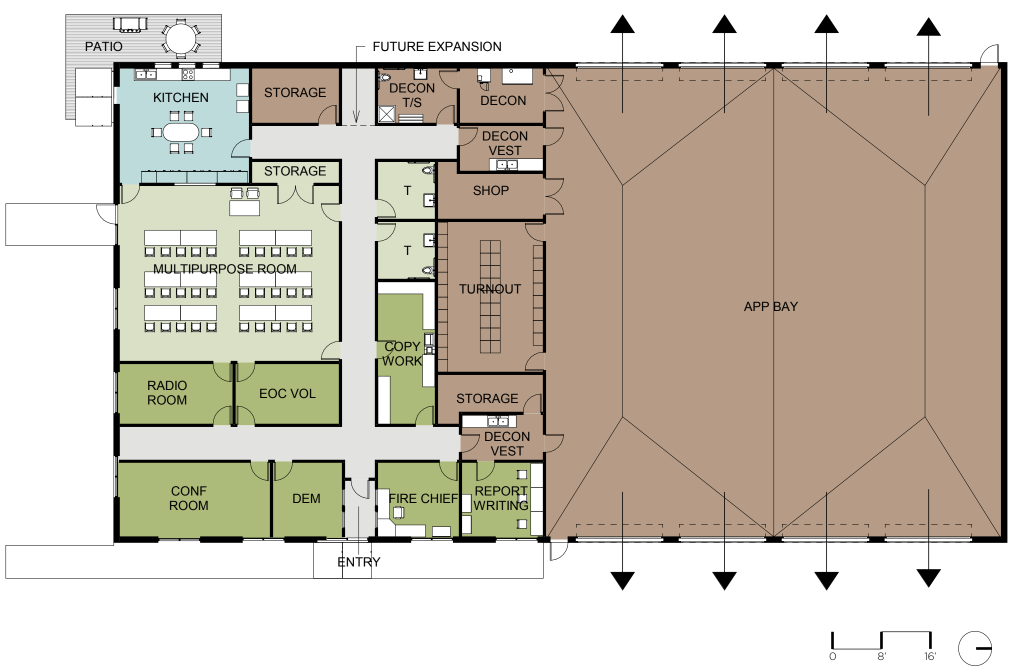


CONCEPT OPTION 03





Site Plan



Floor Plan

SELECTED CONCEPT DESIGN

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Project Cost Development

5

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COST SUMMARY

Following completion of the conceptual design, Mackenzie evaluated cost impacts of the fire facility to meet Department needs for the next 30 years. The following cost summary shows projections of a total development cost, including estimated construction costs, design costs, and owner costs.

Development costs of a project are not limited to construction costs alone and require consideration of other variables. These variables differ between new construction and renovation or expansion, and invariably change from one project to the next depending on site conditions, existing building conditions, building codes, seismic zones and the environment of the construction industry. Differences between estimates arise depending on the design approach, construction costs, and design and engineering costs. Owner costs for furniture, fixtures and equipment are often constant, based on a predetermined budget set by the Department. New construction can often differ substantially due to the single variable of land acquisition. This cost, coupled with higher construction costs, often leads to this being a more expensive option.

Construction costs reflect the raw costs incurred by a general contractor for overhead and profit, bonding and insurance, securing of materials and general construction of the site and building. In addition to the identified construction costs, a design contingency is recommended to ensure dollars are carried through construction for owner changes, design omissions, unforeseen conditions or jurisdictional requirements, among others. A high and a low range of Construction Cost contingency has been calculated in the Project Cost Summaries, shown on the following pages.

Consultant costs reflect the costs incurred for project management and design of the project from conceptual design through construction administration. Though design fees can vary, these costs are generally factored using a fee based on the construction costs for the project. In addition to architectural and engineering services, costs include marketing materials and required services such as topographical surveys and special inspections. A contingency is provided for this category for any unforeseen or additionally requested design services throughout the project.

Owner costs reflect the costs generally incurred directly by the owner throughout the project. This includes all items the owner may wish to contract separately from the general construction of the project. Additional owner-related costs include relocation into the new facility, legal documentation and counsel for project documents and issuances, and jurisdictional fees associated with design review, building permits, SDCs, TIF fees and BOLI fees. A contingency is provided in this category for any unforeseen or undefined costs not currently represented.

The Jurisdictional Fee Summary reflects a preliminary estimate of the fees which will be assessed by the governing jurisdiction. This information is based on the information available at the date of the report, and the actual fees may vary at the time of permit application or issuance. For the purposes of this estimate, any fees that are expected to be credited back once the permit is issued have been removed from the summary.

The following project development cost estimate examines the construction values of the programmed design concept. The design concept has been estimated for a high range and a low range, with details of scope and assumptions detailed in the Statement of Probable Costs, found in Appendix A.

COST SUMMARY

Stevenson Fire Hall - Cost Summary Low

New Construction *3/5/2019*

Construction Cost of Facility		Comments
Building Hardcost	**$2,841,806**	
On-Site Hardcost	**$916,103**	
Off-Site Hardcost	**$83,920** [2]	
Subtotal	**$3,841,829**	
Margins		
Owner's Contingency	$494,203	15.0% Allowance
Sales Tax	$333,874 [1]	7.7% Sales Tax
Subtotal	**$828,077**	
Total Construction Costs	**$4,669,906**	
	$394.42 /sf	

Consultants Costs	Original Design	
A/E Design and Construction - Base	$725,000	12.5% Allowance
Sustainability Certification	$0	Excluded
Reimbursables	$7,250	1.0% Allowance
Owner's Project Manager	$0	Excluded
Marketing Materials	$0	Excluded
Topo and Boundary Survey	$12,000	Allowance
Special Inspections	$35,000	Allowance
Geotechnical Services (Design + Inspections)	$40,000	Allowance
Environmental Services	$25,000 [3]	Allowance
Transportation Engineering	$7,500	Allowance
Haz. Material Survey/Testing/Mitigation Specs	$0	Excluded
Air-Barrier Testing	$5,500	Allowance
Commissioning	$0	Excluded
Arborist	$5,000	Allowance
Subtotal - Consultants	**$862,250**	
Consultants Contingency	$43,113	5.0%
Total Consultants Costs	**$905,363**	
	$76.47 /sf	

Owner Costs	Original Design	
Land Acquisition	$0	Excluded
Fixtures, Furniture & Equipment (FF&E)	$98,600 [4]	Allowance
Fitness Equipment	$0	Excluded
Telephone/Data/AV/Security Equipment	$30,000	Allowance
Sustainability Registration (i.e. LEED)	$0	Excluded
Moving Allowance	$0	Excluded
Temporary Facilities	$0	Excluded
Permit Fees	$20,000	Estimated
Subtotal - Owner Costs	**$148,600**	
Owner Contingency	$11,145	7.5% of Owner Costs
Sales Tax	$12,300 [1]	7.7% Sales Tax
Total Owner Costs	**$172,045**	
	$14.53 /sf	
Total Project Cost	**$5,747,314**	
	$485.42 /sf	

Building Size (SF):	*11,840 SF*

Notes

1 Assumes Highest Rate, Combine State, County and City Tax Rate

2 Driveway and street improvements for SW Rock Creek Drive

3 Environmental Services include initial report and wetland delineation report

4 Furniture for DEM excluded for estimate, includes appliances, generator

Stevenson Fire Hall - Cost Summary High

New Construction *3/5/2019*

Construction Cost of Facility		Comments
Building Hardcost	**$3,001,896**	
On-Site Hardcost	**$916,103**	
Off-Site Hardcost	**$83,920** [2]	
Subtotal	**$4,001,919**	
Margins		
Owner's Contingency	$847,662	25.0% Allowance
Sales Tax	$373,417 [1]	7.7% Sales Tax
Subtotal	**$1,221,079**	
Total Construction Costs	**$5,222,998**	
	$441.13 /sf	

Consultants Costs	Original Design	
A/E Design and Construction - Base	$725,000	12.5% Allowance
Sustainability Certification	$0	Excluded
Reimbursables	$7,250	1.0% Allowance
Owner's Project Manager	$0	Excluded
Marketing Materials	$0	Excluded
Topo and Boundary Survey	$12,000	Allowance
Special Inspections	$35,000	Allowance
Geotechnical Services (Design + Inspections)	$40,000	Allowance
Environmental Services	$25,000 [3]	Allowance
Transportation Engineering	$7,500	Allowance
Haz. Material Survey/Testing/Mitigation Specs	$0	Excluded
Air-Barrier Testing	$5,500	Allowance
Commissioning	$0	Excluded
Arborist	$5,000	Allowance
Subtotal - Consultants	**$862,250**	
Consultants Contingency	$43,113	5.0%
Total Consultants Costs	**$905,363**	
	$76.47 /sf	

Owner Costs	Original Design	
Land Acquisition	$0	Excluded
Fixtures, Furniture & Equipment (FF&E)	$98,600 [4]	Allowance
Fitness Equipment	$0	Excluded
Telephone/Data/AV/Security Equipment	$30,000	Allowance
Sustainability Registration (i.e. LEED)	$0	Excluded
Moving Allowance	$0	Excluded
Temporary Facilities	$0	Excluded
Permit Fees	$20,000	Estimated
Subtotal - Owner Costs	**$148,600**	
Owner Contingency	$11,145	7.5% of Owner Costs
Sales Tax	$12,300 [1]	7.7% Sales Tax
Total Owner Costs	**$172,045**	
	$14.53 /sf	
Total Project Cost	**$6,300,406**	
	$532.13 /sf	

Building Size (SF):	*11,840 SF*

Notes

1 Assumes Highest Rate, Combine State, County and City Tax Rate

2 Driveway and street improvements for SW Rock Creek Drive

3 Environmental Services include initial report and wetland delineation report

4 Furniture for DEM excluded for estimate, includes appliances, generator

FACILITY COST COMPARISON

PROJECT	MCKENZIE FIRE	ALBANY FIRE
LOCATION	Leaburg, OR	Albany, OR
YEAR COMPLETE	2013	2017
CONSTRUCTION TYPE	Wood & Metal Framing w/ Cement Board Siding and Brick Veneer	Structural Masonry
BUILDING SIZE	11,031 sf	26,568 sf
STORIES	SINGLE	TWO
BUILDING COST per sf	$140.44 per sf	$189.13 per sf
SITE COST per sf of building	$35.39 per sf of building	$20.46 per sf of building
OFF-SITE COST per sf of building	$0	$1.45 per sf of building
TOTAL CONSTRUCTION COST per sf of building	**$144.63 per sf of building**	**$289.46 per sf of building**
FINAL CONSTRUCTION COST ESTIMATE per sf of building	**$185.97 per sf of building**	**$312.60 per sf of building**
LOW BID (AVERAGE BID) per sf of building	**$160.32 ($181.18) per sf of building**	**$226.33 ($244.17) per sf of building**

* - Mezzanine not included

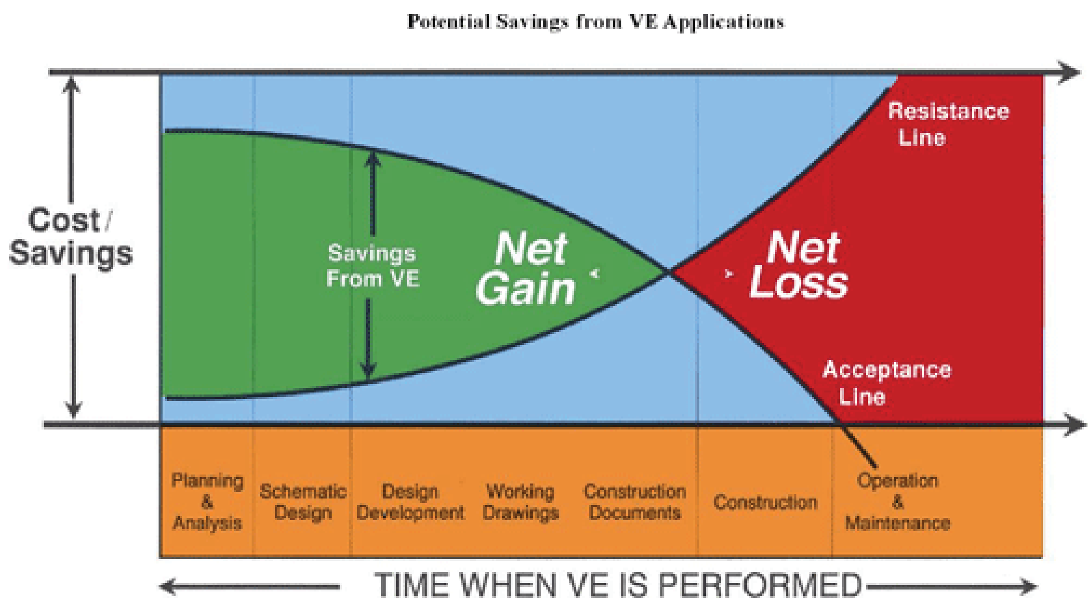
† - Based on Mackenzie's preliminary estimate validated by Construction Focus, Inc.

VANCOUVER FIRE	CLARK COUNTY STATION 63	AVERAGE BUILT COST	STEVENSON FIRE
Vancouver, WA	Vancouver, WA		Stevenson, WA
2018	2019		Conceptual Design
Structural Masonry and Wood Framing w/ Cement Board Siding	Wood Framing w/ Cement Board Siding		Pre-engineered metal building with wood siding
14,524 sf	17,693 sf		11,840 sf *
SINGLE	TWO		SINGLE STORY
$214.16 per sf	$403.76 per sf	**$236.87**	$185.70 † per sf
$17.33 per sf of building	$19.29 per sf of building	**$23.12**	$28.30 † per sf of building
$7.60 per sf of building	$0	**$2.26**	$0
$368.96 per sf of building	**$565.06 per sf of building**	**$342.03**	**$441.13 † per sf of building**
$234.49 per sf of building	**$490.41 per sf of building**		**N/A**
$319.55 ($323.76) per sf of building	**$443.08 ($466.60) per sf of building**		**N/A**

VALUE ENGINEERING

Upon conclusion of forecasting probable costs for the facilities, at the request of Stevenson, we identified the following possible strategies to reduce costs for the facilities. These strategies are a number of the more significant strategies to reduce cost. The list is not exhaustive to include all possibilities but does illustrate several options that can be chosen for reducing project costs. As the project moves into the next phases of design, cost forecasting, validation and value engineering are normal events that we would recommend occur as the design and construction documents are being developed.

Value Engineering is a conscious and explicit set of disciplined procedures designed to seek out optimum value for both initial and long-term investment.



Courtesy of : http://www.wbdg.org/resources/value_engineering.php

The following table illustrates the value engineering strategies and applicable cost savings per station if implemented. The total of these collective strategies would yield a cost savings between 10-20% (varying per each project) over the forecasted project costs. These strategies have not been evaluated in terms of merits and the specific advantages and disadvantages of each. They have simply been denoted to illustrate some of the possibilities.

	Value Engineering Items	Cost
1	Eliminate Apparatus bay doors and utilize back-in bays	$23,119
2	Eliminate drive thru bays - back bollards	$4,400
3	Eliminate back drive aisles	$127,955
4	Self perform landscape installation	$20,250
5	Change concrete apron to asphalt 6" apron	$5,426
6	Remove site benches	$6,000
7	Eliminate (2) site lighting poles	$8,500
8	Reduce on-site sidewalk	$3,000
9	Trash Enclosure to be chain link in lieu of CMU	$3,800
10	Change light gage framing to wood studs	$12,546
11	If wood studs - change domestic water piping to PEX	$1,700
12	If wood studs - change waste piping to ABS	$3,500
13	Reduce apparatus bay trench drain by 24 feet	$4,200
14	If wood studs - change from electrical conduit to Romex	$6,500
15	Eliminate gypsum board soffits	$1,749
16	Change countertop from solid surface quartz to plastic laminate	$9,000
17	Gypsum board finish from Level 4 to Orange Peel	$15,804
18	Appliance and Turnout Lockers purchased by City - OFOI	$15,000
19	Shop Lockers to be casework	$1,000
20	Remove (1) baby changing station	$642
21	Change storefront windows to vinyl windows	$51,615
22	Eliminate room signage and white board - OFOI	$4,400
23	Change roller shades to horizontal blinds	$6,336
24	Generator to be purchased by City - OFCI	$43,000
25	apparatus bay to 4'-0" wainscot CDX plywood	$855
26	Reduce the amount of wood siding and extrusion	$2,500
27	Reduce the height of building by 5'-0" at non-apparatus bay area	$44,341
28	Turn the gable roof of apparatus bay 90 degrees - non apparatus bay area roof to die into apparatus bay roof	-$9,000

Sub-Total	**$418,138**
Inflation & Market Conditions (High Side) @ 6%	***$25,088***
Contingency (High Side) @ 25%	***$110,807***
General Conditions @ 7%	**$38,782**
Profit and Overhead @ 6%	**$35,569**
Performance Bond	**$5,655**
Sales Tax @ 7.7%	**$48,821**
Total:	**$682,860**

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Appendix A: Supporting Cost Estimate

A

Construction FOCUS
Integrated Project Solutions

February 12, 2019
Revision #0-A

CITY OF STEVENSON
STEVENSON FIRE DEPARTMENT

STATEMENT OF PROBABLE COST

Prepared for:
Mackenzie
Portland, OR

Prepared by:
Steve Gunn

Steve Gunn

President
Construction Focus, Inc.

STEVENSON FIRE HALL
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
	STEVENSON FIRE HALL					
		Ground Floor Gross Area	11,840	SF		
	Building Earthwork					35,341
	Crushed rock pad 6"		427	TON	37.00	15,799
	Footing excavation		374	CY	33.00	12,342
	Footing backfill		360	TON	20.00	7,200
	Concrete					147,382
At PEMB	Pad footing	6' x 6' x 2'd	20	EA	1,650.00	33,000
Perim	Grade beam		232	LF	65.00	15,080
	Slab on grade	6"t	6,080	SF	9.00	54,720
	Slab on grade	4"t	5,760	SF	7.74	44,582
	Steel					8,800
	Shell	included in PEMB				
	Stl bollard	6" round_4'h	16	EA	550.00	8,800
	Rough Carpentry					19,915
	Wall sheathing	cdx_1/2"	6,840	SF	2.78	19,015
Elec	Plywood sheathing	fire rated ply	360	SF	2.50	900
	Finish Carpentry					2,500
Interior	Trims	allowance	1	LS	2,500.00	2,500
	Light Gage Framing					82,012
Living ext	Wall furring	ltga_3-5/8" @ 16" o.c.	3,480	SF	4.40	15,312
Appar ext	Wall furring	ltga_3-5/8" @ 16" o.c.	3,360	SF	4.40	14,784
Living ext	Wall furring	hat channel @ 16" o.c.	3,480	SF	2.80	9,744
Appar ext	Wall furring	hat channel @ 16" o.c.	3,360	SF	2.80	9,408
Interior	Wall framing	3 5/8" @ 16"oc	7,100	SF	4.40	31,240
Soffit	Soffit framing	ltga_3 5/8" @ 16"oc	150	SF	6.50	975
Soffit	Soffit wall framing	ltga_3 5/8" @ 16"oc	100	SF	5.49	549
	Casework					43,130
	Base cabinet w/ doors	p-lam	50	LF	265.00	13,250
	Upper cabinet w/doors	p-lam	50	LF	145.00	7,250
	Countertop	solid surface_quartz	100	SF	125.00	12,500
	Work station	p-lam	130	SF	40.00	5,200
	Full hgt cabinet	p-lam	17	LF	290.00	4,930
	Insulation & WRB					41,554
Living ext	Insulation	thermal R-25	3,480	SF	1.32	4,594
Appar ext	Insulation	thermal R-25	3,360	SF	1.32	4,435
	Insulation	acoustic batt	7,100	SF	1.00	7,100
	WRB	building wrap	3,480	SF	1.64	5,707
Under slab	Vapor barrier	Stego wrap	11,840	SF	1.20	14,208
	WRB	building wrap	3,360	SF	1.64	5,510
	Cladding					72,092
Living	Wood siding	Hardie panel	2,088	SF	14.39	30,046
Apparatus	Wood siding	Hardie panel	1,792	SF	14.39	25,787
Living	Wood siding	Hardie lap_wood grain	1,392	SF	11.68	16,259

STEVENSON FIRE HALL
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
	Roofing and Sheet Metal					
	(included in PEMB)					
	Waterproofing and Sealants					1,500
	Sealant	allowance	1	LS	1,500.00	1,500
	Doors, Frames, and Hardware					134,800
	Swing door	3x7 hm_hm frm	8	EA	2,000.00	16,000
	Swing door	3x7 sc wd_hm frm	18	EA	2,100.00	37,800
	Swing door	6x7 hm_hm frm	2	PR	4,000.00	8,000
	Swing door	6x7 sc wd_hm frm	1	PR	4,200.00	4,200
	Overhead door	steel_alum frm_1/2 glz_14x14	8	EA	8,600.00	68,800
	Glass & Glazing					94,705
Exterior	Storefront	Kawneer 451UT/glaz	1,044	SF	85.35	89,105
	Storefront door	3x7 alum	2	EA	2,400.00	4,800
	Reception window	alum_pass-thru_6x4	1	EA	800.00	800
	Floor Coverings					49,012
	Flooring	carpet tile	1,390	SF	5.50	7,645
	Flooring	polished concrete	2,806	SF	6.92	19,418
	Flooring	sealed concrete	7,075	SF	2.50	17,688
	Flooring	walk-off mat	60	SF	8.50	510
	Wall base	4" rubber	1,745	LF	2.15	3,752
	Ceilings					38,334
Apparatus	Exposed PEMB	-no ceiling -				
Living	ACT	2x4_ceiling grid w/ act	5,580	SF	6.50	36,270
	Ceiling: suspended	type: X LVL 4_5/8"_w/grid	180	SF	5.80	1,044
Soffit	Gypsum board	5/8"_gyp board_LVL-4	150	SF	6.80	1,020
	Wall Board and Wall Coverings					70,624
	Gypsum bd	5/8"_gyp board_LVL-4	14,200	SF	4.00	56,800
	Gypsum bd	5/8"_gyp board_LVL-4	3,360	SF	4.00	13,440
Janitor	Wallcover	FRP	50	SF	7.67	384
	Painting and Finishing					27,398
	Painting @ door/frame	2 top coats	12	EA	100.00	1,200
	Stain/seal @ door/frame	2 top coats	20	EA	110.00	2,200
	Painting @ gypbd	prime + 2 top coats	14,270	SF	1.00	14,270
Apparatus	Painting @ exposed structure	prime + 2 top coats	6,080	SF	1.60	9,728
	Appliances					3,600
	Appliances	allowance	4	EA	900.00	3,600
	Lockers					15,600
	Lockers	2x2 turnout storage lockers	38	EA	300.00	11,400
	Lockers	shop lockers 3x6	6	EA	700.00	4,200
	Specialties and Equipment					6,604
OFCI	Extractor cabinet		1	EA	1,500.00	1,500
	Fire extinguisher & cabinet		2	EA	360.00	720
	Toilet accessories	foldable baby changing station	2	EA	641.96	1,284
	Toilet accessories	various types	10	EA	110.00	1,100

STEVENSON FIRE HALL
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
	Whiteboards		1	LS	2,000.00	2,000
	Signage					5,400
	Room signage	frosted glass/ss standoffs	20	RM	120.00	2,400
Exterior	Signage	allowance	1	LS	3,000.00	3,000
	PEMB					477,507
	Essential Fac PEMB	frames/roofing/erection	11,840	SF	38.53	456,195
	PEMB	Simple Saver insulation	11,840	SF	1.80	21,312
	Furnishings					17,568
	Window treatment	cloth roller shades	1,044	SF	12.00	12,528
	Window treatment	blackout shades	360	SF	14.00	5,040
	Fire Sprinklers					43,808
	Fire protection	riser/mains/drops/heads	11,840	SF	3.70	43,808
	Plumbing					152,955
	WC	rough-in/set/finish	3	EA	3,834.00	11,502
	Lav	rough-in/set/finish	3	EA	3,644.00	10,932
	Dbl sink	rough-in/set/finish	1	EA	4,833.00	4,833
	Shower	rough-in/set/finish	1	EA	5,122.00	5,122
	Water heater	100 gal elec	2	EA	5,679.00	11,358
	Hose bibs		4	EA	800.00	3,200
	Accessories	cleanouts/floor drains	11,840	SF	4.20	49,728
	Domestic water piping/insulation		240	LF	40.00	9,600
	Waste piping		180	LF	50.00	9,000
	Vent piping		140	LF	32.00	4,480
	Trench drains		104	LF	175.00	18,200
Grille	Gas piping		1	LS	1,500.00	1,500
Compressor	Air piping		1	LS	1,500.00	1,500
	Tests/permits/coord/GCs		1	LS	12,000.00	12,000
	HVAC					186,240
Offices	HVAC	split-system/HRV/ducted air	5,760	SF	26.00	149,760
Apparatus	HVAC	exhaust/IR heat/MUA	6,080	SF	6.00	36,480
	Electrical					420,320
	Power	svce/feeders/devices/connect	11,840	SF	13.00	153,920
	Lighting	lighting & contols	11,840	SF	11.50	136,160
	Low voltage	comm/AV/fire	11,840	SF	11.00	130,240
					STEVENSON FIRE HALL HARDCOST	2,198,702
	SITEWORK					
	Earthwork					164,082
	Mobilization		1	LS	20,000.00	20,000
	Traffic/ped control		1	LS	6,000.00	6,000
	Temp erosion control		1	LS	4,000.00	4,000
	Surveying		1	LS	12,000.00	12,000
	Clearing		1	LS	15,000.00	15,000
	Excavation	bldg_24" avg.	877	CY	38.00	33,327

STEVENSON FIRE HALL
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
	Excavation	hardscape_13" avg.	683	CY	38.00	25,958
	CR rock 10"	bldg & parking	1,648	TON	29.00	47,797
	Over-excavation & Backfill					414,910
	Building/parking	bldg avg. 6ft/parking avg. 4ft	6,074	CY	35.00	212,590
	Backfill	crushed rock	11,240	TON	18.00	202,320
	Hardscapes & Curbs					71,329
Parking	Aspalt pave 3"		120	TON	130.00	15,577
Drive	Aspalt pave 4"		198	TON	130.00	25,683
	Apron concrete 6"		1,075	SF	9.50	10,213
	Curb	type A	819	LF	23.00	18,837
	Mowstrip		85	SF	12.00	1,020
	Site Improvements					58,542
	Trash enclosure	slab/cmu walls/gates	1	EA	10,000.00	10,000
North	Retaining wall		519	SF	60.00	31,140
	Flagpole		1	EA	5,500.00	5,500
On bldg	Antenna		1	EA	5,000.00	5,000
	Bike rack	stl-loop_galv	1	EA	350.00	350
	Benches		4	EA	1,500.00	6,000
	Striping	cars and lanes	420	LF	0.60	252
	Handicap symbol/sign		1	EA	300.00	300
	Landscaping					20,250
	Landscaping	topsoil-12"/plants/irrig	4,500	SF	4.50	20,250
	Storm					21,000
	8" PVC storm		200	LF	48.00	9,600
	Catch basin		6	EA	1,200.00	7,200
	3 Way valve & vault		1	EA	4,200.00	4,200
	Sanitary					17,250
	6" Sani pipe		100	LF	80.00	8,000
	Sanitary cleanout		1	EA	450.00	450
	Oil water seperator		1	EA	8,500.00	8,500
	Connect to mainline		1	EA	300.00	300
	Water					41,740
	6" Fireline w/trench		100	LF	155.00	15,500
	2" Hot tap		1	EA	4,000.00	4,000
	2" Dom water		100	LF	38.00	3,800
	2" Water meter vault		1	EA	1,000.00	1,000
	6" DDCV vault		1	EA	15,000.00	15,000
	FDC		1	EA	1,400.00	1,400
	Asphalt trench patch		104	SF	10.00	1,040
	Site Electrical					107,000
	Site lighting		8	EA	3,500.00	28,000
	Generator	150KW	1	EA	50,000.00	50,000
	Conduits		300	LF	30.00	9,000
	Site laterals		500	LF	40.00	20,000
					SITEWORK HARDCOST	916,103

STEVENSON FIRE HALL
Statement of Probable Cost

LOC	ITEM	DESCRIPTION	QNTY	UNIT	$/UNIT	TOTAL $
	STREET WORK					
	Street Construction					83,920
	Sawcut		680	LF	2.50	1,700
	Excavation		178	CY	60.00	10,680
	Traffic/ped control		1	LS	12,000.00	12,000
	Crushed rock base		300	TON	35.00	10,500
	Asphalt paving		48	TON	200.00	9,600
	Curb & gutter		680	LF	23.00	15,640
	Sidewalk		3,400	SF	7.00	23,800
					STREET WORK HARDCOST	83,920
					HARDCOST TOTAL	3,198,725

The above HARDCOST TOTAL does not include typical general contractor markups.
Those plus contingencies are listed below as part of a Low-High Range.
Variables include fluctuations in market conditions, material selections, and design considerations.
The Cost Estimate Range will be consolidated as we move closer to the actual Bid Date.

LOW RANGE		Markups:	HIGH RANGE	
@ 3%:	95,962	Inflation & Market Conditions	@ 6%:	191,923
@ 15%:	494,203	Contingency	@ 25%:	847,662
	265,222	Gen Conditions @ 7%:		296,682
	243,247	Profit & Overhead @ 6%:		272,100
	38,673	Performance Bond:		42,489
7.70%	333,874	WA Tax	7.70%	373,418
	1,471,181	**Markup Subtotals:**		2,024,273
	4,669,906	**BASE BID TOTAL**		**5,222,998**

ALTERNATE

67,402	Additional parking	74,827

NOTES
This estimate assumes competitive bidding by local contractors
Add 7% to this estimate if a CMGC is used

EXCLUSIONS
Design fees, permit fees, system development fees, utility hookup charges, testing.
Hazardous materials abatement, moving expenses, fireproofing.
Rock excavation, wet weather sitework.

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Appendix B: Project Narrative

B

PROJECT DESCRIPTION

The new Stevenson Fire Hall consist of new single-story facility of size indicated on the drawings and associated site work as indicated on the Site Drawings. The building occupancy is primarily S-2 for the Apparatus Bay and Support Areas, and A-3 for the Multi-purpose space. The construction classification of the facility is Type III-B and a pre engineered metal building..

The building is designed with a combination of both structural steel and wood framing with with a concrete floor slab on grade; a combination of lap hardi panels and painted wood faux look of hardi panel veneer exterior walls; and aluminum storefront glazing. The project includes mechanical, electrical, low voltage and plumbing systems as well as on-site and off-site improvements.

A. SUBSTRUCTURE

A10 FOUNDATIONS

A1010 Standard Foundations

- Bearing interior and exterior stud walls on thickened slabs.
- Columns on spread footings.
- Foundation to be designed by engineer of record, based on foundation loads provided by the metal building manufacturer.

A1020 Special Foundations

- The geotechnical report by GN Northern, dated December 2018, states the proposed site may have soils that are subject to liquefaction during a seismic event. Liquefaction is a condition that may occur in some soil types after a seismic event, resulting in excessive foundation settlement – an important consideration for buildings designed to remain operational after a seismic event. See Geotechnical Report.
- The geotechnical report recommends completing "a site-specific liquefaction analysis to assess the risk of soil liquefaction of liquefaction-induced settlement at the site during a seismic event".
- The geotechnical report's recommends carrying a cost contingency to capture soil improvements needed to mitigate liquefaction, based on the outcome of the liquefaction analysis.

A1030 Slab on Grade

- 4" thick concrete slab-on-grade in the administration/multipurpose room half of the building.
- 6" thick concrete slab-on-grade in the apparatus bay.

A20 BASEMENTS – NOT USED

B. SHELL

B10 SUPERSTRUCTURE

B1010 Floor Construction

- Slab on grade

B1020 Roof Construction

- Roof Framing System: Pre Engineered Metal Building (such as Nucor) Pre-engineered metal building are designed by the manufacturer and typically consist of steel moment frames in the transverse direction to resist gravity and lateral forces, and a combination of moment frames or brace frames to resist lateral forces in the longitudinal direction. This fire station is an essential facility, meaning the metal building design criteria should reflect this.
- Canopy: Framing to consist of wide flange framing, 1 ½" metal decking, supported by HSS columns.

B20 EXTERIOR ENCLOSURE

B2010 Exterior Walls

- Assume the building exterior walls will be comprised of the following:
  - Option 0-A:
    - Pre Engineered Metal Building with off-set ridge gable roof and metal studs with R-25 in the wall cavity. Air and vapor barrier with gypsum board finish on the interior on side. Factory finished thru body color hardi panel lap siding – wood grain texture. Hardi panel lap siding – painted wood grain faux as shown on the perspectives.
  - Option 1:
    - Pre Engineered Metal Building with a simple gable with metal studs with R-25 in the wall cavity. Air and vapor barrier with gypsum board finish on the interiors side. Vertical corrugated metal siding in lieu of hardi panel.
  - Option 2:
    - Pre Engineered Metal Building with a simple gable with wood frame studs with R-25 in the wall cavity. Air and vapor barrier with gypsum board finish on the interiors side. Vertical corrugated metal siding in lieu of hardi panel.

B2020 Exterior Windows

- Frames:
  - Fixed: Kawneer 451UT storefront system; Architectural Class I, clear anodized aluminum finish.
    - Location: See elevations
- Glazing: 1” O/A dual seal silicone; ¼ Guardian SN 68 (#2) Clear Annealed, ½” Mill Spacer, ¼” Clear Annealed. Values: VLT (.68), SC (.43), SHGC (.38), U-Val (.29).

B2030 Exterior Doors

- Storefront Doors: Aluminum framed storefront entry system by Kawneer.
- Hollow Metal Doors: Painted, metal doors with painted fully grouted and welded steel frames.
- Overhead Coiling Doors: 511 Aluminum Glass Door System by Overhead Door Company, 12’ x 14’, Extra Heavy-Duty, Color clear anodized aluminum.

B30 ROOFING

B3010 Roof Coverings

- Roofing: Span-lok *hp* metal roofing system with water tight seam design by AEP Span; mechanically fastened over ½” protection board and rigid insulation (R-30). 20 year warranty.

B3020 Roof Openings

- Option 0A - Clerestory windows as shown on the perspective drawings.
- Roof Access:
  - Provide fixed FL Series roof access ladder with Extend-A-Rail post extension, and roof hatch by Precision Ladders, LLC

C. INTERIORS

C10 INTERIOR CONSTRUCTION

C1010 Partitions

- Option 0A & 1: Metal framing with gypsum wall board with acoustical batt insulation, typical unless noted otherwise.
- Option 2: 2x wood framing with gypsum wallboard, typical unless noted otherwise.
- Acoustical insulation in all interior walls, typical.
- Interior walls run to bottom of structural decking, typical.

- Wall Furring: Interior furred walls made of 2” polystyrene rigid insulation,1” air gap, 2x wood studs with R-15 batt insulation and 5/8” gypsum board, painted.

C1020 Interior Doors

- Solid wood doors: Solid core, stain grade wood veneer doors with painted, fully welded hollow metal frames. Finish Natural Cherry, aged, stained to match architects sample.
- Steel doors and fully welded frames: Painted.
- Hardware: Schlage ND series typical at interior wood doors. Panic hardware at all exterior doors and doors from Administration side into Apparatus Bay Finish brushed nickel.

Interior Glazing

- Interior Relites: Frameless butt glazing, width and height per plans. See floor plans for extent.

C1030 Fittings

- Whiteboards: Provide two (2) 48” x 72” white boards. Locations TBD.
- Interior signage: Provide allowance for code required and individual room signage; frosted glass signs with stainless stand-offs and individual cut lettering.
- Lockers and Shelving:
  - Provide 24” wide, fixed system by Ready-Rack, Inc. See floor plans for extent.
- Toilet Accessories: Bobrick Contour Series. Provide combination trash/automatic paper towel dispenser, soap dispensers at vanities, toilet stall accessories typical per restroom.

C20 STAIRS

C2010 Stair Construction – NOT USED

C2020 Stair Finishes – NOT USED

C30 INTERIOR FINISHES

C3010 Wall Finishes

- All walls to receive Level 3 finish with two coats of paint over a primer coat (3 coats total), typical unless noted otherwise. Assume two accent paint colors, location TBD.
- FRP on wet walls to 3’-0” AFF in Janitor’s closets.

C3020 Floor Finishes

- Carpet tiles at multipurpose room, offices, and conference rooms.
- Polished concrete through out the administration area and all corridors.
- Sealed concrete through out the apparatus bay and apparatus bay support rooms.
- Walk off mat to be provided at every exterior entry as well as between apparatus bay and administration entry.

C3030 Ceiling Finishes

- Assume 10’ ceiling height at all locations where not otherwise defined.
- Suspended acoustical ceiling:
  - Typical: SAT-1: Armstrong, Dune 2’-0”x2’-0” Tegular
- Open to Structure:
  - Apparatus Bay Typical: Painted structure, piping, ductwork, SAT cabling, typical where exposed.

D. SERVICES

D10 CONVEYING

D1010 Escalators and Lifts – *NOT USED*

D1020 Escalators and Moving Walks – *NOT USED*

D1090 Other Conveying Systems – *NOT USED*

D20 PLUMBING

D2010 Plumbing Fixtures (ADA compliant as appropriate) – See product sheets

- Water Closets: Porcelain, floor-mounted, provided with manual 1.28 GPF flushometer valves. Public water closets will be sensor-operated
- Lavatories: Porcelain, wall-mounted sinks with trap guards at restrooms.
- Sinks: Stainless steel, self-rimming. No garbage disposals will be provided.
- Faucets:
  - Two-handle faucets with wrist blades and chrome finish.
  - Public faucets will be sensor-operated.
- Showers: solid surface shower walls and receptor, adaptable for ADA.
- Mop sinks: Terrazzo construction with stainless steel rim guards
- Emergency Shower: An emergency shower and eyewash will be provided in the Apparatus Bay near the Decon Room. It will be supplied from an emergency mixing valve assembly.

D2020 Domestic Water Distribution

- Domestic cold water distributed to plumbing fixtures at an initial pressure between 50 and 80 psi using Type L copper piping above grade with lead-free solder joints, Type K copper piping below grade with brazed joints.
- PEX water piping will be accepted for sizes 2-inch and smaller.
- The domestic hot water will be provided by a central natural gas fired high efficiency water heater system with circulation system. The recirculation pump will be monitored by the BAS system.
- Hose bibbs will be provided at each end of the Apparatus Bay. There will also be hose bibbs place at 100-foot intervals around the perimeter of the Station.

D2030 Sanitary Waste & Vent

- Cast iron sanitary and storm sewer piping with heavy-duty couplings used to collect waste from plumbing fixtures and connect to building's sewer service. Solid-core PVC pipe will be accepted for sanitary vents and trap arms.
- Piping systems are to be provided with cleanouts at every 135 degree change in direction and at the upper terminal of each branch line.
- The trench drains within the Apparatus Bay will be connected to an oil/water separator prior to connecting to sanitary sewer.
- Electronic trap primers will be provided.

D2040 Storm Drainage

- Interior roof drains, cast iron piping with no-hub bands.
- Roof overflow drains to daylight to the exterior of the building, primary roof drains will connect to the site storm water system.

D2090 Other Plumbing Systems

- Natural gas distributed to mechanical units, Bar-B-Q, and water heater at 2 psi. Steel piping distributed below roof deck and within ceiling spaces, welded construction within return air plenums.
- Shop air compressor will be provided. There will be a vertical receiver with an air compressor mounted on top.
- 3/4-inch hose reels located in the ceiling over the fire trucks.

D30 HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

D3050 Variable Refrigerant Volume (VRV) with Heat Recovery Ventilator (HRV), Gas Fired Radiant Heat, Electric Heat, and Exhaust

- Heating and cooling will be provided from one approximately 20 ton outdoor VRV heat recovery heat pump, connected to indoor fan coils and ceiling cassettes through refrigerant piping. Ventilation air will be ducted to occupied spaces from a single 1,200 cfm indoor HRV with fixed plate heat exchanger. Tempered ventilation air will be ducted to the inlet of the VRV fan coils and ceiling cassettes. The fan coils will be ducted to individual zones. Exhaust air will be ducted from the HRV to restrooms and Turnouts Ceiling fans will be provided in the Kitchen.
- The Apparatus Bay will be heated by low intensity gas fired radiant heat. The radiant heating system will be interlocked with the overhead doors to be turned off when the doors are opened. General exhaust will be provided by a inline exhaust fan controlled by wall-mounted push button, CO, NO_2, and opening/closing of the overhead doors. Space temperatures will be maintained between 60 and 65 degrees F during heating. There will be no mechanical cooling for this space.
- A residential range hood will be provided over the cooktop in the Kitchen.
- Shop will be provided with an electric unit heater suspended from the ceiling. The Shop will also be provided with a cabinet exhaust fan, discharging directly to the outdoors, pulling make-up air from the Apparatus Bay. Electrical room will be provided with an electric wall heater.
- Indoor design temperatures maintained between 70 and 75 degrees F year-round for spaces served by the VRV system.
- Low-pressure ductwork will be sized at 0.08” of water column and no more than 750 feet per minute (FPM). All sheet metal design and installation will be per SMACNA standards. Flexible duct is not allowed in exposed areas.

D3060 HVAC Instrumentation and Controls

- HVAC controls will consist of a series of controllers provided by the VRV manufacturer. The control system will offer trending, scheduling, downloading memory to field devices, real-time “live” graphic programs, parameter changes of properties, set point adjustments, alarm/event information, confirmation of operators, and execution of global commands. Fire alarm systems, security systems and elevator systems shall not be controlled by the HVAC control system. The control system will directly control indoor fan coils, outdoor unit, and HRV.
- Heating and cooling energy in each zone shall be controlled by a temperature sensor located in that zone. Independent perimeter systems will have at least one temperature sensor for each perimeter zone. A 5°F dead band will be used between independent heating and cooling operations within the same zone.
- Controls for the various operating conditions must include maintaining pressurization requirements.

- General exhaust for the Apparatus Bay will be controlled through a wall-mounted push button, CO or NO2 sensor, or door opening
- Ducted VRV fan coil unit controls serving Turnouts will be set up for heating only.
- Electric heaters and individual exhaust fans will be locally controlled.
- Lighting control shall be accomplished by use of separate control equipment that is not connected to the HVAC control system.

D3070 Air Distribution

- All ductwork sheet metal will be galvanized.
- Return air ducts, supply air ducts, and general exhaust ducts: SMACNA low pressure duct standards (0” to 2”).
- All supply, return, and exhaust ducts will be sealed for a maximum of class per SMACNA.
- All supply ducts upstream of terminal boxes will be leak and pressure tested for a maximum of class per SMACNA.
- Flexible Ducts: Pre-insulated with vapor barrier, used for diffuser connection and in concealed ceiling space only.
- Insulation for Ductwork:
  - Concealed supply and return ducts: R-8, 1-1/2” thick fiberglass blanket duct wrap with foil facing.
  - Exposed supply and return ducts: Insulation is not required for ductwork exposed in conditioned space.
  - Internal duct liner: 1-inch thick, Armaflex.
  - Exhaust ducts: Not insulated except for acoustic liner where required.
- Balancing Dampers: Adjustable balancing dampers in each branch take-off for proper control of balancing of the air distribution system will be provided. All operating levers will be readily accessible and be of extended type so as to not be in contact with insulation. Where dampers are inaccessible for adjustment, ceiling flush mounted concealed damper regulators with rod extension to damper, and die cast gears, as manufactured by Ventlock and Young Regulator, or equal will be provided. Dampers will be Ruskin, Johnson, or equal.
- Seismic Restraints: Piping, ductwork, and equipment will be provided with adequate restraints conforming to the Oregon Structural Specialty Code.

D3080 Testing, Adjusting, and Balancing

- An independent testing and balancing contractor will be required (as a sub-contractor to the general contractor), AABC certified to balance all air and water systems and heating and cooling equipment to the required quantities; and to verify the capacity and operating conditions of each piece of equipment.
- They will submit detailed test procedures, forms, etc. for approval prior to beginning the work.

- After balancing is complete and all airflows have been balanced to within +/- 5% of design airflow, the contractor shall submit three complete balance reports.

D40 FIRE PROTECTION

D4010 Sprinklers

- The fire sprinkler system design will be performed by the contractor and will be hydraulically designed.
- The building will be provided with a wet pipe system per NFPA 13, International Building Code, local building codes and Fire Marshal requirements. Areas subject to freezing, such as overhangs, canopies and unconditioned spaces, will be protected with a dry pipe system or dry sprinklers.
- Sprinklers, valves, switches, pipe, fittings, backflow preventers, hangers, sway braces and the like will be UL Listed or FM Global Approved for fire protection.
- There will be a new water service to the building. A double check valve backflow prevention assembly, listed for fire protection will be provided between the fire sprinkler system and the public water supply connection.
- It is anticipated that the backflow device will be located in a vault on site near the city water connection or at the main sprinkler riser. If located in an outside vault, the vault will be provided with a sump pump or other method of gravity drainage.
- The backflow preventer control valves will be electrically supervised by the fire alarm system.
- The fire sprinkler main riser will be located immediately adjacent to an exterior wall. If the fire sprinkler riser is located in a room with immediate exterior access, the system control valve can be located at the riser and no yard or wall PIV will be required.
- A fire department connection (“FDC”) with check valve and method of drainage will be provided.
- Black steel piping will be used for wet and dry sprinklers systems. Piping will be concealed where possible.
- Quick response sprinklers will be provided throughout. Finishes will be white polyester, with white polyester escutcheons, or as coordinated with the architect. Recessed sprinklers will be provided.
- Where sprinkler heads are installed in suspended ceilings a flexible sprinkler connection will be provided between the branch line(s) and the sprinkler(s). . Alternately, suspended ceilings will have sprinkler penetrations two inches larger than the sprinkler to accommodate seismic requirements and will be provided with large escutcheons.
- Seismic sway bracing, interval-and end-of-branch line restraints will be provided for the sprinkler system.

- Apparatus Bay and Equipment/Storage areas will be an Ordinary Hazard Group 2 density.
- Administrative areas will be a Light Hazard density.
- Electrical connections and wiring will be provided for a complete and operable fire protection system, including, but not limited to valve supervisory switches, flow alarms, etc. Audible electric sprinkler flow alarms on the exterior of the building will be provided. Supervisory switches, flow switches, pressure switches, and the like will be monitored by the fire alarm system.

D50 ELECTRICAL

D5010 Electrical Service and Distribution

- The building will be served with by an 600amp, 120/208V, 3 phase service with a single utility meter.
- A main electrical room will provide distribution to the building with branch panelboards spaced throughout the facility. Provide all branch panels shown in one-line diagram.
- Lighting will be served at 120V. Provide electrical connections for HVAC units as required by mechanical design. Provide duplex receptacles on 25 foot centers in shell spaces; provide GFCI duplex receptacles in all bathrooms.
- Emergency power will be provided from a 200 Kilowatt diesel fuel generator with base tank adequately sized to serve the life safety loads as well as loads designated by Owner as requiring emergency backup. Provide two automatic transfer switches, one to serve “normal” power loads and one to serve “life safety” loads.
- Anticipated Emergency Loads are
    - Life Safety Power:
        - Egress Lighting.
        - Exit signs.
        - Exterior lighting at exits.
        - Fire Alarm Control Panel.
    - Standby Power:
        - Remainder of building electrical loads
- Provide receptacles and branch wiring to accommodate furniture layout. Provide receptacles on 10 foot centers in all office areas and 25 foot centers in corridors and public areas.
- Provide grounding conductor in all branch circuits.

D5020 Lighting and Branch Wiring

- Electrical, Mechanical and Fire Sprinkler rooms: Provide industrial LED luminaires with wireguards in the following areas to provide 20 footcandles.
- Lobby Areas and Public Corridors: Recessed LED narrow slot fixtures, downlights and pendant lights. Provide LED wall mounted linear fixtures to highlight photos, displays and art.

- Conference Rooms: Provide dimmable decorative linear LED direct/indirect pendant mounted fixture.
- Reception: Recessed linear LED Slot lighting.
- Corridors: LED pendant fixture.
- Offices: Provide in each space LED recessed 2x2 volumetric troffer luminaires with direct illumination spaced on 8’x8’ array.
- Kitchen, Copy, Work, Radio and EOC Rooms: Provide in each space LED recessed 2x2 volumetric troffer luminaires with direct illumination spaced on 10’x10’ array.
- Emergency Lighting: Provide emergency lighting of one footcandle average maintained throughout exit pathway.
- Switches: Provide switching in each of the following rooms:
  - Occupancy sensor in Janitor rooms
  - Wall switch in Electrical rooms
  - Wall switch in Fire Sprinkler room
  - Occupancy sensors in open office areas
  - Switched occupancy sensors in private office areas
  - Occupancy sensors in all storage rooms
  - Dimmable controls in all conference rooms

D5030 Communication and Security

- A microprocessor-based, analog-addressable fire detection and alarm system will be installed to provide protection for both the building occupants and the property.
- System annunciation will be located in the main entrance for fire department responders.
- Off-site notification will be provided.
- The system will utilize ADA compliant visual notification appliances with Temporal-3 audible alert throughout the building.
- Area smoke detectors will be installed in electrical rooms, telephone/data rooms, corridors, and remaining spaces as required by code. Duct-mounted smoke detectors will be installed as required by code for the air handling systems. Single-action manual pull stations will be installed at all emergency exits.
- The system will monitor the fire protection sprinkler system status.
- The system will have emergency generator backup as well as 24 hours of battery backup power in normal mode, five minutes of battery backup in alarm mode.
- Extend detection, notification and monitoring to all spaces as required by code.
- The system will utilize ADA compliant visual notification appliances with Temporal-3 audible alert throughout the building.

- Area smoke detectors will be installed in corridors, offices, open offices, conference rooms and remaining spaces as required by code. Duct-mounted smoke detectors will be installed as required by code for the air handling systems. Single-action manual pull stations will be installed at all emergency exits.

PATHWAYS FOR COMMUNICATIONS SYSTEMS

- (1) 4-inch conduit will be installed from the Telecom Room to the City's fiber tie in and (1) 4-inch conduit will be installed to each of two vaults located near the main roadway for future service providers.
- Wire Basket style cable tray will be provided in accessible ceiling space in the corridors. The wire basket tray will be mounted to structure with trapeze style supports.
- Category rated J-hooks are required for lower density areas where cable is not routed in cable tray to bundle cables together in a common path. EMT conduit will be provided over inaccessible ceiling spaces. Metallic 2-5/8-inch by 4-inch square, 2-gang outlet boxes with single gang adapters with 1-inch metallic conduit/raceways to accessible ceiling space will be provided for routing and termination of low voltage cabling.
- A conduit pathway will be provided from the Telecom Room to the rooftop antennas.
- Raceway installed per ANSI/TIA/EIA-569-C standards.

VOICE, DATA, and CATV HORIZONAL CABLING INFRASTRUCTURE

- This facility will be cabled with 4-pair unshielded twisted pair (UTP) Category 6 voice and data network cabling. The design and will require that the successful bidder submit at least a 20-year, end-to-end solution warranty for the completed installation of these products. Each telecommunications outlet will consist of three 8-pin connector modules. Each outlet will be capable of delivering voice or data as selected by the Owner. These locations will be coordinated with the Owner to ensure exact placement as needed. All floor boxes at the tables in the Training Room will have four 8-pin connector modules. Floor boxes with underslab conduit will require the cabling to be indoor/outdoor rated and both the conduit and cabling be homerun to the Telecom Room.
- Each wireless outlet will be cabled with Category 6 cabling and consist of one cable per outlet. All WAPS are furnished and installed by the City.
- Each outlet will also be capable of accepting a CATV insert/cable as required by the Owner. The CATV insert will be modular and designed to be used in the modular faceplate selected. The CATV outlet locations will utilize RG-6 Quadshield coaxial cable. The specific location requirements will be coordinated with the Owner. Amplifiers and splitters will be specified as required to maintain video signal integrity to each outlet.

RACKS

- The Telecom Room will consist of 8'H x19"W standalone equipment racks to support horizontal cable installation as well as Owner-provided network equipment. Quantities to be determined during design phase based on total number of cables and the amount of Owner provided and installed equipment.
- All racks will be seismically braced with overhead ladder racking and properly anchored floor hardware. Racks will Ortronics Mighty Mo III.

WIRE MANAGEMENT

- All equipment racks will have one 6-inch vertical wire manager on each end and in between each equipment rack.
- All equipment racks will have one single unit horizontal wire manager at the top and bottom of each column of patch panels and equipment, and one double unit horizontal wire manager in between each patch panel. Wire managers will be Siemens.

ELECTRONIC ACCESS CONTROL and INTRUSION DETECTION

- Card readers will be placed at all exterior entrances, interior doors from the Lobby, the telecom room and two exterior gates. Card readers will be keypad/proximity combination units.
- Door contacts will be placed on all exterior doors and all card access controlled doors for door position monitoring. This system allows the Owner to ensure all doors are securely closed. The access control system is AMAG.

IP VIDEO SURVEILLANCE SYSTEM

- IP Video Surveillance system will be provided for monitoring in areas shown on the drawings. A Network Video Recorder (NVR) will be provided and installed by the City of Vancouver.
- Monitoring of IP Video Surveillance will be via use of PC workstations, local or remote from the facility. The video management software will be Milestone.

AUDIO-VISUAL SYSTEMS

- The Kitchen and conference room will have an HDMI connection from the flat screen location to a wall outlet. The flat screen is Owner furnished Contractor installed.
- The multipurpose room will have a wall mounted short throw projector system installed on the teaching wall.

PAGING AND INTERCOM SYSTEMS

- A push button intercom will be installed at the front door. The intercom will have the ability to be programmed to call outside the station if needed.
- A zoned paging system will be provided throughout the facility

PROGRAMMING AND DESIGN NOTES

- Additional programming information will be garnered from the Owner in further coordination meetings. Design reviews with the City's technology staff will be accomplished to confirm device location and quantities.

D60 FIRE ALARM

D6010 Addressable Fire Alarm System

- The fire alarm system design will be by the contractor and will be a deferred submittal.
- An automatic, addressable fire alarm system will be provided to meet the requirements of the adopted editions of the International Building Code and International Fire Code, with Washington Amendments, NFPA 72, and the City of Stevenson, Washington.
- The fire alarm system will provide system alarm, supervisory and trouble signal monitoring, and alarm notification for the building. A communicating transmitter will facilitate off-premises monitoring of the individual signals to a listed central station facility. The system will have batteries to provide a secondary power source in case of primary power loss to the control panel or any remote power supply.
- A fire alarm annunciator will be located in the main entrance.
- The system will utilize ADA compliant visual notification appliances in common use and public areas. Audible notification appliances will be provided throughout the building to meet audibility requirements of NFPA 72.
- Area smoke detectors will be installed in spaces as required by code as well as electrical rooms, telephone/data rooms and corridors and spaces open to corridors. Combination fire alarm system smoke/carbon monoxide detectors will be installed in sleeping rooms and in common spaces as required by code. Low frequency sounder bases will be provided in all sleeping rooms. Duct-mounted smoke detectors will be installed as required by code for the air handling systems and for fire/smoke dampers. Single-action manual pull stations will be installed at all exits and entrances to enclosed exit stairwells.
- Activation of system smoke detectors, manual pull stations, sprinkler water flow switches and suppression systems will initiate alarm signals on the fire alarm control panel (FACP) and fire alarm annunciator (FAA), and activate the audible and visual notification appliances throughout the building. Activation of sprinkler tamper switches and HVAC duct smoke detectors will initiate supervisory signals, which will annunciate on the FACP and the FAA.

- Control outputs will be provided for fire safety functions, such as air handler shut down, fire smoke damper closure, fire door release and elevator control.

E. EQUIPMENT AND FURNISHINGS

E10 EQUIPMENT

E1010 Commercial Equipment

- Office equipment (TBD)
- Video conference equipment provided by Owner, installed by Contractor.
- (1) recessed motorized projection screen and wall mounted projector at Multi-Purpose room.
- Lockers will be supplied by Contractor, installed by Contractor.
- Provide allowance for blocking for all OFCI equipment.

E1020 Institutional Equipment – NOT USED

E1030 Vehicular Equipment

- Electrical Vehicular Charging Stations in parking lot.

E1090 Other Equipment

- Kitchen Equipment provided by Contractor, installed by Contractor, including the following:
  - (1) commercial refrigerator
  - (1) commercial ice machine
  - (1) stove with hood
  - (1) microwaves
  - (1) dishwasher
  - (1) Stackable clothes washing machine
  - (1) Stackable clothes dryer

E20 FURNISHINGS

E2010 Fixed Furnishings

- Casework: (uppers, counter, lowers)
  - Typical Countertops: Plastic Laminate, Solid Surface or Quartz (at sink locations), countertops as noted in floor plans.
    - See Schedule of Interior Finishes for material selection.
- Typical Cabinet Vertical Surfaces: Plastic laminate, wood veneer, or fiberboard as noted in floor plans.

- See Schedule of Interior Finishes for material selection.
  - Mirrors:
    - 7’-0”H frameless mirrors, sized per plan (Physical Training Room)
    - 4’-6”H frameless mirrors, full length of counters (Men’s and Women’s Restrooms and Shower Rooms)
- Window Treatments:
  - Hunter Douglas roller shades with PVC-free fabric at all exterior windows.
  - Hunter Douglas roller shades, blackout at Multi Purpose Room windows.

E2020 Movable Furnishings – NOT USED

F. SPECIAL CONSTRUCTION AND DEMOLITION

F10 SPECIAL CONSTRUCTION

F1010 Special Structures

F1020 Integrated Construction

F1030 Special Construction Systems

F1040 Special Facilities

F1050 Special Controls and Instrumentation

F20 SELECTIVE DEMOLITION

F2010 Building Elements Demolition

F2020 Hazardous Components Abatement

G. BUILDING SITEWORK

G10 SITE PREPARATION

G1010 Site Clearing

- Removal of existing trees and landscaping. Some trees and landscaping will remain with the proposed site improvements.

G1020 Site Demolition and Relocations – NOT USED

G1030 Site Earthwork

- Preparation on building footings and slab subgrade. Grading also includes that required for parking lot and sidewalk subgrades. Additional grading as required for park and landscaped areas.
- Retaining wall will be required along the northern – keystone retaining wall to be engineered as required per grading.

G1040 Hazardous Waste Remediation – NOT USED

G20 SITE IMPROVEMENTS

G2010 Roadways

- Provide new curb, sidewalk and street trees as described in the planning narrative.

G2020 Parking Lots

- Asphalt, concrete curbs, striping and signage.

G2030 Pedestrian Paving

- To extend the full length of SW Rock Creek Drive and to tie into any existing sidewalk present.

G2040 Site Development

- Optional Cost: Secure Parking lot to the north of the fire hall
- Trash enclosure to be constructed of 6ft tall Structural Brick masonry wall with steel fabricated gate leafs.
- Provide concrete retaining walls at SW property area adjacent to back drive aisle and
- Provide one flag pole for station.
  - Size: 1x 35ft

G2040 Security Enclosure – NOT USED

G2050 Landscaping

G30 SITE CIVIL / MECHANICAL UTILITIES

G3010 Water Supply – Site survey not available, assumed connection at SW Rock Creek Drive

G3020 Sanitary Sewer – Site survey not available, assumed connection at SW Rock Creek Drive

G3030 Storm Sewer

- Roof areas drain to flow through planters with overflow to drywells.
- Parking area sheet flow to catch basins and piped to onsite treatment areas.

G40 SITE ELECTRICAL UTILITIES

G4010 Electrical Distribution

G4020 Site Lighting

- Parking lot; provide 250W Induction luminaire on 20 foot pole.
- Provide 12 Ft. Pedestrian lights along walking paths and building entry paths.

G4030 Site Communications and Security

- Criteria to be provided

G4090 Other Site Electrical Utilities

- Emergency generator.

G4090 Other Site Electrical Utilities

G90 OTHER SITE CONSTRUCTION

G9010 Service Tunnels – NOT USED

G9090 Other Site Systems

- Irrigation system (fully automatic irrigation system at all planting area providing 100% coverage with current technology water conservation features). Irrigation system to be temporary system to be shutdown and/or removed at a maximum of 18 months.

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Appendix C: Site Report

C

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BergerABAM

Site Assessment

City of Stevenson

New Fire Station

Prepared for

City of Stevenson
Stevenson, Washington

January 2019

Site Assessment

City of Stevenson
New Fire Station

Submitted to

City of Stevenson
Stevenson, Washington

January 2019

Submitted by

BergerABAM
210 East 13th Street, Suite 300
Vancouver, Washington 98660

A19.0048.00

SITE ASSESSMENT

City of Stevenson
New Fire Station

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NEW FIRE STATION

1.0 INTRODUCTION

The City of Stevenson (City) has contracted with Mackenzie to assess the feasibility of developing a previously purchased site with a new fire station and accessory uses such as parking, circulation, and landscaped areas. If constructed, the new fire station would serve the City and Skamania County Fire District 2 and would replace the existing fire station located at 160 First Street in downtown Stevenson. The existing station has been home to the department's activities since 1912 and has housed its equipment since 1967. Population growth and time highlight its shortcomings, including the structural deficiencies exposed by a minor collision in 2011 that damaged one of the City's trucks and the building.

The City conducted a needs assessment in 2013 led by its consultant, Rice Fergus Miller, to identify a building footprint that would meet its needs and to determine whether a new fire hall could be shared with other emergency service providers, including the Skamania County Hospital District, Skamania County Department of Emergency Management, Skamania County Fire District 2, and the Stevenson Volunteer Fire Department. The Hospital District later decided that colocation with the other service providers would not serve its best interests and the footprint of the 2013 study no longer applied. In 2015–2016, the City led a process with key stakeholders to reevaluate the required building footprint and to select a site to meet the Fire Department's needs. Their findings were contained in the Stevenson Fire Hall Strike Team Report. The report recommends a 9,700-square-foot facility with room to expand to over 11,000 square feet.

In 2017, the City purchased property located near the intersection of Foster Creek Road and SW Rock Creek Drive on Parcel No. 020702003100, immediately across the street from the Rock Cove Assisted Living Community. As part of Mackenzie's team, BergerABAM is assisting the City by completing this site assessment to evaluate the required permits, development standards, permitting schedule, and fees involved in developing the site for a new fire station.

2.0 EXISTING CONDITIONS

The 3.45-acre subject site is triangular and characterized by thick vegetation and trees on its southern, western, and northern portions. The eastern portion has an existing circular gravel entrance within a cleared area. The gravel entrance road crosses the site from SW Rock Creek Drive and heads southwest where it connects to Foster Creek Road. Overhead power lines parallel both SW Rock Creek Drive and Foster Creek Road. The site is otherwise unimproved. The City's comprehensive plan maps show water lines in both Rock Creek Drive and Foster Creek Road. The City's sewer map shows that the site is within the City's sewer service area.

2.1 Comprehensive Plan and Zoning

The site is designated as Low Intensity Trade (LIT) by the City's future land use map (2013). This designation is intended to allow auto-oriented regional tourism and service industries to coexist in the same area with recreational and public/institutional uses.

The site is zoned Commercial Recreation (CR) on the City's zoning map (2016). The CR zone is implemented in areas designated LIT on the future land use map. According to the City's zoning ordinance (Stevenson Municipal Code [SMC] Title 17), trade districts are intended to "ensure that the local business community remains a healthy component of Stevenson's economy."

2.2 Natural Features, Critical and Sensitive Areas

The site slopes downhill from west to east with slopes exceeding 25 percent along the northern, western, and southern property boundaries in some locations (see Appendix A for site maps). Slopes level off in the central, eastern portion of the site in the cleared area where the existing gravel entrance drive is located. The site also slopes slightly downhill from south to north. The Natural Resource Conservation Service (NRCS) Web Soil Survey maps the on-site soils as Steever stony clay loam (2 to 30 percent slopes), a well-drained, non-hydric soil. Vegetation varies across the site and can be categorized by forested and grassy cleared areas. Vegetation in the forested areas generally consists of a combination of coniferous and deciduous tree species and an understory of woody shrubs. Vegetation along the roadside and in the cleared areas has been disturbed and consists of common facultative grasses, herbaceous species, and wetland plants.

2.2.1 Wetlands

The City's critical areas and geologic hazards map indicate the presence of a small, palustrine emergent (PEM) wetland located in the northeastern site area. Neither the National Wetland Inventory (NWI) online mapper nor Skamania County MapSifter indicates the presence of wetlands within or close to the study area. On 15 November 2018, two BergerABAM wetland scientists visited the site, conducted a wetland field investigation, and documented their findings in a wetland delineation and assessment (Appendix B). The scientists identified one wetland (Wetland A) on the northeastern part of the project site. They classified the wetland as a Category IV (lowest quality), palustrine scrub-shrub (PSS) wetland of 0.01 acre (587 square feet) with a habitat rating of 3 points.

2.2.2 Fish and Wildlife Habitat Conservation Areas

The wetlands and stream habitat areas map (Map 4.9) in the City's comprehensive plan shows an unnamed stream of unknown classification along the site's eastern boundary paralleling SW Rock Creek Drive. Neither the Washington State Department of Natural Resources (DNR) online Forest Practices Application Mapping Tool nor the United States Geologic Survey (USGS) online National Map shows a stream in this location. Additionally, the City's critical areas and geologic hazards map does not show any streams on or adjacent to the site. The BergerABAM scientists' wetland site visit did not identify any streams that would be subject to regulation by the City, state, or federal agencies. Given that neither DNR nor USGS shows a stream located on the site and the BergerABAM scientists did not locate a stream during their site visit, this report presumes that none is present and that there are no regulated riparian or aquatic habitat conservation areas on the site. Likewise, the Washington Department of Fish and Wildlife (WDFW) online mapping tool, PHS on the Web, shows no non-riparian habitat, such as Oregon white oak, on the site.

A review of the U.S. Fish and Wildlife Service (USFWS) online application Information for Planning and Consultation (IPaC) indicates that one endangered species, three threatened species, and one proposed threatened species do, or may, occur within the boundaries of the project area. They are:

- Gray wolf (*Canis lupus*) – Endangered
- Northern spotted owl (*Strix occidentalis caurina*) – Threatened
- Yellow-billed cuckoo (*Coccyzus americanus*) – Threatened
- Bull trout (*Salvelinus confluentus*) – Threatened
- North American wolverine (*Gulo luscus*) – Proposed Threatened

The IPaC website states

> *The primary information used to generate a species list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near a project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.*

The Washington Natural Heritage Program's website states that currently there are nearly 400 plants and nonvascular species with conservation status in the state, 11 of which are also listed under the Endangered Species Act (ESA) as either endangered or threatened. Review of the USFWS website Environmental Conservation Online System shows that no threatened or endangered plant species occur or have been identified within Skamania County. In addition, the BergerABAM scientists observed no threatened or endangered plant species during their site visit.

Based on this information, BergerABAM presumes there are no fish and wildlife habitat conservation critical areas on the site.

2.2.3 Geologically Hazardous Areas

Landslide and Erosion Hazards

The City's critical areas and geologic hazards map shows potential landslide hazards and slopes 25 percent or steeper near the western and southern property boundaries on the site. In addition, Map 4.11 of the comprehensive plan shows slopes 25 percent or greater on the site near the southern tip and northeastern corner of the property. These slopes are classified as moderately hazardous landslide areas in Table SMC 18.13.090-1. The 2018 DNR digital landslide inventory of the Columbia River Gorge identifies landslide deposits covering the entire site, as is the case with much of Stevenson and the surrounding area.

GN Northern, Inc. completed a geotechnical investigation in December 2018 of the site (Appendix C) and concurs that the site is classified as a moderate hazard.

According to NRCS, erosion hazards are not mapped on the site. The GN Northern report indicates that, even in the absence of erosion-prone soils, the site may be susceptible to erosion because of the steepness and length of the slopes on the site. However, because the City's critical area regulations rely on NRCS mapping, BergerABAM does not consider that there are erosion hazard critical areas subject to regulation on the site.

Seismic Hazards

The site is mapped as site class "D" by the Site Class Map of Skamania County, Washington (Palmer et al., 2004) The GN Northern report notes that the Liquefaction Susceptibility Map of Skamania County, Washington (Palmer et al., 2004) designates the site as having a low to moderate relative susceptibility of liquefaction. The City's critical areas ordinance identifies that Site Class D is considered a seismic hazard for residential construction, but the ordinance does not specifically identify the seismic design category or liquefaction category considered to be a seismic hazard for non-residential construction. GN Northern stated that a detailed assessment of the liquefaction potential at the site was beyond the scope of its investigation. Critical facilities such as fire stations are commonly subject to seismic design requirements. Thus, for the purposes of this site assessment report, BergerABAM presumes that the site is located within a seismic hazard area, and that a critical areas permit must be obtained for its development, which must meet the seismic design requirements of the critical areas ordinance.

2.2.4 Other Critical Areas

The City and the Federal Emergency Management Agency (FEMA) do not map critical aquifer recharge areas and special flood hazard areas on the subject site. FEMA's online Flood Insurance Rate Map panels do not include the subject site. However, FEMA is in the process of updating flood hazard mapping for Skamania County. Their new mapping, which covers the area of the subject site, indicates there is no floodplain on the site (see Appendix A). The nearest floodplain is located east of the subject site across Rock Creek Drive along Rock Cove.

For the above reasons, critical aquifer and floodplain critical areas are assumed not to be present on the site and are not discussed further in this report.

2.2.5 Shoreline Jurisdiction

Rock Cove, located east of the site, is a regulated shoreline waterbody per Revised Code of Washington 90.58.020(2)(e). The City is currently in the process of updating its adopted shoreline master program (SMP), which dates to 1975. The City adopted Skamania County's SMP, which designates shorelines as all lands within 200 feet of the ordinary high water mark of shoreline waterbodies. The City's draft SMP, which is expected to be adopted in September 2018, contains a shoreline jurisdiction map. In both the existing SMP and draft SMP update, the site falls outside shoreline jurisdiction.

2.2.6 Archaeological and Cultural Resources

The Washington Department of Archaeology and Historic Preservation's (DAHP) Washington Information System for Architectural and Archaeological Records Data (WISAARD) online mapping system indicates the site is mapped as "High Risk" for discovery of archaeological and/or historic resources and highly advises that a survey be completed. The City does not have an archaeological review process. The Washington State Governor's Executive Order 05-05 requires all state-funded capital projects to undergo archaeological review. Given that state resources may be used for the construction of the fire station and there is a high probability for encountering archaeological resources on the site, BergerABAM recommends that an archaeological assessment and/or survey be completed for the project site.

2.3 Transportation and Utility Infrastructure

The City's comprehensive plan streets map (Map 4.6) designates both SW Rock Creek Drive and Foster Creek Road as rural major collectors. According to the City's "Engineering Standards for Public Works Construction" (updated 2016), major collectors have a 60-foot right of way including two drive lanes, two parking lanes, and sidewalks and planter strips on each side. There is an existing gravel turnaround serving the site that will need to be improved in accordance with the standards in section 4.6.2 of this report.

Based on as-built information from the City, there is a 4-inch sewer lateral stubbed out for the subject parcel that is located approximately 40 feet north of the northernmost driveway on Rock Creek Drive. There is an 8-inch ductile iron water line on Ray Allen Road and a 6-inch ductile iron water line on Rock Creek Drive.

Skamania Public Utility District (PUD) is the electricity purveyor. Electrical infrastructure includes overhead lines in both Foster Creek Road and SW Rock Creek Drive adjacent to the site. Skamania PUD stated that the amperage of the lines is unknown until a load calculation is performed during a site survey. According to the PUD, connection to power would likely come from the Rock Creek Drive line.

Internet providers serving the site include Wave Broadband and CenturyLink. Wave Broadband has coaxial cable adjacent to the site in SW Rock Creek Drive with speeds of up to 250 megabits per second. Wave stated that fiber-optic line is not currently available to the site, but could be constructed, if requested. Costs to construct a fiber-optic line would be determined in consultation with Wave representatives. CenturyLink reports that they have coaxial cable in Foster Creek Road and SW Rock Creek Drive and, additionally, have fiber-optic cable in Rock Creek Drive. The CenturyLink coaxial cable has speeds of 20 megabits per second and the fiber-optic cable of up to 1 gigabit per second.

3.0 PERMIT ASSESSMENT

This section of the report identifies the federal, state and City permits that may be required to construct a new fire station at the subject site. The permit assessment is based on a review of the City's zoning (SMC Title 17) and critical areas ordinances (SMC Chapter 18.13), and BergerABAM's knowledge and experience with state and federal permitting requirements, as well as our site visit. The potentially required permits, review agencies, permit triggers, submittal requirements, and review timelines are summarized in Table 1 in section 3.4. The permit assessment is based on the schematic site plan provided by Mackenzie. Should the schematic site plan change, the requirement for different permits may be triggered, and BergerABAM recommends updating the permit assessment.

3.1 Federal Permits

3.1.1 Section 404 Clean Water Act

A Clean Water Act (CWA) Section 404 permit is administered by the U.S. Army Corps of Engineers (USACE). This permit is required for the discharge of dredged or fill material into waters of the United States such as may be required for impacts to the on-site wetland. If project site plans change and impacts to the wetland are proposed, it may be necessary to obtain a Section 404 permit.

Any proposed impacts to the on-site wetland would require the completion of a Joint Aquatic Resources Permit Application (JARPA) and the same information would be used for a USACE permit in accordance with Section 404 of the CWA. The items that must accompany the application include completed USACE forms, background information in the form of supporting documents (wetland and waterbodies delineation, habitat assessment, revegetation plan, engineering plans, etc.), and graphics.

3.1.2 Endangered Species Act and Magnuson-Stevens Fishery Conservation and Management Act

Actions of federal agencies (i.e., issuance of federal permits) that may affect endangered species or designated critical habitat must be evaluated under Section 7 of the ESA. In addition, the action's effects on essential fish habitat must be considered in accordance with the Magnuson-Stevens Fishery Conservation and Management Act. Based on the lack of potential presence of ESA-listed species on the site, the project is not anticipated to undergo formal ESA Section 7 consultation.

3.1.3 Section 106 National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to determine how a proposed project may affect recorded or undiscovered cultural resources and/or historic properties within the permit area. Section 106 directs federal agencies with jurisdiction over a proposed federal undertaking (i.e., federal permitting) to take into account the effect of the undertaking on any historic property listed, or eligible for listing, in the National Register of Historic Places. Compliance with Section 106 is a requirement of all Section 404 permits.

A cultural resource/historic property survey conducted by a professional archaeologist will be necessary before a Section 404 authorization can be completed. Applicants should be aware that Section 106 coordination and/or consultation may add significant time to the Section 404 permit application review process. A Section 106 permit will not be required if there are no impacts to the on-site wetland.

3.2 State Permits

3.2.1 Section 401 Clean Water Act – Water Quality Certification

Under Section 401 of the CWA, any activity involving a discharge into waters of the United States authorized by a federal permit must receive water quality certification from the Washington State Department of Ecology (Ecology). That agency is authorized to make 401 certification decisions for activities on all federal, public, and private lands in Washington. A Section 401 water quality certification is required if there will be impacts to the on-site wetland.

3.2.2 National Pollutant Discharge Elimination System –Construction Stormwater Permit

Ecology regulates stormwater discharges during construction through the National Pollutant Discharge Elimination System (NPDES) permit program for disturbances greater than 1 acre. When this report was being written, information about whether site disturbance would exceed 1 acre was not available, so the applicability of this permit is unknown. However, if there will be more than 1 acre of site disturbance, an NPDES 1200 Construction Stormwater Permit will be required.

3.3 City of Stevenson Permits

According to staff, the City typically reviews zoning, engineering, and building permits simultaneously. Because this project will require a conditional use permit, zoning and critical areas review will likely occur first. Applicants may optionally conduct a pre-application conference with the City. Each review/application process is discussed further below. Appendix D contains City application forms and fee schedules.

3.3.1 Pre-application Conference

Pre-application conferences are an opportunity for applicants to present a preliminary development proposal to staff and receive informal feedback regarding the applicability of regulations and potential design changes required to make the development code-compliant. Pre-application conferences, although not required by the City, are encouraged and highly advised because they are occasions to obtain information as early as possible that may influence a project's design, permitting schedule, and/or review requirements.

3.3.2 Land Use Review

Technical Completeness Review
The City does not have a formal technical completeness review process. Staff indicates that technical completeness usually occurs within two weeks after applications are submitted. Materials must be submitted that correspond to the type of applications whose approval is being requested and based on the submittal requirements in the City's code and on its application forms.

Conditional Use Permit
Fire stations require the submittal and approval of a conditional use permit (CUP) application in the CR zone. The CUP process is a quasi-judicial review with final approval authority given to the Planning Commission after a public hearing. The Planning Commission must make a decision within 30 days following the public hearing (see SMC 17.39). According to the City's website, CUP decisions are anticipated within 50 days after an application is deemed fully complete.

Critical Areas Permit
The new fire station is likely to be located in a geologically hazardous area (landslide and seismic hazards) as discussed in section 2.2.3. The City's draft critical area ordinance requires critical areas permit review for any regulated activities "within, adjacent to, or likely to affect one or more critical areas or their buffers." Reports are required specific to the type of critical area impacted. Critical areas report(s) and other submittal requirements are listed in Table 1 and on the critical areas permit application in Appendix D. The permit process includes the completion of an application form and the submittal of site plans, a geotechnical assessment, and a geotechnical stabilization report. Critical areas reports must be prepared by qualified professionals (a geotechnical engineer). City staff is the final decision-making authority for critical areas permits. Critical area permits are valid for one year after the date of issuance, but City staff may grant an extension for an unspecified period of time (see SMC 18.13.040.D). Critical areas decisions may be appealed to the Board of Adjustment.

Although the onsite wetland is exempt under SMC 18.13.100(B)(4), a wetland delineation must be submitted to verify its exempt status. Should the site plan change in the future and impact the wetland, a critical area permit for wetlands would be needed, and in that case, BergerABAM recommends updating this report with a discussion of the development standards and mitigation requirements that apply to wetlands.

Variance
The City reviews requests for variances from the terms and provisions of the land use regulatory codes. Examples of variances could include deviations from the City's numerical zoning standards such as building height or lot coverage or setbacks that exceed a 50 percent administrative adjustment authorized by SMC 17.38.040. Variances are subject to a public hearing and review by the City's Board of Adjustment and must meet the criteria listed in SMC 2.14.010, including that:

- Granting the variance does not constitute a special privilege.
- Strict application of the land use regulation would deprive the subject property of rights and privileges enjoyed by other properties in the zoning district.
- The hardship resulting in the variance request is not self-imposed.

BergerABAM's review of the schematic site plan (Appendix E) did not reveal the need for a variance application.

State Environmental Policy Act Review

The purpose of State Environmental Policy Act (SEPA) review is to determine whether a given development proposal will result in a significant environmental impact and, if significant, to identify mitigations to lessen the impact to a nonsignificant level. SEPA review is required for all developments that do not meet specific categorical exemptions in WAC 197-11-800. Because the proposed fire station is not exempt, the proposal would require the completion of a SEPA environmental checklist and a review and issuance of a determination by the City. SEPA review is conducted concurrent with land use review. The SEPA checklist is completed by the applicant and submitted with the conditional use and critical areas permit submittal requirements. According to the City's website, the SEPA determination is issued approximately 30 days after a complete land use application is submitted.

3.3.3 Engineering and Building Reviews

Based on information provided by City staff, engineering and building permit reviews typically occur at the same time as land use review. In this case, the CUP and critical areas land use reviews would occur first followed by engineering and building review. Engineering review would encompass street and utility (water, sewer, storm) design and construction. Engineering review typically, takes three weeks according to public works staff.

Building permit review would assess all structural, mechanical, electrical, and plumbing aspects of the building. Building permit review typically takes three weeks.

In order to make the driveway improvements connecting to SW Rock Creek Drive and to make the street improvements, the City Public Works Department will require a Type B right of way permit which is reviewed simultaneously with other engineering review items.

3.4 Permit Summary

The following table summarizes the federal, state, and City permits potentially required for a fire station on the subject site.

Table 1. Summary of Potential Permits

Permit	Review Agency	Permit Trigger	Submittal/Fee Requirements	Review Timelines
Federal Permits				
CWA Section 404 Authorization	USACE	Dredge and fill activities in waters of the United States (e.g., wetland) to a regulated wetland.	• JARPA form; graphics, engineering drawings, mitigation/revegetation plan, wetland and waterbodies delineation. • Fee: $100	6-18 months
ESA Section 7 Consultation	USFWS NOAA Fisheries/ National Marine Fisheries Service (NMFS)	Federal agencies must consult with USFWS and NMFS when actions have the potential to affect listed species.	• Formal consultation is not anticipated. If federal permit or review is required, a no effect letter is necessary. • Fee: $0	6-18 months
NHPA Section 106	USACE State Historic Preservation Act	Federal agencies must consider impacts of federal actions (e.g., Section 404 permit) on cultural and historic resources	• Cultural resources report. • Fee: $0	6-18 months
State Permits				
CWA Section 401 – Water Quality Certification	Ecology	Applicants seeking federal approval must receive water quality certification prior to issuance of federal permit. Only required if there are impacts to wetlands.	• JARPA form, graphics, engineering drawings, mitigation/revegetation plan, water quality specific information, wetland and waterbodies delineation/habitat assessment. • Fee: $0	3-6 months
NPDES – 1200 Construction Stormwater Permit	Ecology	Construction disturbing more than 1 acre of land will require a general or individual NPDES construction stormwater permit.	• Application form, land use compatibility statement, erosion and sediment control plan. • Fee: $707	2 months
City of Stevenson				
Pre-application Conference Application	City of Stevenson	Encouraged – not required	• No specific submittal requirements. The more information, the better.	Scheduled within 2 weeks of submittal.

Permit	Review Agency	Permit Trigger	Submittal/Fee Requirements	Review Timelines
CUP	City of Stevenson	Per SMC 17.25, fire stations are conditional uses.	• Signed application form, property title, easements/covenants, site plan, narrative, traffic study (likely), owner names & mailing addresses of properties within 300 feet, any other information requested by director. • Fee: $500	• 2-week completeness review • 50-day review period
Variance (if necessary)	City of Stevenson	Variation from the terms and provisions of the land use regulatory codes. No variances identified at this time.	• Signed application form, covenants and conditions, site plan, narrative, owner names & mailing addresses of properties within 300 feet, any other information requested by director. • Fee: $500	• 2-week completeness review • 30-day review period (grouped with CUP would be 50 days).
Critical Areas Permits (Geologically Hazardous Areas)	City of Stevenson	Regulated activities likely within, adjacent to, likely to affect critical areas (geologically hazardous areas) or buffers.	• Application form, site plan, geotechnical assessment, geotechnical stabilization report, erosion control plan and BMPs, drainage plan, conservation covenant, wetland delineation (to verify exempt status). • Fee: $50 (wetland exemption) + $200 (geologically hazardous critical areas permit).	• 2-week completeness review • 30-day review period (grouped with CUP would be 50 days)
SEPA	City of Stevenson	Development of a service building exceeding 4,000 square feet and 20 parking spaces. Fill or excavation exceeding 100 cubic yards.	• Completed SEPA checklist, any associated reports (wetland, geotech, traffic, etc.). • Fee: $200	• 2-week completeness review • 30 day review period (grouped with CUP would be 50 days)
Engineering Review	City of Stevenson	Public projects.	• Application form, engineered construction drawings (site, grading, storm, sewer, and water plans), stormwater report, final geotechnical report, traffic report. • Fee: TBD	• 3 weeks

Permit	Review Agency	Permit Trigger	Submittal/Fee Requirements	Review Timelines
Building/Mechanical/ Plumbing/Electrical	City of Stevenson	Proposed fire station with associated mechanical, plumbing, and electrical infrastructure	• Application for Improvement; site plan • Fees: ○ Building: $5,608.75 for first $1,000,000 plus $3.65 for each additional $1,000 or fraction. Plan review fees – 65% of building permit fees ○ Mechanical: See fee schedule in Appendix D.	• 3 weeks
Right of Way Permit	City of Stevenson	Required for work within the public right of way	• Right of way permit application form, plan drawings • Fee: $50	• 30-day review period.

Note: Fees are based on information current when this report was written and are subject to change.

4.0 ZONING AND CRITICAL AREA DEVELOPMENT STANDARDS

This section of the report summarizes the zoning and development standards that apply to the project based on the City's desire to construct a fire station and appurtenant facilities (parking, site circulation, landscaping, etc.) at the site.

4.1 Dimensional Standards

Development in the CR zone is subject to the development standards shown in Table 2 below.

Table 2. CR Zone Development Standards

Standard	Requirement
Lot Coverage	35%
Maximum Building Height[1]	35 feet
Minimum Setbacks	
Front	25 feet (Rock Creek Drive)
Interior side[2]	0 feet (15 feet adjoining residential zone)
Street side	20 feet (Foster Creek Road)
Rear interior lot	0 feet
Rear through lot	N/A
Maximum Setbacks	N/A

Source: SMC Tables 17.25.050-1 and 17.025.060

1. Building height may be exceeded as allowed by the Planning Commission provided it does not interfere with existing or planned residential views. For each additional 10 feet in building height, an additional 15 feet of setback is required.
2. Setback along zone transitions must equal the setback from the more restrictive zone or 15 feet in this case.

The site is subject to a 35 percent lot coverage defined as the "portion of a lot that is occupied by the principal and accessory buildings, expressed as a percentage of the lot area" (see SMC 17.10.440). The lot coverage does not include improvements that are not buildings such as access drives and a parking lot. The maximum building height is 35 feet, but this height can be exceeded as approved through the Planning Commission if the increase does not interfere with existing or planned residential views. Buildings that exceed 35 feet in height must be set back an additional 15 feet adjacent to the existing or planned residences.

The triangular lot meets the definition of a corner lot (see SMC 17.10.422) because it is located at the intersection of two streets (SW Rock Creek Drive and Foster Creek Road) with an angle of less than 105 degrees. To determine which setbacks apply to this irregularly shaped lot, staff indicates that they would apply a three-part test to determine the front lot line: (1) which road provides vehicular access; (2) which road the front door faces; and (3) what direction the property's rectangle faces. If at least two of the three point to a particular lot line, that line is considered the front. Based on the provided schematic site plan and floor plan (Appendix E), the site would take access from, and therefore the front door of the building would face, Rock Creek Drive, meaning that Rock Creek Drive would be the front lot line and subject to a 25-foot setback. Foster Creek Road would be the street side yard and subject to a 20-foot setback. The northern lot line would be the interior side yard and would be subject to a 15-foot setback equal to the side yard in the adjacent residential zone. The site does not have a rear interior or rear through lot line or setback.

Exceedance of the lot coverage or setback standards would require submittal of a variance application (see section 3.3.2 of this report). Based on the schematic site plan (Appendix E) provided by Mackenzie, the proposed site design appears to comply with setback and coverage standards.

4.2 Building and Site Design Standards

The CR zone contains building and site design standards applicable to a new fire station including the following (see SMC 17.25.070):

- Building material preference for nonglossy finishes and earth tone colors.
- Outdoor storage must be screened by fences, walls, or enclosures.
- Refuse containers must be enclosed and covered with materials matching the building.
- Screening and buffering must be provided adjacent to residential uses and on the lot perimeter.
- Pedestrian improvements must minimize vehicular conflicts including providing safety crossings.
- Improvements must be designed to minimize grading and site natural characteristics.
- Surface drainage must not affect neighboring properties.

4.3 Landscaping Requirements

Landscaping in accordance with CR zone standards requires the following (see SMC 17.25.100):

- Landscaping is required on 100 percent of the area between the right of way and the building, excluding drives, parking areas, and pathways.
- Landscaping types must be compatible with nearby landscaping and of a size, condition, and density to be initially effective.
- Wherever practical, natural vegetation and grades must be retained.

4.4 Parking and Loading Standards

Parking and loading must meet the requirements of SMC Chapter 17.42. This code chapter does not specify the number of spaces required for fire stations or similar uses; in such cases, the number of spaces that would be required is determined by the Planning Commission. The Planning Commission met in January, 2016 to discuss parking requirements for the fire station and opted to provide guidance that 30 spaces "would be an appropriate number to use." However, based on discussions with the City's planning director, Ben Shumaker, a final decision would need to be made to justify any standard. If the fire station application justifies a different number of spaces, Mr. Shumaker indicated he thought "the Planning Commission would be open to it." BergerABAM recommends providing parking spaces consistent with the latest edition of the Institute of Transportation Engineers Parking Generation Manual and accounting for peak usage of the building, including community meeting spaces. Loading spaces are required for uses that require routine delivery of goods, merchandise, or equipment and are, therefore, assumed not to be required for a fire station. Parking lot dimensions are shown in Table 3.

Table 3. Parking Lot Dimensions

Standard	Requirement
Standard stall dimensions	9 by 18 feet
Compact stall dimensions	8 by 16 feet
Drive aisles	20 feet wide (not specified two or one way)

4.5 Signs

SMC Section 17.25.145 contains CR zone sign standards. Signs placed by a government agency are permitted outright in the CR zone. Illumination can be either dark-sky or externally illuminated. Directly illuminated signs are allowed as an accessory sign when placed in windows limited to 4 square feet. Sign dimensional standards are provided in Table 4.

Table 4. Sign Standards

Standard	Regulation
Maximum sign area (Individual sign)	40 square feet
Cumulative Signage allowed	
Primary building wall[1]	10% of wall area
Secondary building wall[2]	3% of wall area
Windows[3]	25% of window area
Sign Height (building, freestanding)	26 feet, 12 feet
Sign setback from property line	5 feet

1. Freestanding signs are included in the cumulative area calculation for the closest primary building wall.
2. The area for signs facing more than one street is included in the cumulative area calculation for the closest primary or secondary building wall.
3. Subject to overall maximum cumulative signage of building wall.

4.6 Critical Area Development Standards

As discussed in section 2.2, the site likely contains geologically hazardous areas and wetlands. Wetlands would not be impacted by the proposal according to the schematic site plan (Appendix E).

The development standards for geologically hazardous areas – the only impacted critical area –are discussed further below.

4.6.1 Geologically Hazardous Areas

Applicants who propose development located within mapped landslide hazard areas are required to submit a geotechnical assessment and a geotechnical stabilization report that assess the risk posed by new development and include design recommendations that demonstrate that the proposed development "will not decrease the factor of safety below acceptable limits" (see SMC 18.30.090(C)(2)). There are no specific development limitation or code-required buffers in moderate hazard landslide areas. Instead, requirements for development in landslide hazard areas come from the geotechnical assessment and geotechnical stabilization report. Developments located within seismic hazards must comply with the International Building Code.

4.6.2 Street Improvements

According to City staff, a traffic study will likely be required to project trips and the necessity for road improvements. The rural major collector designation of Foster Creek Road requires a 60-foot right of way. Rock Creek Drive appears to have an approximately 100-foot existing right of way and Foster Creek Road has a 60-foot right of way meaning that dedication may not be required, but this should be confirmed with staff during the pre-application conference.

The City's "Engineering Standards for Public Works Construction" requires driveways to be spaced 150 feet from another driveway. Based on that driveway spacing and the existing driveway location serving the Rock Cove Assisted Living Community, any new driveway may need to be located where the northern gravel driveway on the existing site is located.

5.0 FINDINGS AND RECOMMENDATIONS

This section is a summary of the key findings and recommendations of this report:

- The City of Stevenson permits that will be required include a CUP and engineering and building permits, and a critical areas permit may be required. While a pre-application conference is not required, it is strongly recommended to confirm design requirements prior to design development and permitting.
- The required state permits may include an NPDES Construction Stormwater Permit.
- The site is encumbered by a wetland and geologically hazardous critical areas. The City will conduct a critical area permit review for geologically hazardous areas at the same time as the CUP review.
- The applicant should complete an archaeological assessment and/or survey for the subject site because of the high probability of encountering resources as mapped by DAHP.
- The permit assessment contained in this report is based on the schematic site plan provided by Mackenzie. Should the site plan change, the need for different permits may be triggered and the permit assessment should be updated.
- The City does not have an adopted parking standard for fire stations. The Planning Commission selected 30 spaces as guidance, but the City's planning director

indicated that the Commission would be open to the justification of a different number of spaces. BergerABAM recommends using the latest edition of the Institute of Transportation Engineering Parking Generation Manual to establish peak parking demand and the number of required spaces.

- The project team should confirm that street right of way dedication is not required given the apparent adequate right of way widths of Rock Creek Drive and Foster Creek Road.

Site Assessment
City of Stevenson
Stevenson, Washington

Appendix A
Site Maps

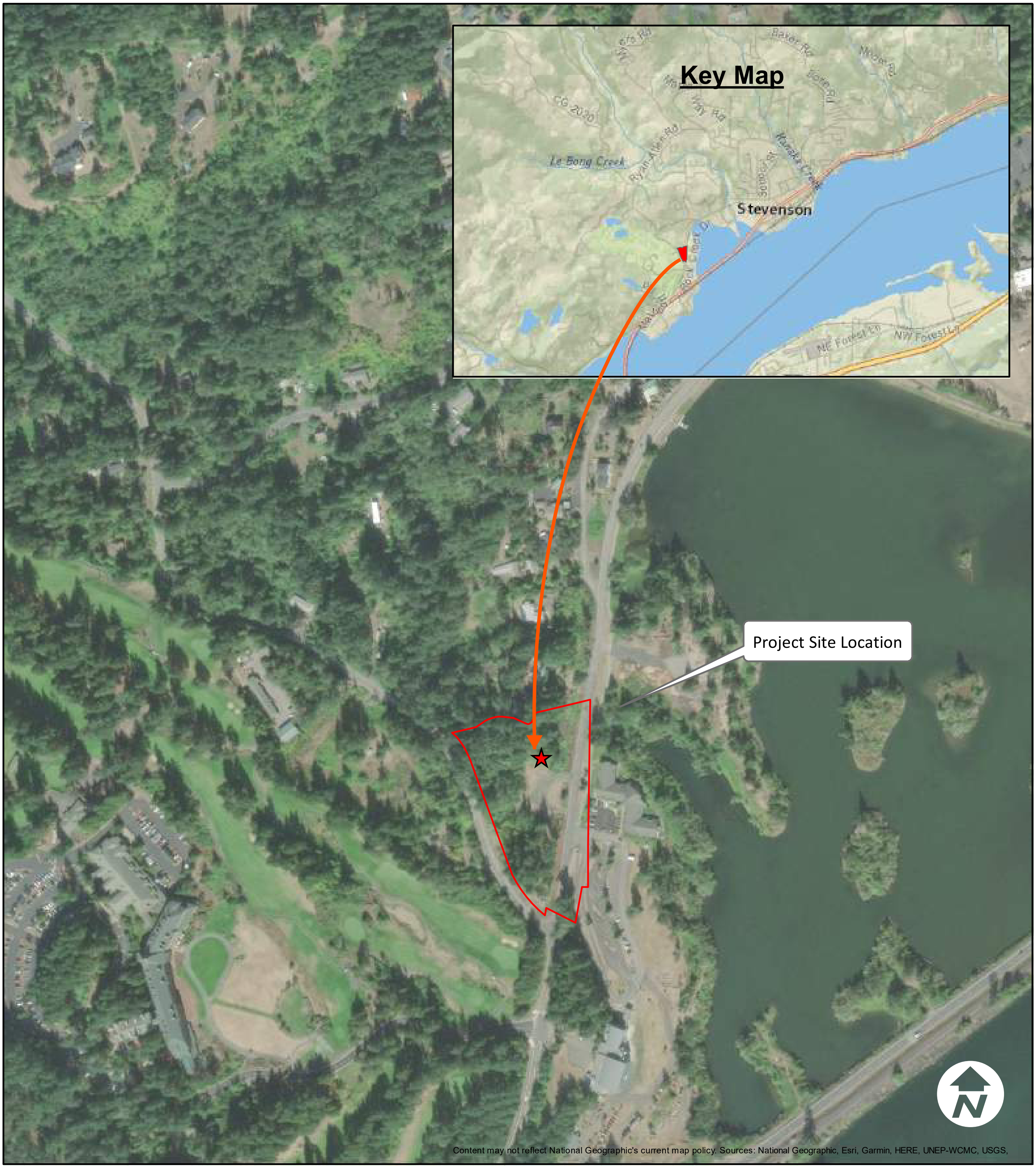

Figure 1 - Vicinity Map

Purpose: Site Assessment
Client: City of Stevenson
Project #: A19.0048.00
Date: 8/22/2018

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Feet

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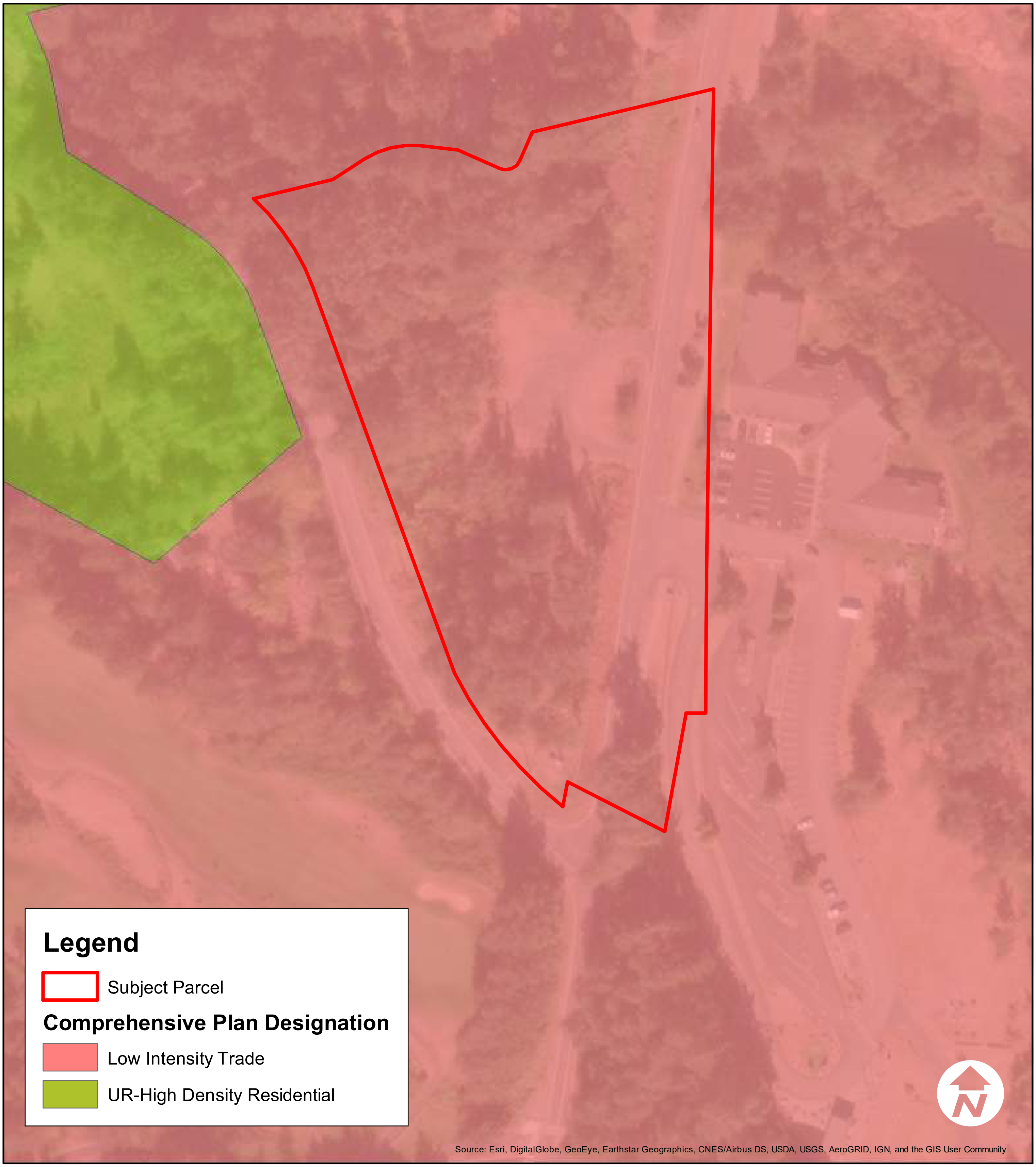

Figure 2 - Comprehensive Plan Designations

Purpose: Site Assessment
Client: City of Stevenson
Project #: A19.0048.00
Date: 8/22/2018

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Feet

BergerABAM

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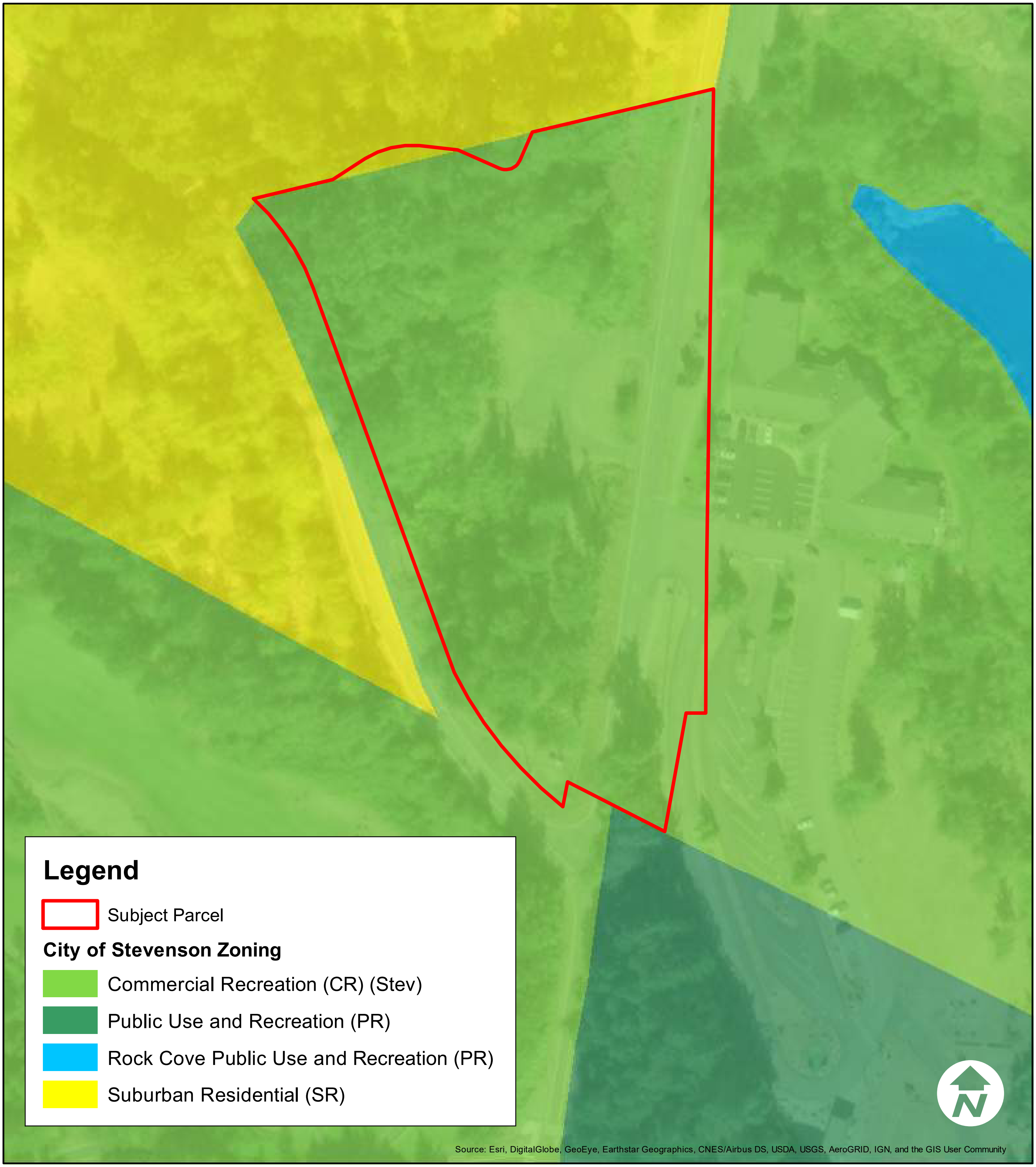

Figure 3 -Zoning Designations

Purpose: Site Assessment
Client: City of Stevenson
Project #: A19.0048.00
Date: 8/22/2018

50 25 0 50 Feet

BergerABAM

Path: Q:\Vancouver\2019\A19.0048\00\GIS\02_MXD\SiteAssessmentReport\Fig3_Zoning.mxd

Figure 4 -Topographic Map

Purpose: Site Assessment
Client: City of Stevenson
Project #: A19.0048.00
Date: 8/22/2018

50 25 0 50
Feet

BergerABA

Figure 5 -Wetlands

Purpose: Site Assessment
Client: City of Stevenson
Project #: A19.0048.00
Date: 12/7/2018

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BergerABAM

Path: Q:\Vancouver\2019\A19.0048\00\GIS\02_MXD\SiteAssessmentReport\Fig5_Wetlands.mxd

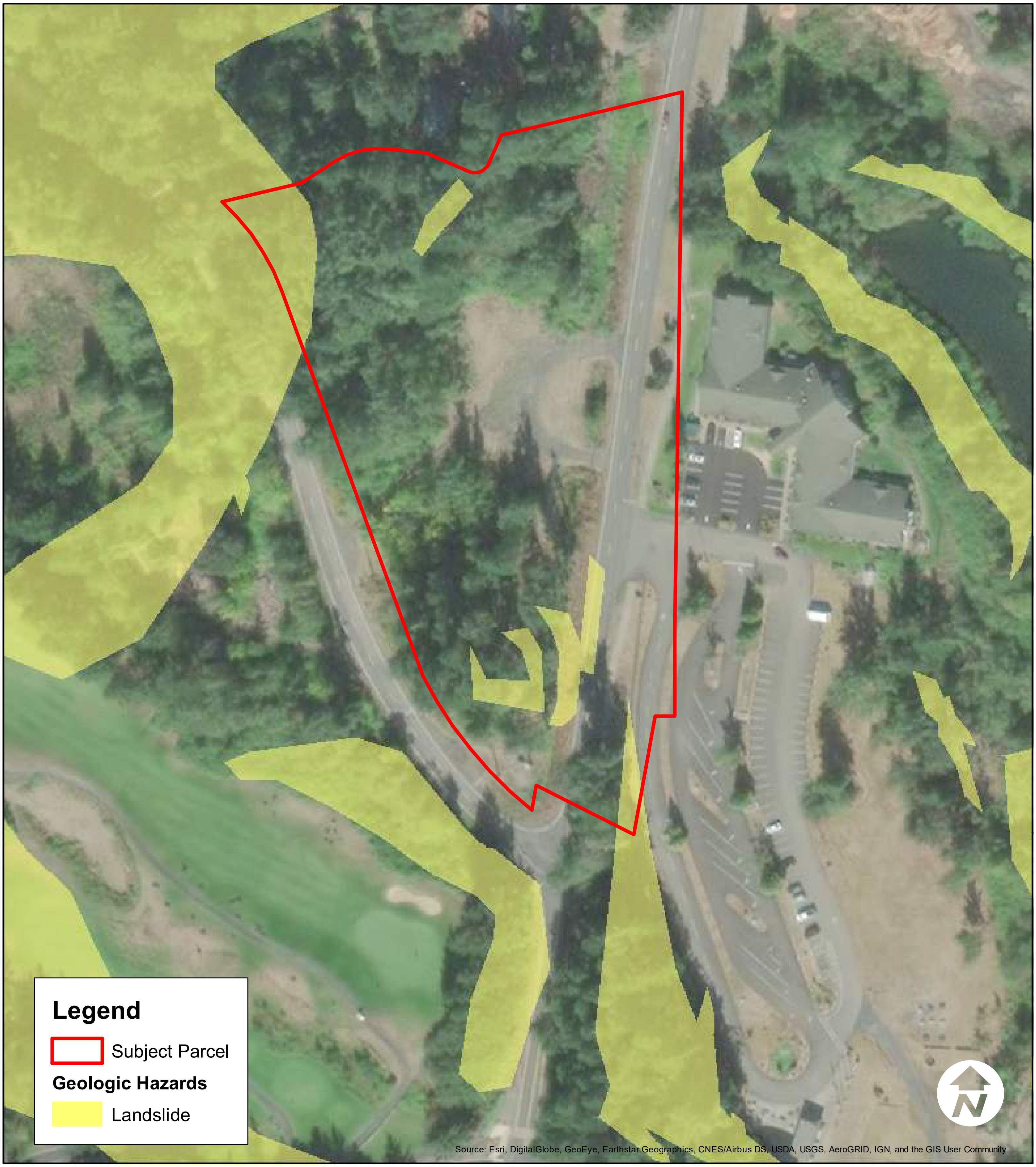

Figure 6- Geologically Hazardous Areas

Purpose: Site Assessment
Client: City of Stevenson
Project #: A19.0048.00
Date: 8/22/2018

50 25 0 50
Feet

BergerABAM

Path: Q:\Vancouver\2019\A19.0048\00\GIS\02_MXD\SiteAssessmentReport\Fig6_Geohazard.mxd

DATUM: NAD 1983 Stateplane Washington South FIPS 4602 Feet

Basic Approximate Streamlines
Automated Approximate Streamlines
Cross Sections*

1% Minus
1% Annual Chance
1% Plus

Political Boundaries
Unresolvable with MZA

*Labeled with 1%-Annual Chance WSEL, NAVD88 ft
**Some or all effective data is derived from Q3 data

Effective Flood Zones** FLOODWAY AE AH / AO A 0.2%

N

1 inch = 1,000 feet

0 1,000 2,000 4,000 Feet

STARR II Strategic Alliance for Risk Reduction

FEMA

FEMA Region X
Middle Columbia Hood Watershed
Washington
HUC 17070105
MZA study
Draft Workmaps
January 2017

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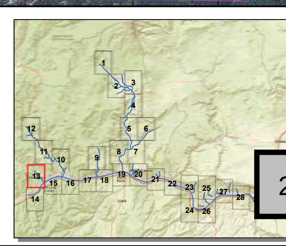

Site Assessment
City of Stevenson
Stevenson, Washington

Appendix B
Wetland Delineation and Assessment

BergerABAM

City of Stevenson | New Fire Station
Wetland Delineation and Assessment

Prepared for
City of Stevenson

Prepared by
BergerABAM

December 2018

Wetland Delineation and Assessment

City of Stevenson
New Fire Station

Prepared for

City of Stevenson
7121 E. Loop Road
Stevenson, Washington 98648

December 2018

Prepared by

Dustin Day
Senior Scientist
Professional Wetland Scientist (PWS) No. 2066

Bridget Wojtala
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A19.0048.01

WETLAND DELINEATION AND ASSESSMENT

City of Stevenson
New Fire Station

TABLE OF CONTENTS

WETLAND DELINEATION AND ASSESSMENT
CITY OF STEVENSON
NEW FIRE STATION PROJECT

1.0 INTRODUCTION

The City of Stevenson (City) has contracted with Mackenzie and BergerABAM to assess the feasibility of developing a new fire station and accessory uses such as parking, circulation, and landscaped areas at a previously purchased site. (Figure 1; all of the figures are included as Appendix A.) If constructed, the new fire station would serve the City and Skamania County Fire District 2 and would replace the existing fire station located at 160 First Street in downtown Stevenson. The existing station has been home to the department's activities since 1912 and has housed its equipment since 1967. Population growth and time highlight its shortcomings, including the structural deficiencies exposed by a minor collision in 2011 that damaged one of the City's trucks and the building.

A needs assessment conducted in 2013 by the City and its consultant, Rice Fergus Miller, identified a building footprint that would meet the City's needs and examined whether a new fire hall could be shared with other emergency service providers (i.e., the Skamania County Hospital District, the Skamania County Department of Emergency Management, Skamania County Fire District 2, and the Stevenson Volunteer Fire Department). The hospital district later decided that colocation with the other service providers would not serve its best interests and the footprint of the 2013 study no longer applied. In 2015–2016, the City led a process with key stakeholders to reevaluate the required building footprint and to select a site that would meet the Fire District's needs. The findings are contained in "2016 Stevenson Fire Hall Strike Team Report," which recommends a 9,700-square foot facility with room to expand to over 11,000 square feet. The site has been defined as parcel number 02070200310000 located west of SW Rock Creek Drive and east of Foster Creek Road on a City-owned, triangular parcel (Figure 2).

In preparation for the fire station project, the City contracted with BergerABAM to investigate the existence on the site of jurisdictional wetlands and waterbodies as defined and regulated by the U.S. Army Corps of Engineers (USACE), the Washington State Department of Ecology (Ecology), the Washington Department of Fish and Wildlife, and/or the City. BergerABAM delineated and assessed wetlands and waterbodies within the study area of the proposed project. The study area is mostly forested on its west and north sides. The fire station would presumably be located in a flat area on the site's eastern side with access from Rock Creek Drive. The study area was measured to be approximately 4.4 acres, and is located in the NE 1/4 of Section 42, of Township 2 North, Range 7 East of the Willamette Meridian.

Dustin Day, BergerABAM Senior Scientist and Professional Wetland Scientist (No. 2066), and Bridget Wojtala, BergerABAM Environmental Scientist, used the routine on-site wetland delineation method described below for the delineation and assessment. They identified one palustrine scrub-shrub wetland within the study area.

2.0 METHODS

Guidance for determining wetland boundaries came from the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (the regional supplement) (USACE 2010). According to the regional supplement, wetlands are defined as:

> *… areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.*

The regional supplement uses three parameters in making wetland determinations: wetland hydrology, hydrophytic vegetation, and hydric soils.

- Wetland hydrology is present when an area is inundated or the water table is within 12 inches of the surface for at least 14 consecutive days of the growing season at a minimum frequency of 5 years in 10. The growing season is defined as the portion of the year when soil temperature at 19.7 inches below the soil surface is greater than biologic zero (5 degrees C).
- Hydrophytic vegetation consists of plants that, because of morphological, physiological, and/or reproductive adaptations, have the ability to grow, effectively compete, reproduce, and/or persist in anaerobic soil conditions.
- Hydric soils are soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions.

Except in atypical situations as defined in the regional supplement, evidence of a minimum of one positive wetland indicator from each of the three parameters (hydrology, vegetation, and soil) must be found in order to make a positive wetland determination.

In addition to the regional supplement, the scientists used the following information to develop a preliminary indication of where potential wetlands might exist and aid on-site data collection:

- Skamania County GIS wetland inventory data
- Hydric Soils List (U.S. Department of Agriculture [USDA] Natural Resources Conservation Service [NRCS]) States Soil Data Access (SDA) Hydric Soils List (USDA-NRCS 2018a)
- National List of Plant Species that Occur in Wetlands: Northwest Region 9 (Reed 1988)
- National Wetland Plant List (Lichvar et al. 2016)
- Preliminary Monthly Climate Data: Troutdale (National Weather Service, NOAA)
- Supplement to List of Plant Species that Occur in Wetlands: Northwest Region 9 (Reed 1993)

- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Online Mapper (USFWS 2018)
- Washington State Wetland Rating System for Western Washington—Revised (Hruby 2014)
- Web Soil Survey (USDA-NRCS 2018b)
- Wetlands Delineation Manual, Technical Report Y-87-1 (USACE 1987)

On 15 November 2018, the two BergerABAM wetland scientists conducted a field investigation for the wetland delineation and assessment. The scientists used the methodology discussed in the regional supplement, as well as technical guidance and documentation issued by USACE and Ecology, to observe any visible wetland conditions. In this case, the BergerABAM wetland scientists used the routine on-site wetland delineation method. The scientists walked the entire site looking for visible indicators of wetland conditions. Once the general location of a wetland area had been identified, the scientists took paired data plots in areas that represented the conditions of the uplands and wetlands. In general, each plot was chosen in a uniform topographic position that was representative of a single plant community. Paired plots were generally located approximately 5 to 10 feet apart to minimize the margin of error. The scientists inspected the soils at each data point to a depth of 16 inches (or more, depending on conditions) to determine the presence or absence of hydric soil characteristics and/or wetland hydrology.

During the site visit, the scientists identified one wetland within the study area. The on-site wetland was classified according to the USFWS classification system (Cowardin et al. 1979) and the hydrogeomorphic (HGM) classification system (Adamus 2001) based on observations made in the field. In addition, the scientists recorded hydrologic conditions, soils, and vegetation at five sample plots and used a GPS unit to record the sample plot locations and wetland boundary. The wetland in the study area is discussed in greater detail in section 4.0.

3.0 SITE CHARACTERISTICS

The 4.4-acre study area is triangular, and its southern, western, and northern portions are characterized by thick vegetation and trees. The eastern portion has an existing circular gravel entrance within a cleared area. The gravel entrance road crosses the site from SW Rock Creek Drive and heads southwest where it connects to Foster Creek Road (Figure 2). Overhead power lines parallel SW Rock Creek Drive and Foster Creek Road. The City's comprehensive plan maps show water lines in both SW Rock Creek Drive and Foster Creek Road. The City's sewer map shows that the site is within the City's sewer service area.

Topographically, the site slopes downhill from west to east with slopes exceeding 25 percent along the northern, western, and southern property boundaries in some locations. Slopes level off in the central and eastern portions of the site, in the cleared area where the existing gravel entrance drive is located (Figure 3). The site also slopes slightly downhill from south to north, with the lowest elevation found in the northeast corner (Figure 3). The vegetation within the wetland area consists of red osier dogwood (*Cornus sericea*), Oregon ash (*Fraxinus latifolia*), black cottonwood (*Populus balsamifera*), and black hawthorn (*Crataegus douglasii*), but the area is mostly bare ground.

The study area is located in the Wind-White Salmon watershed. The watershed consists of the Wind and White Salmon rivers and numerous tributary creeks and streams. The Wind and White Salmon rivers drain to the Columbia River; the Wind-White Salmon watershed covers a large portion of southeast Skamania County, and includes the entire City of Stevenson. The study area is located in the southern portion of the Wind-White Salmon watershed, near the boundary line between it and the Salmon-Washougal watershed.

3.1 Precipitation and Hydrology

The growing season for Skamania County (Troutdale Station) is 137 days, starting on 17 May and ending on 1 October (Haagen 1990). This growing season includes those dates on which average recorded temperatures are 28 degrees F or greater. According to the USACE wetland delineation manual, flooding, ponding, or saturation in the upper 12 inches of the soil profile for a period of at least 14 consecutive days during the growing season is indicative of wetland hydrology.

Table 1 displays precipitation data for the 14 days prior to and including the 15 November 2018 site visit. The information comes from the National Weather Service station in Troutdale, Oregon, approximately 30 miles southwest of the site.

Table 1. Precipitation Data for 14 Days Prior to 15 November 2018 Site Visit

Date	Rain (Inches)	Date	Rain (Inches)
1 November	0.01	9 November	0.00
2 November	0.15	10 November	0.00
3 November	0.01	11 November	0.00
4 November	0.14	12 November	0.00
5 November	0.04	13 November	0.00
6 November	0.01	14 November	0.00
7 November	0.00	15 November	0.00
8 November	0.00	**Total:**	0.36

Source: NOAA 2018

In addition to daily rainfall total for the 14 days prior to the 15 November 2018 site visit, the BergerABAM wetland scientists reviewed other historic precipitation data available on the NOAA website. That data shows:

- For the two weeks preceding and through the 15 November site visit, a total of 0.36 inch of precipitation was observed. Historical rainfall data shows a normal record of 3.59 inches of precipitation for these dates, so the observed precipitation is 3.23 inches below the historical normal.

- As of 15 November 2018, the observed precipitation for 2018 was 21.96 inches, 14.15 inches below the historical normal of 36.11 inches.
- The observed precipitation for the water year (beginning on 1 October 2018), through the date of the site visit, was 4.55 inches, 2.99 inches below the average of 7.54 inches for the water year through 15 November.

The site conditions were drier than the historical normal at the time of the site visit, but considered appropriate for the wetland delineation. The wetland scientists were still able to accurately evaluate the presence of wetland hydrology.

During the site investigation, the scientists documented the presence or absence of field indicators for wetland hydrology in each of the five soil pits excavated in the sample plots. Data recorded included depth of inundation, depth to water table, and/or soil saturation, when found, as well as primary and secondary indicators of wetland hydrology, including redoximorphic features along living roots, high water table, and saturation. Current hydrologic inputs come from direct precipitation, overland flow from adjacent uplands, and a seasonally high water table.

3.2 Wetlands

The NWI online mapper does not show the presence of any wetlands within or close to the site (Figure 4). Similarly, Skamania County MapSifter does not show the presence of any wetlands within or close to the study area. However, according to the City's Critical Areas & Geologic Hazards Map, there is a palustrine emergent wetland in the northeast corner of the subject site. The on-site investigation identified one palustrine scrub-shrub wetland, which is located within the wetland area identified on the Critical Areas & Geologic Hazards Map cited above.

3.3 Soils

The USDA-NRCS Web Soil Survey identifies the following soil mapping units within the study area (Figure 5). The descriptions are excerpted from the Soil Survey of Skamania County Area (Haagen 1990).

- ***Steever stony clay loam, 2 to 30 percent slopes (123)*** – This very deep, well-drained soil is on toe slopes and foot slopes. It formed in colluvial landslide material derived dominantly from basalt, andesite, and conglomerate. Typically, the surface is covered with a mat of decomposed needles, leaves, and twigs 2 inches thick. The upper part of the surface layer is very dark brown stony clay loam 5 inches thick, and the lower part is dark brown gravelly clay loam 7 inches thick. The upper 8 inches of the subsoil is dark brown very gravelly clay loam, and the lower 10 inches is dark brown very gravelly loam. The substratum to a depth of 60 inches or more is dark brown very gravelly loam. Permeability of this Steever soil is moderate. Available water capacity is high, runoff is medium, and the hazard of water erosion is moderate. This soil is not listed as hydric within Skamania County according to the state's SDA list of hydric soils (USDA-NRCS 2018).

- ***Arents, 0 to 5 percent slopes (2)*** – These very deep, well drained to somewhat excessively drained soils are on alluvial river terraces. They formed in alluvium derived dominantly from recent construction. No single profile of Arents is typical, but one commonly observed in the survey area has a surface layer of dark brown gravelly sandy loam 24 inches thick. The underlying material to a depth of 60 inches or more is stratified gravelly or very gravelly loamy sand. In some areas the surface layer is nongravelly. The permeability of these Arents is rapid. Available water capacity is moderate, runoff is slow, and the hazard of water erosion is slight. This soil is not listed as hydric within Skamania County according to the state SDA list (USDA-NRCS 2018).

The location of the soil types within the study area was obtained from the USDA-NRCS Web Soil Survey (USDA-NRCS 2018b), and the hydric classification came from the SDA list of hydric soils (USDA-NRCS 2018a). The BergerABAM scientists examined each soil pit for hydric soil indicators and recorded its soil profile and characteristics (matrix color, redoximorphic features, texture, and other features). Observations of soil conditions during the site visit were typically consistent with the map units described and identified in the USDA-NRCS soil survey. Although both of the mapped soils within the study area are non-hydric, soil conditions within the wetland area met the criteria for hydric soils.

3.4 Vegetation

Hydrophytic vegetation consists of plant species that have adapted to growing in periodically inundated or saturated substrates. Five basic groups of vegetation are recognized based on how frequently they occur in wetlands (Reed 1988 and 1993).[1] From the wettest to the driest plant communities, the categories are obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and obligate upland (UPL) plants. Hydrophytic vegetation is present when more than 50 percent of the dominant species have an indicator status of OBL, FACW, and/or FAC.

The BergerABAM wetland scientists documented the visual percent cover of the dominant plant community species for key sample sites. Using the five soil pit locations as centers of reference, the scientists investigated sample plots of varying proportions for dominant species of trees, shrubs, herbs, and woody vines. The composition and orientation of the plant communities within the plot determined the size and shape of each sample plot. Sample plots were set up so that their boundaries included a representative cross section of the plant community within the plot. Estimating the percent of aerial cover of each species within each stratum determined the dominance of plant species.

The scientists listed species from each stratum in descending order of percent cover, and used the USACE’s 50-20 technique to determine the predominance of hydrophytic vegetation. Using this method, when the most abundant plant species are ranked in descending order of abundance and totaled, any species immediately exceeding 50 percent cover, plus any species comprising more than 20 percent cover, represent the dominant species. If more than 50 percent of the dominant species included by these criteria are FAC or wetter, the vegetation community is considered hydrophytic.

A prevalence index is used as another method of evaluating the presence or absence of hydrophytic vegetation based on the relative dominance of species within each indicator status. Using the prevalence index, vegetation percentages within each designation (OBL, FACW, FAC, FACU, and UPL) are added together and are given a different multiplier. Once calculated, the total in the multiplied column is divided by the original percentage total before multiplying. If the number given is less than or equal to 3.0, the vegetation community is considered hydrophytic. If the number is greater than 3.0, the vegetation community is not considered hydrophytic.

A portion of the study area is maintained with a gravel driveway, while other portions are generally unmanaged. Species noted throughout the study area include the red osier dogwood (FACW), Oregon ash (FACW), black hawthorn (FAC), and black cottonwood (FAC) noted in the wetland area plus reed canarygrass (*Phalaris arundinacea*, FACW), Himalayan blackberry (*Rubus armeniacus*, FAC), western sword fern (*Polystichum munitum*, FACU), English ivy (*Hedera helix*, FACU), hairy cat's-ear (*Hypochaeris radicata*, FACU), white moth mullein (*Verbascum blattaria*, UPL), common St. John's-wort (*Hypericum perforatum*, FACU), woolly hawkweed (*Hieracium triste*, FACU), common tansy (*Tanacetum vulgare*, FACU), lemonbalm (*Melissa officinalis*, FACU), curly dock (*Rumex crispus*, FAC), common velvet grass (*Holcus lanatus*, FAC), colonial bentgrass (*Agrostis capillaris*, FAC), Canada thistle (*Cirsium arvense*, FAC), trailing blackberry (*Rubus ursinus*, FACU), and snowberry (*Symporicarpos albus*, FACU), among others.

4.0 WETLAND A DESCRIPTION

BergerABAM's investigation of hydrology, soils, and vegetation identified one wetland within the study area (Wetland A). No streams were identified within the study area that would be subject to regulation by the City or state or federal agencies.

Appendix B contains five wetland determination forms that show the data collected during the site visit. The numbers assigned to the data sheets correspond to the sample plots, which were numbered sequentially SP1 to SP5. The wetland was rated using the revised wetland rating form that Ecology developed in 2014 (Appendix C). The wetland received a Category IV rating with a score within the range of 9 to 15 points. Figure 6 is an overview of the location of the delineated wetland within the study area, overlaid on an aerial image of the study area. Figures 7 and 8 consist of site photos taken during the field investigation.

Wetland A (0.01 acre) is in the northeast area of the subject site. This palustrine scrub-shrub wetland includes areas that are dominated by scrub-shrub wetland plant species, and while the vegetation in the scrub-shrub wetland area is composed of red osier dogwood and Oregon ash saplings, the wetland area is mostly bare ground. Hydrology is supported by overland flow from adjacent uplands and roads, direct precipitation, and a seasonally high water table. Wetland A was rated under the depressional HGM classification and received a Category IV rating with a score of 15. Indicators of hydrology within Wetland A include drift deposits (B3), a sparsely vegetated concave surface (B8), water-stained leaves (B9), and geomorphic position (D2).

Soils within Wetland A include a 3-inch surface layer of a black (10YR 2/1) silty loam matrix to a depth of 3 inches, followed by a dark grey (10YR 4/1) matrix with 20 percent dark reddish brown (5YR 3/4) concentrations in the matrix and along pore linings, to a depth of 14 inches. Following this layer, to a depth of greater than 16 inches, is a very dark gray (10YR 3/1) matrix, with 15 percent of dark yellowish brown (10YR 3/4) concentrations in the matrix. This soil profile meets the criteria for the Depleted Dark Surface (F7) hydric soil indicator.

Table 2 is a summary of the identified wetland.

Table 2. Summary of Identified Wetland

Wetland	Wetland Classification			Wetland Area	
	Cowardin[a]	HGM	Wetland Rating	SF	Ac
Wetland A	PSS	Depressional	IV	587.09	0.01

Source: Wetland Rating System for Western WA 2014
Notes:
a Cowardin et al. (1979) or NWI class based on vegetation: PEM = Palustrine Emergent, PSS = Palustrine Scrub-Shrub, PFO = Palustrine Forested.
b HGM classification according to Hruby (2014).
c Wetland rating according to Hruby (2014).

5.0 REGULATORY REVIEW

This section is an overview of regulatory requirements as they pertain to wetlands identified within the study area that are located within the jurisdiction of the City. The new fire station will be subject to SMC Chapter 18.13.100 – Critical Area – Wetlands.

The wetlands section of the ordinance establishes protective buffers associated with wetlands and requires that proponents obtain certain permits or approvals for projects containing wetlands and/or their buffers. The ordinance requires the use of Ecology's revised wetland rating system to determine a wetland's category and its score for habitat, water quality, and hydrologic functions. Per guidance found in the 2014 Wetland Rating System for Western Washington, Wetland A was rated using the depressional HGM classification. The wetland received a Category IV rating with a score of 15.

According to SMC Chapter 18.13.100.4, Wetland A is exempt from all the buffer provisions of the chapter, because it is a Category IV wetland of less than 4,000 square feet that is not associated with a riparian area or its buffer; is not associated with shorelines of the state or their associated buffers; is not part of a wetland mosaic; did not score 6 or more points for habitat function based on the rating system; and contains none of the following: a priority habitat or priority area for priority species identified by the

Washington Department of Fish and Wildlife; or federally listed species or their critical habitat; or species of local importance identified in SMC 18.13.095. SMC Chapter 18.13.100.4 also states that wetlands less than 1,000 square feet that meet the above criteria and do not contain federally listed species or their critical habitat are exempt from the buffer provisions contained in the chapter. Therefore the wetland would not require a protective buffer in accordance with the SMC 18.13.100.4, but would still require a critical areas permit for any direct project related impacts to the wetland.

In addition to the City ordinance, USACE and Ecology regulate jurisdictional wetlands at the federal and state levels under sections 404 and 401 of the Clean Water Act, respectively. Because of the potential direct hydrologic connection to Rock Cove, the on-site wetland would likely be considered a jurisdictional wetland based on U.S. Environmental Protection Agency/USACE guidance. Any direct impacts to the wetland will require notifying USACE and Ecology and obtaining the appropriate approvals.

6.0 CONCLUSIONS

Activities within the identified wetland are subject to regulation by the City, Ecology, and the USACE. Any fill placed within the regulated wetland would require a critical areas permit from the City, a Section 401 water quality certification through Ecology and a Section 404 permit through the USACE. Any mitigation that would be required to compensate for wetland impacts would be determined during the permitting process.

Finally, it should be noted that the wetland boundary and classification in this report were determined using the most appropriate field techniques and best professional judgment of the wetland scientists. The City, Ecology, and the USACE have the final authority in the determination of the boundaries, categories, and jurisdictional status of wetlands under their respective jurisdictions. Therefore, BergerABAM recommends submitting this delineation and assessment report to these agencies for their concurrence before beginning any development or planning activities that would affect the wetland within the study area.

7.0 REFERENCES

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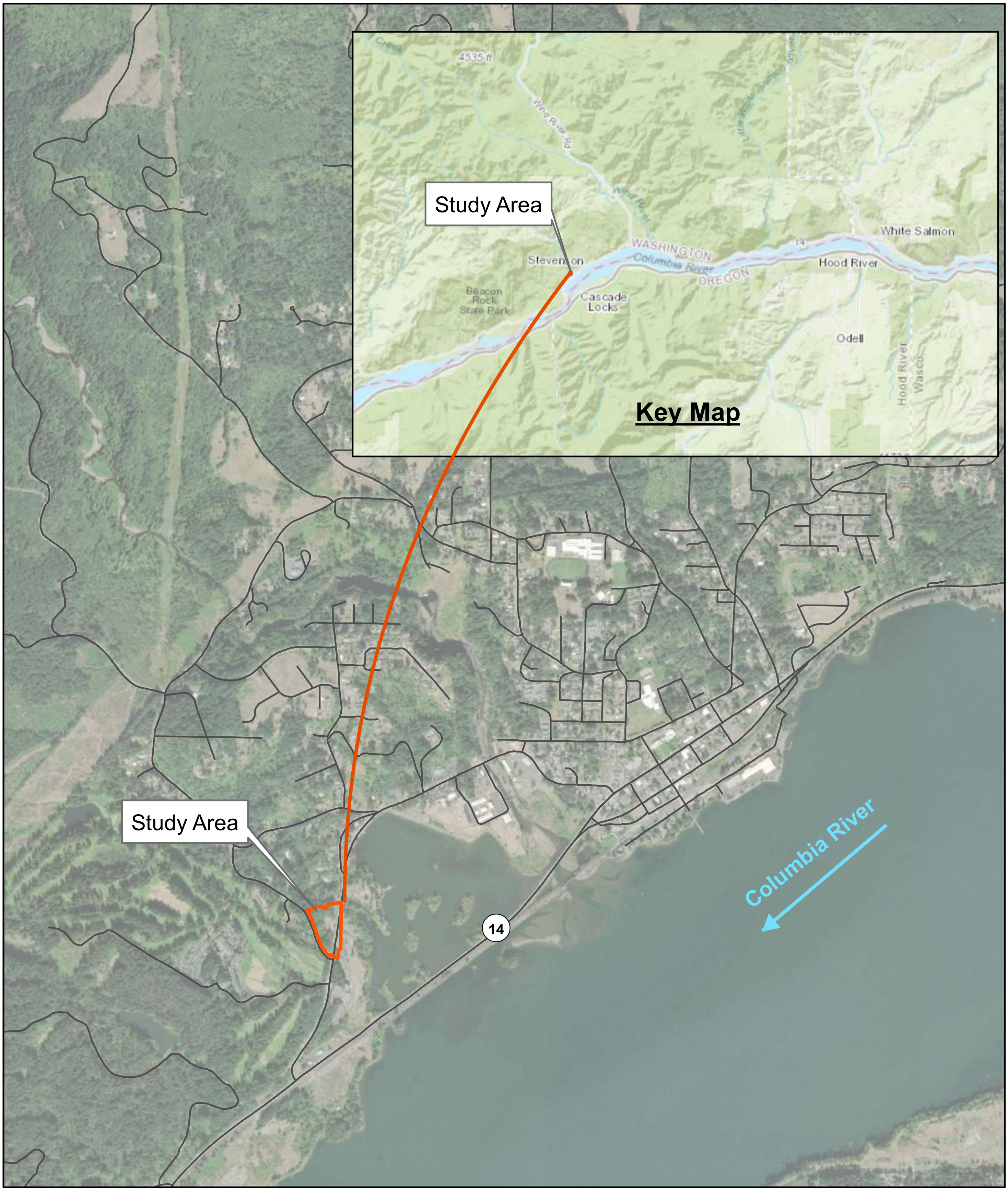
Wetland Delineation and Assessment
New Fire Station
Stevenson, Washington

Appendix A
Figures



PURPOSE: WETLAND DELINEATION

LATITUDE: 45°41'18.00"N
LONGITUDE: 121°53'59.46"W

City of Stevenson
7121 E. Loop Road
Stevenson, WA 98648

STEVENSON FIRE STATION

BergerABAM

0 0.25 0.5 Miles

FIGURE 1: VICINITY MAP

In: Stevenson
County: Skamania
State: WA
Datum: DATUM: NAD_1983

December 2018

Path: Q:\Vancouver\2019\A19.0048\00\GIS\02_MXD\Delineation\Fig1_Vicinity.mxd

PURPOSE: WETLAND DELINEATION

LATITUDE: 45°41'18.00"N
LONGITUDE: 121°53'59.46"W

City of Stevenson
7121 E. Loop Road,
Stevenson, WA 98648

STEVENSON FIRE STATION

BergerABAM

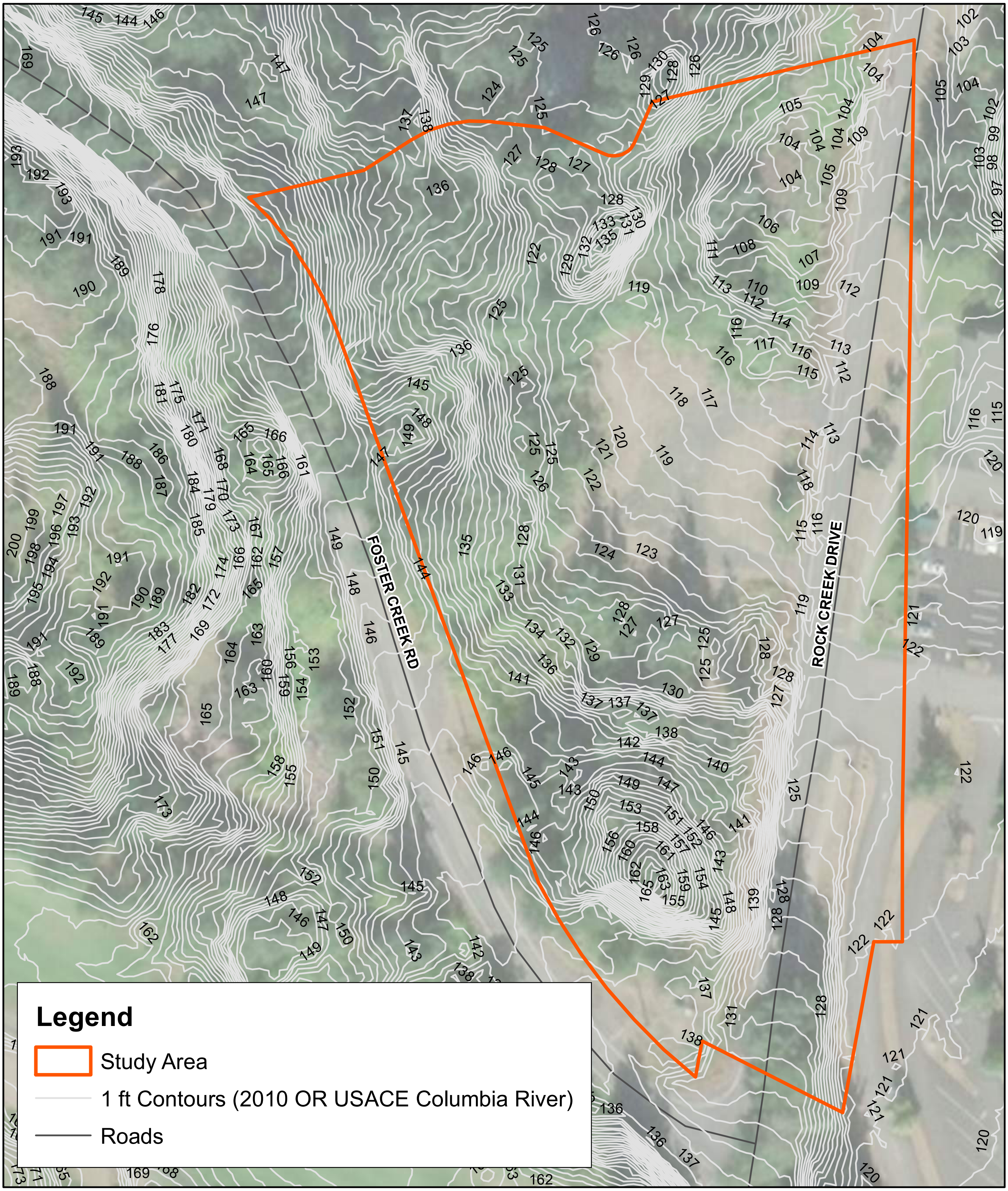
0 125 250 Feet

FIGURE 1: PARCEL MAP

In: Stevenson
County: Skamania
State: WA
Datum: DATUM: NAD_1983

December 2018

Path: Q:\Vancouver\2019\A19.0048\00\GIS\02_MXD\Delineation\Fig2_Parcels.mxd



PURPOSE: WETLAND DELINEATION

LATITUDE: 45°41'18.00"N
LONGITUDE: 121°53'59.46"W

City of Stevenson
7121 E. Loop Road,
Stevenson, WA 98648

STEVENSON FIRE STATION

BergerABAM

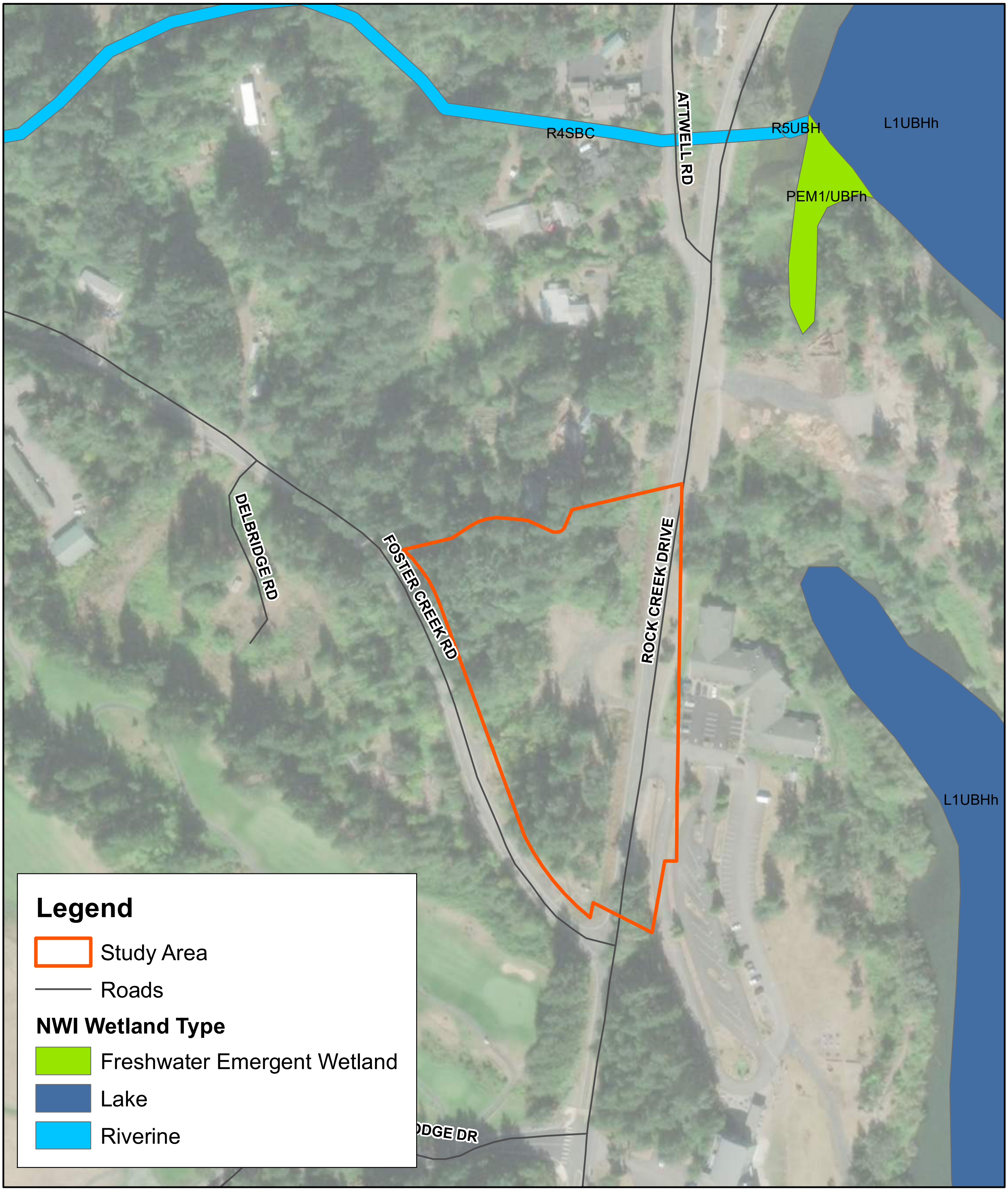
0 50 100 Feet

FIGURE 1: TOPO MAP

In: Stevenson
County: Skamania
State: WA
Datum: DATUM: NAD_1983

December 2018

Path: Q:\Vancouver\2019\A19.0048\00\GIS\02_MXD\Delineation\Fig3_Topo.mxd



PURPOSE: WETLAND DELINEATION

LATITUDE: 45°41'18.00"N
LONGITUDE: 121°53'59.46"W

City of Stevenson
7121 E. Loop Road,
Stevenson, WA 98648

STEVENSON FIRE STATION

BergerABAM

0 125 250 Feet

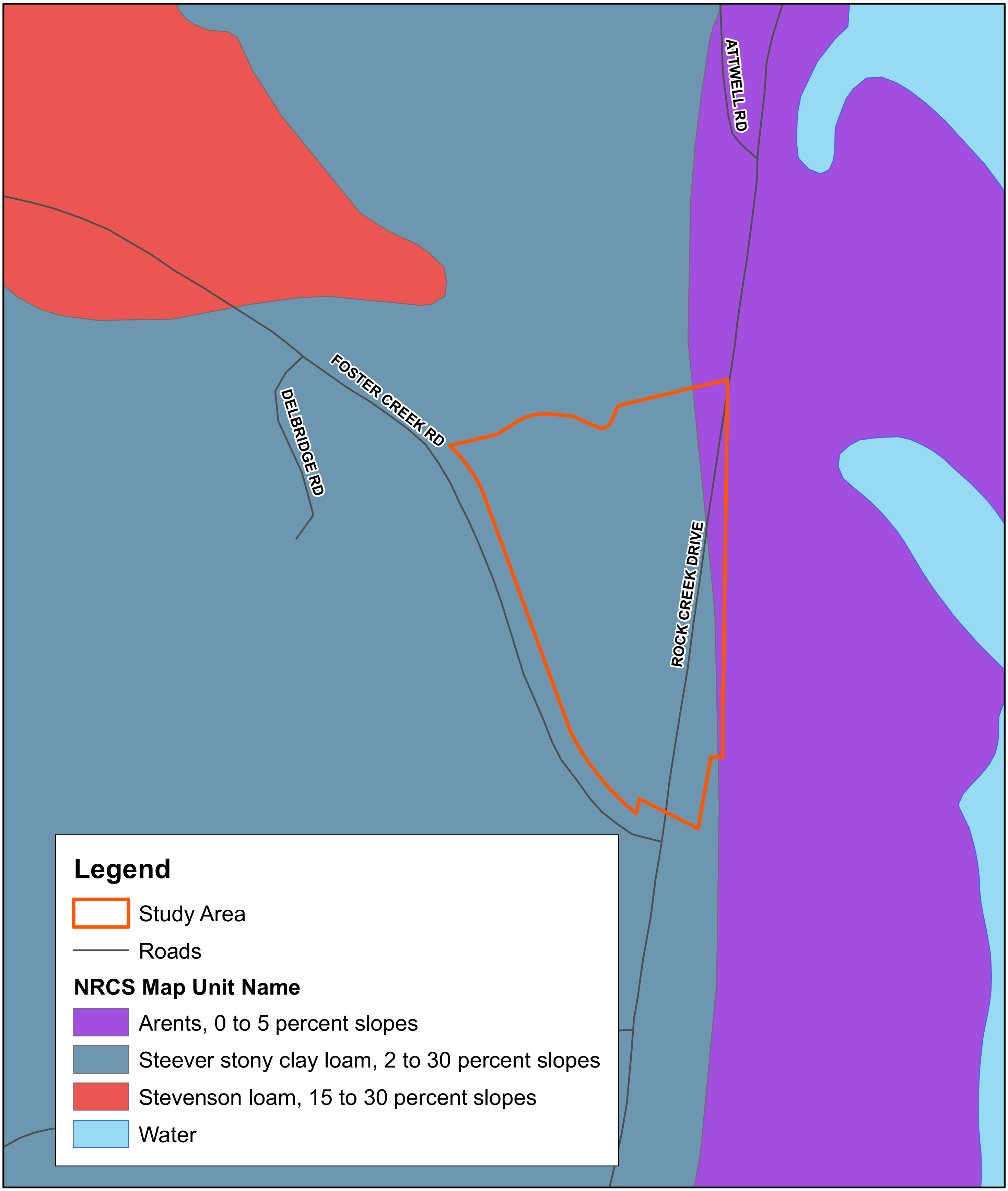
FIGURE 4: NWI MAP

In: Stevenson
County: Skamania
State: WA
Datum: DATUM: NAD_1983

December 2018

N

Path: Q:\Vancouver\2019\A19.0048\00\GIS\02_MXD\Delineation\Fig4_NWI.mxd



PURPOSE: WETLAND DELINEATION

LATITUDE: 45°41'18.00"N
LONGITUDE: 121°53'59.46"W

City of Stevenson
7121 E. Loop Road,
Stevenson, WA 98648

STEVENSON FIRE STATION

BergerABAM

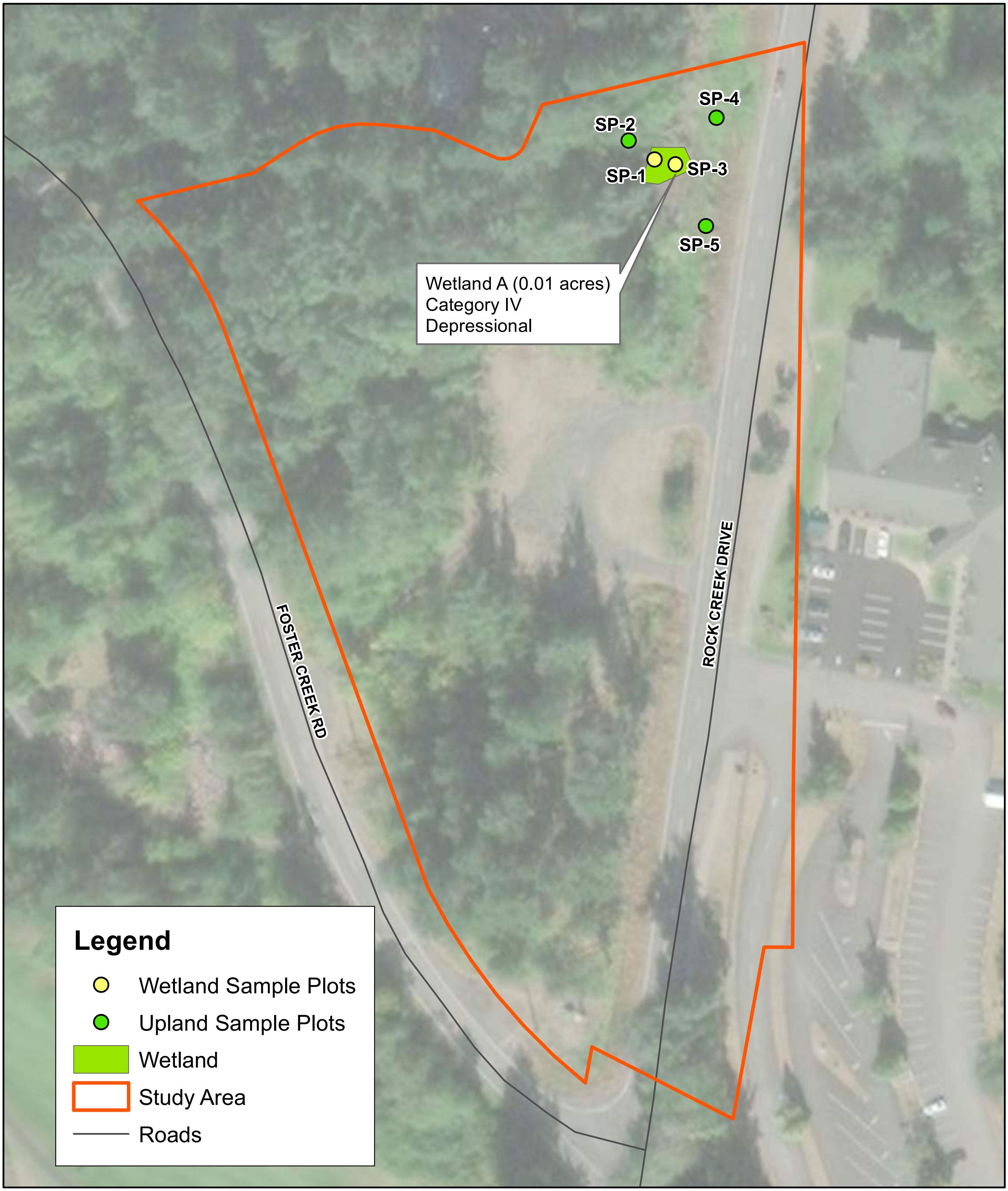
0 125 250 Feet

FIGURE 5: SOILS

In: Stevenson
County: Skamania
State: WA
Datum: DATUM: NAD_1983

December 2018

Path: Q:\Vancouver\2019\A19.0048\00\GIS\02_MXD\Delineation\Fig5_Soils.mxd



PURPOSE: WETLAND DELINEATION

LATITUDE: 45°41'18.00"N
LONGITUDE: 121°53'59.46"W

City of Stevenson
7121 E. Loop Road,
Stevenson, WA 98648

STEVENSON FIRE STATION

BergerABAM

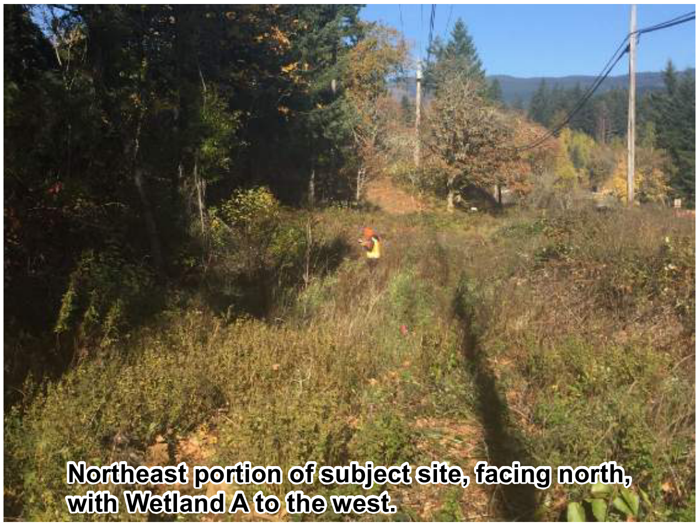
0 50 100
Feet

FIGURE 6: DELINEATED WETLAND

In: Stevenson
County: Skamania
State: WA
Datum: DATUM: NAD_1983

December 2018

Path: Q:\Vancouver\2019\A19.0048\00\GIS\02_MXD\Delineation\Fig6_Wetlands.mxd



Northeast portion of subject site, facing north, with Wetland A to the west.

Wetland A- located on the northeast corner of subject site, facing west

East side of subject site, facing north

Slope on the southern area of subject site, facing south

View of gravel driveway from the central portion of subject site, facing northeast

West side of subject site, facing south

PURPOSE: WETLAND DELINEATION LATITUDE: 45°41'18.00"N LONGITUDE: 121°53'59.46"W City of Stevenson 7121 E. Loop Road, Stevenson, WA 98648	**STEVENSON FIRE STATION** BergerABAM	**FIGURE 7: SITE PHOTOS** In: Stevenson County: Skamania State: WA Datum: DATUM: NAD_1983 December 2018

Path: Q:\Vancouver\2019\A19.0048\00\GIS\02_MXD\Delineation\Fig7_SitePhotos.mxd

Wetland Delineation and Assessment
New Fire Station
Stevenson, Washington

Appendix B
Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: New Fire Station Project City/County: Stevenson/Skamania County Sampling Date: 15 November 2018

Applicant/Owner: City of Stevenson State: WA Sampling Point: SP-1

Investigator(s): Dustin Day, Bridget Wojtala Section, Township, Range: NE 1/4 of Section 42, T2N, R7E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR): LRR A Lat: 45°41'18.00"N Long: 121°53'59.46"W Datum: None

Soil Map Unit Name: Steever stony clay loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No ✓ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ___	Is the Sampled Area within a Wetland?	Yes ✓ No ___
Hydric Soil Present?	Yes ✓ No ___		
Wetland Hydrology Present?	Yes ✓ No ___		

Remarks:

National Weather Service data indicated that precipitation for November 2018 prior to the site visit was 3.23 inches below the observed normal for the month.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus balsamifera	5%	no	FAC
2.			
3.			
4.			
	5% = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1. Fraxinus latifolia	20%	yes	FACW
2. Cornus sericea	10%	yes	FACW
3. Crataegus douglasii	10%	yes	FAC
4.			
5.			
	40% = Total Cover		
Herb Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	___ = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		
% Bare Ground in Herb Stratum 100%			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: SP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
1-3	10YR 2/1							
3-14	10YR 4/1		5YR 3/4	20				
14-16+	10 YR 3/1		10 YR 3/4	5				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ✓ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ______

Water Table Present? Yes ___ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ______

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: New Fire Station Project City/County: Stevenson/Skamania County Sampling Date: 15 November 2018

Applicant/Owner: City of Stevenson State: WA Sampling Point: SP-2

Investigator(s): Dustin Day, Bridget Wojtala Section, Township, Range: NE 1/4 of Section 42, T2N, R7E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR): LRR A Lat: 45°41'18.00"N Long: 121°53'59.46"W Datum: None

Soil Map Unit Name: Steever stony clay loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ✓ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______ No ✓	**Is the Sampled Area within a Wetland?**	**Yes ______ No ✓**
Hydric Soil Present?	Yes ______ No ✓		
Wetland Hydrology Present?	Yes ______ No ✓		

Remarks:

National Weather Service data indicated that precipitation for November 2018 prior to the site visit was 3.23 inches below the observed normal for the month.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	10%	no	UPL
2. Populus balsamifera	10%	no	FAC
3.			
4.			
	20%	= Total Cover	
Sapling/Shrub Stratum (Plot size: ______)			
1. Symphoricarpos albus	20%	yes	FACU
2. Cornus sericea	20%	yes	FACW
3.			
4.			
5.			
	40%	= Total Cover	
Herb Stratum (Plot size: ______)			
1. Polystichum munitum	10%	no	FACU
2. Rubus ursinus	10%	no	FACU
3. Rubus armeniacus	5%	no	FAC
4. Hedera helix	5%	no	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30%	= Total Cover	
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
		= Total Cover	
% Bare Ground in Herb Stratum 70%			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1 =	0%
FACW species	20%	x 2 =	40%
FAC species	15%	x 3 =	45%
FACU species	45%	x 4 =	180%
UPL species	10%	x 5 =	50%
Column Totals:	90% (A)		315% (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ______ No ✓**

Remarks:
Mossy ground cover

SOIL

Sampling Point: SP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16+	10 YR 2/2							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______________________

Depth (inches): ______________________

Hydric Soil Present? **Yes** ______ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ______ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: New Fire Station Project City/County: Stevenson/Skamania County Sampling Date: 15 November 2018

Applicant/Owner: City of Stevenson State: WA Sampling Point: SP-3

Investigator(s): Dustin Day, Bridget Wojtala Section, Township, Range: NE 1/4 of Section 42, T2N, R7E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR): LRR A Lat: 45°41'18.00"N Long: 121°53'59.46"W Datum: None

Soil Map Unit Name: Steever stony clay loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ✓ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ______	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** ______
Hydric Soil Present?	Yes ✓ No ______	
Wetland Hydrology Present?	Yes ✓ No ______	

Remarks:

National Weather Service data indicated that precipitation for November 2018 prior to the site visit was 3.23 inches below the observed normal for the month.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1. Fraxinus latifolia	20%	yes	FACW
2. Cornus sericea	5%	no	FACW
3.			
4.			
5.			
= Total Cover	25%		
Herb Stratum (Plot size: ______)			
1. Phalaris arundinacea	10%	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
= Total Cover	10%		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			
% Bare Ground in Herb Stratum 90%			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ______

Remarks:

SOIL

Sampling Point: SP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/1							Organic layer
1-16+	10YR 4/1		7.5YR 3/4	20				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ✓ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ✓ No ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ✓ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: New Fire Station Project City/County: Stevenson/Skamania County Sampling Date: 15 November 2018

Applicant/Owner: City of Stevenson State: WA Sampling Point: SP-4

Investigator(s): Dustin Day, Bridget Wojtala Section, Township, Range: NE 1/4 of Section 42, T2N, R7E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR): LRR A Lat: 45°41'18.00"N Long: 121°53'59.46"W Datum: None

Soil Map Unit Name: Steever stony clay loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No ✓ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓	**Is the Sampled Area within a Wetland?** Yes ___ No ✓
Hydric Soil Present?	Yes ___	No ✓	
Wetland Hydrology Present?	Yes ___	No ✓	

Remarks:

National Weather Service data indicated that precipitation for November 2018 prior to the site visit was 3.23 inches below the observed normal for the month.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1. Symphoricarpos albus	5%	yes	FACU
2.			
3.			
4.			
5.			
= Total Cover	5%		
Herb Stratum (Plot size: ___)			
1. Rubus armeniacus	25%	yes	FAC
2. Hypochaeris radicata	10%	no	FACU
3. Verbascum blattaria	10%	no	UPL
4. Cornus sericea	10%	no	FACW
5. Epilobium sp.	5%	no	
6. Tanacetum vulgare	5%	no	FACU
7. Hieracium triste	5%	no	FACU
8. Hypericum perforatum	5%	no	FACU
9.			
10.			
11.			
= Total Cover	85%		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 15%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	___	x 1 = ___
FACW species	___	x 2 = ___
FAC species	___	x 3 = ___
FACU species	___	x 4 = ___
UPL species	___	x 5 = ___
Column Totals:	___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: SP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16+	10YR 2/2							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ______ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? **Yes** ______ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: New Fire Station Project City/County: Stevenson/Skamania County Sampling Date: 15 November 2018

Applicant/Owner: City of Stevenson State: WA Sampling Point: SP-5

Investigator(s): Dustin Day, Bridget Wojtala Section, Township, Range: NE 1/4 of Section 42, T2N, R7E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR): LRR A Lat: 45°41'18.00"N Long: 121°53'59.46"W Datum: None

Soil Map Unit Name: Steever stony clay loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ✓ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______ No ✓	Is the Sampled Area within a Wetland? Yes ______ No ✓
Hydric Soil Present?	Yes ______ No ✓	
Wetland Hydrology Present?	Yes ______ No ✓	

Remarks:

National Weather Service data indicated that precipitation for November 2018 prior to the site visit was 3.23 inches below the observed normal for the month.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ______)			
1. Symphoricarpos albus	10%	yes	FACU
2.			
3.			
4.			
5.			
= Total Cover	10%		
Herb Stratum (Plot size: ______)			
1. Melissa officinalis	40%	yes	FACU
2. Rumex crispus	10%	no	FAC
3. Agrostis capillaris	10%	no	FAC
4. Phalaris arundinacea	5%	no	FACW
5. Tanacetum vulgare	5%	no	FACU
6. Holcus lanatus	5%	no	FAC
7.			
8.			
9.			
10.			
11.			
= Total Cover	75%		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 25%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No ✓

Remarks:

SOIL

Sampling Point: SP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16+	10YR 3/3							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___
Water Table Present? Yes ___ No ✓ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Wetland Delineation and Assessment
New Fire Station
Stevenson, Washington

Appendix C
Wetland Rating Forms

Wetland name or number Wetland A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 11/15/2018

Rated by Dustin Day and Bridget Wojtala Trained by Ecology? X Yes ___No Date of training 09/2014

HGM Class used for rating Depressional Wetland has multiple HGM classes? ___Y X N

NOTE: Form is not complete without the figures requested *(figures can be combined)*.
Source of base aerial photo/map ________________

OVERALL WETLAND CATEGORY IV (based on functions X or special characteristics___)

1. Category of wetland based on FUNCTIONS

________**Category I** – Total score = 23 - 27

________**Category II** – Total score = 20 - 22

________**Category III** – Total score = 16 - 19

X **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M L	H M L	H M L	
Landscape Potential	H M L	H M L	H M L	
Value	H M L	H M L	H M L	**TOTAL**
Score Based on Ratings	7	5	3	15

Score for each function based on three ratings
(order of ratings is not important)

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	

Wetland name or number Wetland A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	2
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	2
Map of the contributing basin	D 4.3, D 5.3	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	1
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	4
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	N/A

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number Wetland A

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   If your wetland can be classified as a Freshwater Tidal Fringe use the forms for ***Riverine*** *wetlands. If it is Saltwater Tidal Fringe it is an* ***Estuarine*** *wetland and is not scored. This method* ***cannot*** *be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a Flats wetland, use the form for ***Depressional*** *wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ___The wetland is on a slope (*slope can be very gradual*),
   ___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ___The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number Wetland A

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

   NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

   NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number Wetland A

DEPRESSIONAL AND FLATS WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality	
D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*. Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area points = 0	1
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	4
Total for D 1 Add the points in the boxes above	7

Rating of Site Potential If score is:___**12-16 = H** _X_**6-11 = M** ___**0-5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source_______________ Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	1

Rating of Landscape Potential If score is:___**3 or 4 = H** _X_**1 or 2 = M** ___**0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	0
Total for D 3 Add the points in the boxes above	2

Rating of Value If score is: _X_**2-4 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number Wetland A

DEPRESSIONAL AND FLATS WETLANDS **Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream degradation	
D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	2
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 The wetland is a "headwater" wetland points = 3 Wetland is flat but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0	3
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of the unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire wetland is in the Flats class points = 5	3
Total for D 4 Add the points in the boxes above	8

Rating of Site Potential If score is: ___**12-16 = H** _X_ **6-11 = M** ___**0-5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	0
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	0
Total for D 5 Add the points in the boxes above	1

Rating of Landscape Potential If score is: ___**3 = H** _X_ **1 or 2 = M** ___**0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?	
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.* The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 • Surface flooding problems are in a sub-basin farther down-gradient. points = 1 Flooding from groundwater is an issue in the sub-basin. points = 1 The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why* ______________ points = 0 There are no problems with flooding downstream of the wetland. points = 0	0
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for D 6 Add the points in the boxes above	0

Rating of Value If score is: ___**2-4 = H** ___**1 = M** _X_ **0 = L** *Record the rating on the first page*

Wetland name or number _____

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality		
R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event: Depressions cover >$^{3}/_{4}$ area of wetland Depressions cover > ½ area of wetland Depressions present but cover < ½ area of wetland No depressions present	 points = 8 points = 4 points = 2 points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes) Trees or shrubs > $^{2}/_{3}$ area of the wetland Trees or shrubs > $^{1}/_{3}$ area of the wetland Herbaceous plants (> 6 in high) > $^{2}/_{3}$ area of the wetland Herbaceous plants (> 6 in high) > $^{1}/_{3}$ area of the wetland Trees, shrubs, and ungrazed herbaceous < $^{1}/_{3}$ area of the wetland	 points = 8 points = 6 points = 6 points = 3 points = 0	
Total for R 1	Add the points in the boxes above	

Rating of Site Potential If score is:___**12-16 = H** ___**6-11 = M** ___**0-5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?		
R 2.1. Is the wetland within an incorporated city or within its UGA?	Yes = 2 No = 0	
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	Yes = 1 No = 0	
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	Yes = 1 No = 0	
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources _____________________	Yes = 1 No = 0	
Total for R 2	Add the points in the boxes above	

Rating of Landscape Potential If score is:___**3-6 = H** ___**1 or 2 = M** ___**0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?		
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	Yes = 1 No = 0	
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	Yes = 1 No = 0	
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*)	Yes = 2 No = 0	
Total for R 3	Add the points in the boxes above	

Rating of Value If score is:___**2-4 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number _____

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS **Hydrologic Functions** - Indicators that site functions to reduce flooding and stream erosion	
R 4.0. Does the site have the potential to reduce flooding and erosion?	
R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).* If the ratio is more than 20 points = 9 If the ratio is 10-20 points = 6 If the ratio is 5-<10 points = 4 If the ratio is 1-<5 points = 2 If the ratio is < 1 points = 1	
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).* Forest or shrub for >$^1/_3$ area OR emergent plants > $^2/_3$ area points = 7 Forest or shrub for > $^1/_{10}$ area OR emergent plants > $^1/_3$ area points = 4 Plants do not meet above criteria points = 0	
Total for R 4 Add the points in the boxes above	

Rating of Site Potential If score is:**___12-16 = H ___6-11 = M ___0-5 = L** *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
R 5.1. Is the stream or river adjacent to the wetland downcut? Yes = 0 No = 1	
R 5.2. Does the up-gradient watershed include a UGA or incorporated area? Yes = 1 No = 0	
R 5.3. Is the up-gradient stream or river controlled by dams? Yes = 0 No = 1	
Total for R 5 Add the points in the boxes above	

Rating of Landscape Potential If score is:**___3 = H ___1 or 2 = M ___0 = L** *Record the rating on the first page*

R 6.0. Are the hydrologic functions provided by the site valuable to society?	
R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site.* The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	
Total for R 6 Add the points in the boxes above	

Rating of Value If score is:**___2-4 = H ___1 = M ___0 = L** *Record the rating on the first page*

Wetland name or number _____

LAKE FRINGE WETLANDS **Water Quality Functions** - Indicators that the site functions to improve water quality	
L 1.0. Does the site have the potential to improve water quality?	
L 1.1. Average width of plants along the lakeshore *(use polygons of Cowardin classes)*: Plants are more than 33 ft (10 m) wide — points = 6 Plants are more than 16 ft (5 m) wide and <33 ft — points = 3 Plants are more than 6 ft (2 m) wide and <16 ft — points = 1 Plants are less than 6 ft wide — points = 0	
L 1.2. Characteristics of the plants in the wetland: Choose the appropriate description that results in the highest points, and do not include any open water in your estimate of coverage. The herbaceous plants can be either the dominant form or as an understory in a shrub or forest community. *These are not Cowardin classes. Area of cover is total cover in the unit, but it can be in patches. Herbaceous does not include aquatic bed.* Cover of herbaceous plants is >90% of the vegetated area — points = 6 Cover of herbaceous plants is >$^2/_3$ of the vegetated area — points = 4 Cover of herbaceous plants is >$^1/_3$ of the vegetated area — points = 3 Other plants that are not aquatic bed > $^2/_3$ unit — points = 3 Other plants that are not aquatic bed in > $^1/_3$ vegetated area — points = 1 Aquatic bed plants and open water cover > $^2/_3$ of the unit — points = 0	
Total for L 1 — Add the points in the boxes above	

Rating of Site Potential If score is**:___8-12 = H ___4-7 = M ___0-3 = L** *Record the rating on the first page*

L 2.0. Does the landscape have the potential to support the water quality function of the site?	
L 2.1. Is the lake used by power boats? Yes = 1 No = 0	
L 2.2. Is > 10% of the area within 150 ft of wetland unit on the upland side in land uses that generate pollutants? Yes = 1 No = 0	
L 2.3. Does the lake have problems with algal blooms or excessive plant growth such as milfoil? Yes = 1 No = 0	
Total for L 2 — Add the points in the boxes above	

Rating of Landscape Potential: If score is**:___2 or 3 = H ___1 = M ___0 = L** *Record the rating on the first page*

L 3.0. Is the water quality improvement provided by the site valuable to society?	
L 3.1. Is the lake on the 303(d) list of degraded aquatic resources? Yes = 1 No = 0	
L 3.2. Is the lake in a sub-basin where water quality is an issue (at least one aquatic resource in the basin is on the 303(d) list)? Yes = 1 No = 0	
L 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the lake or basin in which the unit is found.* Yes = 2 No = 0	
Total for L 3 — Add the points in the boxes above	

Rating of Value If score is**:___2-4 = H ___1 = M ___0 = L** *Record the rating on the first page*

Wetland name or number _____

LAKE FRINGE WETLANDS

Hydrologic Functions - Indicators that the wetland unit functions to reduce shoreline erosion

L 4.0. Does the site have the potential to reduce shoreline erosion?	
L 4.1. Distance along shore and average width of Cowardin classes along the lakeshore (**do not** include Aquatic bed): *Choose the highest scoring description that matches conditions in the wetland.* > ¾ of distance is Scrub-shrub or Forested at least 33 ft (10 m) wide — points = 6 > ¾ of distance is Scrub-shrub or Forested at least 6 ft (2 m) wide — points = 4 > ¼ distance is Scrub-shrub or Forested at least 33 ft (10 m) wide — points = 4 Plants are at least 6 ft (2 m) wide (any type except Aquatic bed) — points = 2 Plants are less than 6 ft (2 m) wide (any type except Aquatic bed) — points = 0	

Rating of Site Potential: If score is:___**6 = M** ___**0-5 = L** *Record the rating on the first page*

L 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
L 5.1. Is the lake used by power boats with more than 10 hp?	Yes = 1 No = 0	
L 5.2. Is the fetch on the lake side of the unit at least 1 mile in distance?	Yes = 1 No = 0	
Total for L 5	Add the points in the boxes above	

Rating of Landscape Potential If score is:___**2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

L 6.0. Are the hydrologic functions provided by the site valuable to society?	
L 6.1. Are there resources along the shore that can be impacted by erosion? If more than one resource is present, choose the one with the highest score. There are human structures or old growth/mature forests within 25 ft of OHWM of the shore in the unit — points = 2 There are nature trails or other paths and recreational activities within 25 ft of OHWM — points = 1 Other resources that could be impacted by erosion — points = 1 There are no resources that can be impacted by erosion along the shores of the unit — points = 0	

Rating of Value: If score is:___**2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number _____

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 No = 0	
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	
Total for S 1 Add the points in the boxes above	

Rating of Site Potential If score is:**___12 = H ___6-11 = M ___0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 No = 0	
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _________________ Yes = 1 No = 0	
Total for S 2 Add the points in the boxes above	

Rating of Landscape Potential If score is:**___1-2 = M ___0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list*. Yes = 1 No = 0	
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 No = 0	
Total for S 3 Add the points in the boxes above	

Rating of Value If score is:**___2-4 = H ___1 = M ___0 = L** *Record the rating on the first page*

Wetland name or number _____

SLOPE WETLANDS **Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream erosion	
S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > $^1/_8$ in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 All other conditions points = 0	

Rating of Site Potential If score is:**___1 = M ___0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	

Rating of Landscape Potential If score is:**___1 = M ___0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 No flooding problems anywhere downstream points = 0	
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	
Total for S 6 Add the points in the boxes above	

Rating of Value If score is:**___2-4 = H ___1 = M ___0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number Wetland A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

____Aquatic bed — 4 structures or more: points = 4
____Emergent — 3 structures: points = 2
_X_Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1
____Forested (areas where trees have > 30% cover) — 1 structure: points = 0

If the unit has a Forested class, check if:
____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

0

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

____Permanently flooded or inundated — 4 or more types present: points = 3
_X_Seasonally flooded or inundated — 3 types present: points = 2
____Occasionally flooded or inundated — 2 types present: points = 1
____Saturated only — 1 type present: points = 0
____Permanently flowing stream or river in, or adjacent to, the wetland
____Seasonally flowing stream in, or adjacent to, the wetland
____**Lake Fringe wetland** — **2 points**
____**Freshwater tidal wetland** — **2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

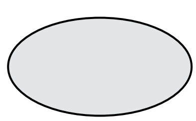
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species — points = 2
5 - 19 species — points = 1
< 5 species — points = 0

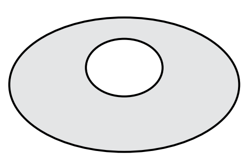
0

H 1.4. Interspersion of habitats

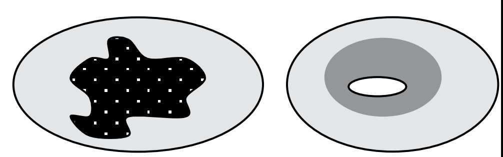
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

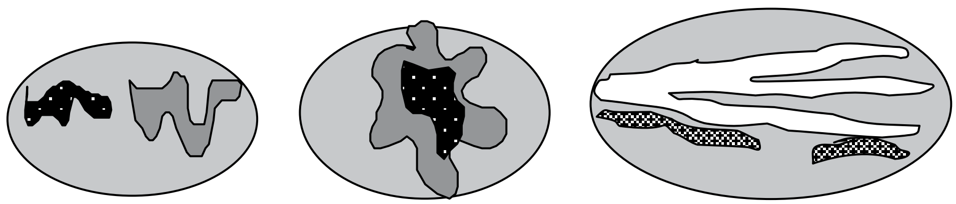


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



1

Wetland name or number Wetland A

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ____Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* _X_Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 — Add the points in the boxes above	3

Rating of Site Potential If score is:____**15-18 = H** ____**7-14 = M** _X_**0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 2.2 + [(% moderate and low intensity land uses)/2] 0.15 = 2.35 % If total accessible habitat is: > $^{1}/_{3}$ (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = 1 < 10% of 1 km Polygon — points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 27 + [(% moderate and low intensity land uses)/2] 3.8 = 30.8 % Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10-50% and in 1-3 patches — points = 2 Undisturbed habitat 10-50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	1
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (- 2) ≤ 50% of 1 km Polygon is high intensity — points = 0	-2
Total for H 2 — Add the points in the boxes above	

Rating of Landscape Potential If score is:____**4-6 = H** ____**1-3 = M** _X_**< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1 Site does not meet any of the criteria above — points = 0	0

Rating of Value If score is:____**2 = H** ____**1 = M** _X_**0 = L** *Record the rating on the first page*

Wetland name or number Wetland A

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

— **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number Wetland A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes **– Go to SC 2.2** No **– Go to SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes **= Category I** No **= Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes **– Contact WNHP/WDNR and go to SC 2.4** No **= Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes **= Category I** No **= Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No **= Is not a bog**	**Cat. I**

Wetland name or number Wetland A

<table>
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SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

— **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

— **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

Yes = **Category I** No = **Not a forested wetland for this section**

</td><td>**Cat. I**</td></tr>
<tr><td>

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

— The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

— The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)*

Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

— The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

Yes = **Category I** No = **Category II**

</td><td>**Cat. I**

Cat. II</td></tr>
<tr><td>

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

— Long Beach Peninsula: Lands west of SR 103

— Grayland-Westport: Lands west of SR 105

— Ocean Shores-Copalis: Lands west of SR 115 and SR 109

Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

Yes = **Category II** No – Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

Yes = **Category III** No = **Category IV**

</td><td>**Cat I**

Cat. II

Cat. III

Cat. IV</td></tr>
<tr><td>

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

</td><td></td></tr>
</table>

Wetland name or number Wetland A

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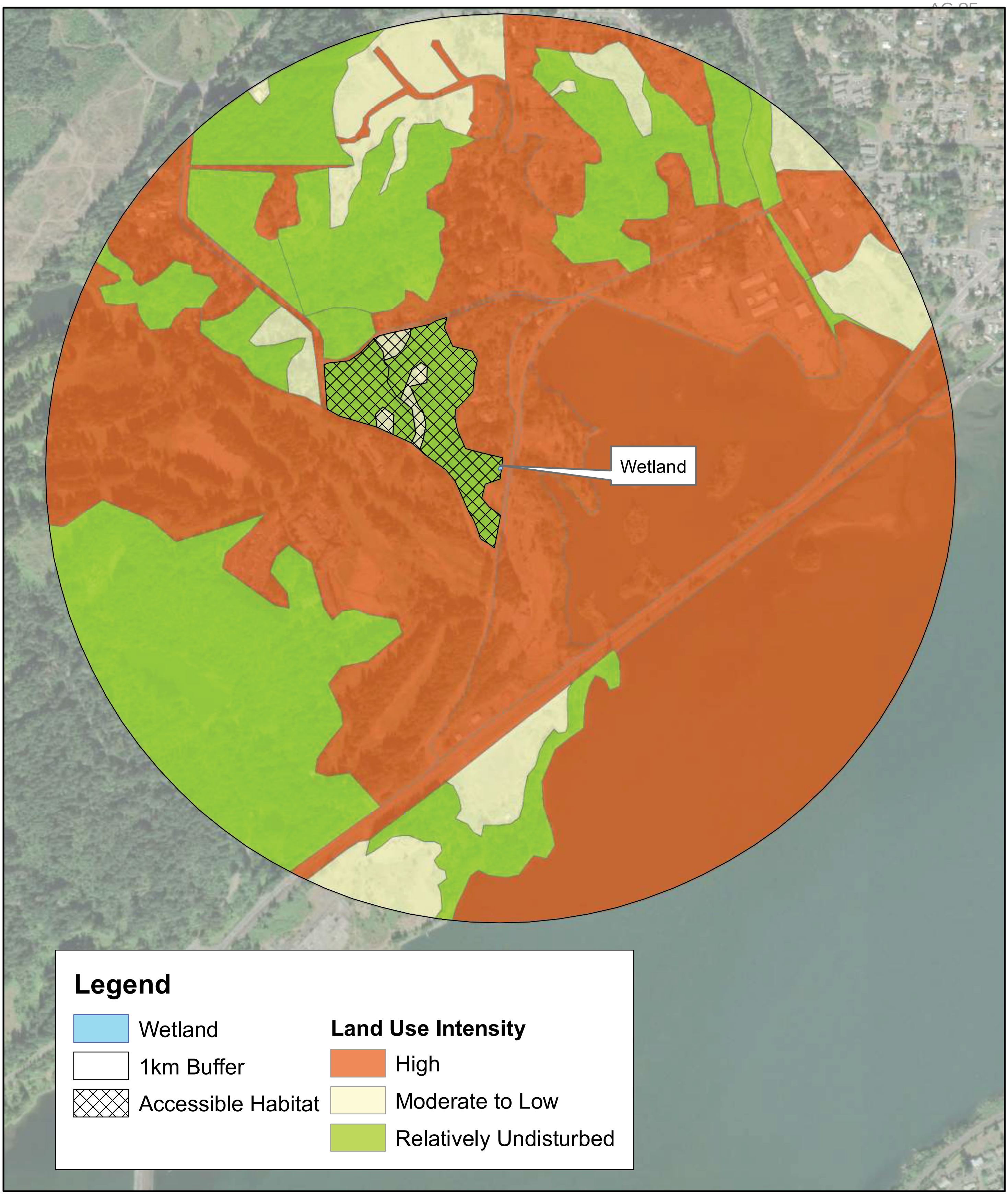


PURPOSE: WETLAND DELINEATION

LATITUDE: 45°41'18.00"N
LONGITUDE: 121°53'59.46"W

City of Stevenson
1525 Broadway Street
Longview, WA 98632

STEVENSON FIRE STATION

BergerABAM

0 0.05 0.1 0.2 0.3 Miles

FIGURE 1: LAND USE INTENSITY

In: Stevenson
County: Skamania
State: WA
Datum: DATUM: NAD_1983

December 2018

Path: Q:\Vancouver\2019\A19.0048\00\GIS\02_MXD\WetlandRatings\LandUseIntensity.mxd

PURPOSE: WETLAND DELINEATION

LATITUDE: 45°41'18.00"N
LONGITUDE: 121°53'59.46"W

City of Stevenson
1525 Broadway Street
Longview, WA 98632

STEVENSON FIRE STATION

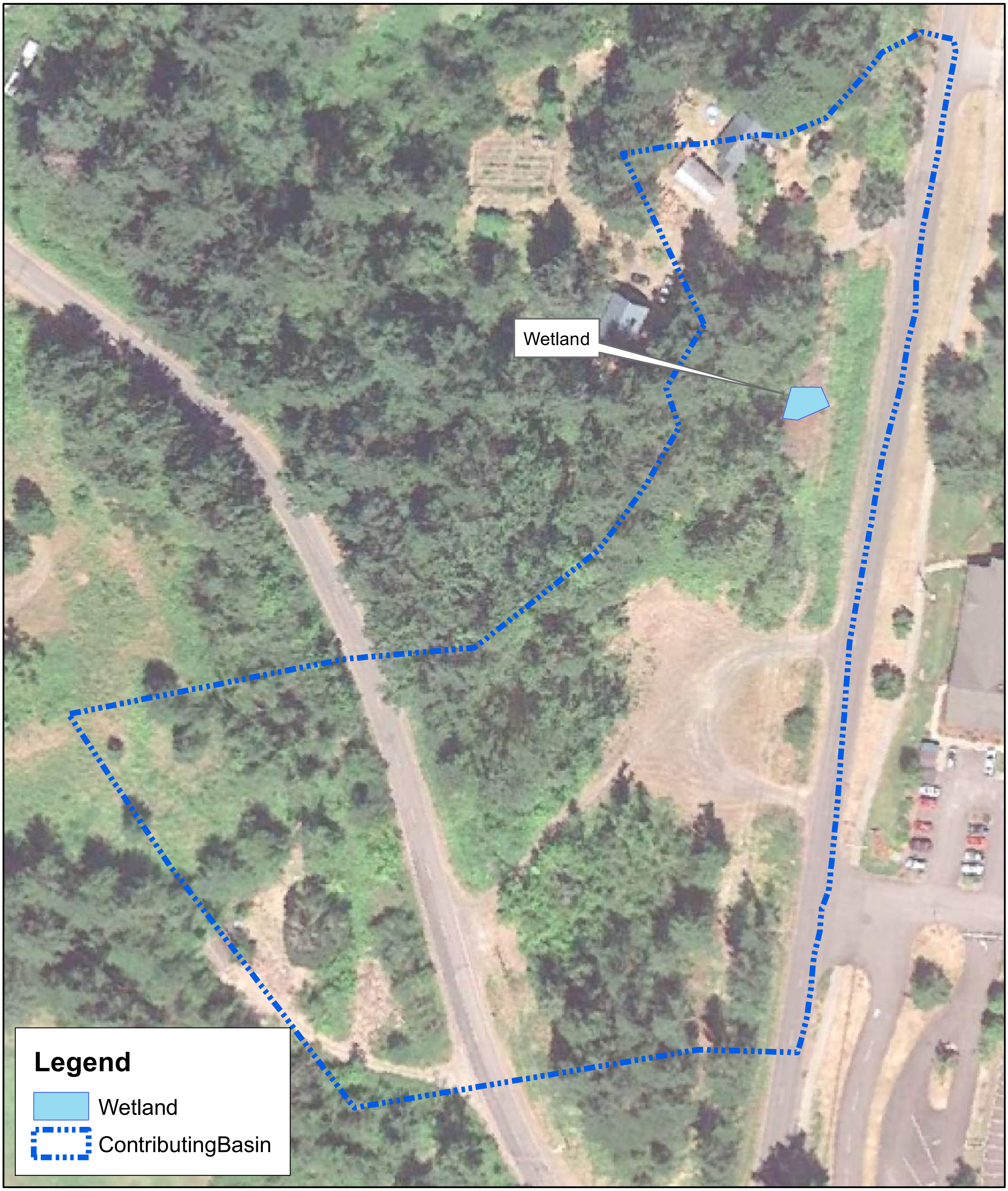
BergerABAM

0 12.5 25 50 75 Feet

FIGURE 2: HYDROPERIOD AND COWARDIN CLASS
In: Stevenson
County: Skamania
State: WA
Datum: DATUM: NAD_1983

December 2018

Path: Q:\Vancouver\2019\A19.0048\00\GIS\02_MXD\WetlandRatings\Cowardin_Hydroperiod.mxd



PURPOSE: WETLAND DELINEATION

LATITUDE: 45°41'18.00"N
LONGITUDE: 121°53'59.46"W

City of Stevenson
1525 Broadway Street
Longview, WA 98632

STEVENSON FIRE STATION

BergerABAM

0 25 50 100 150 Feet

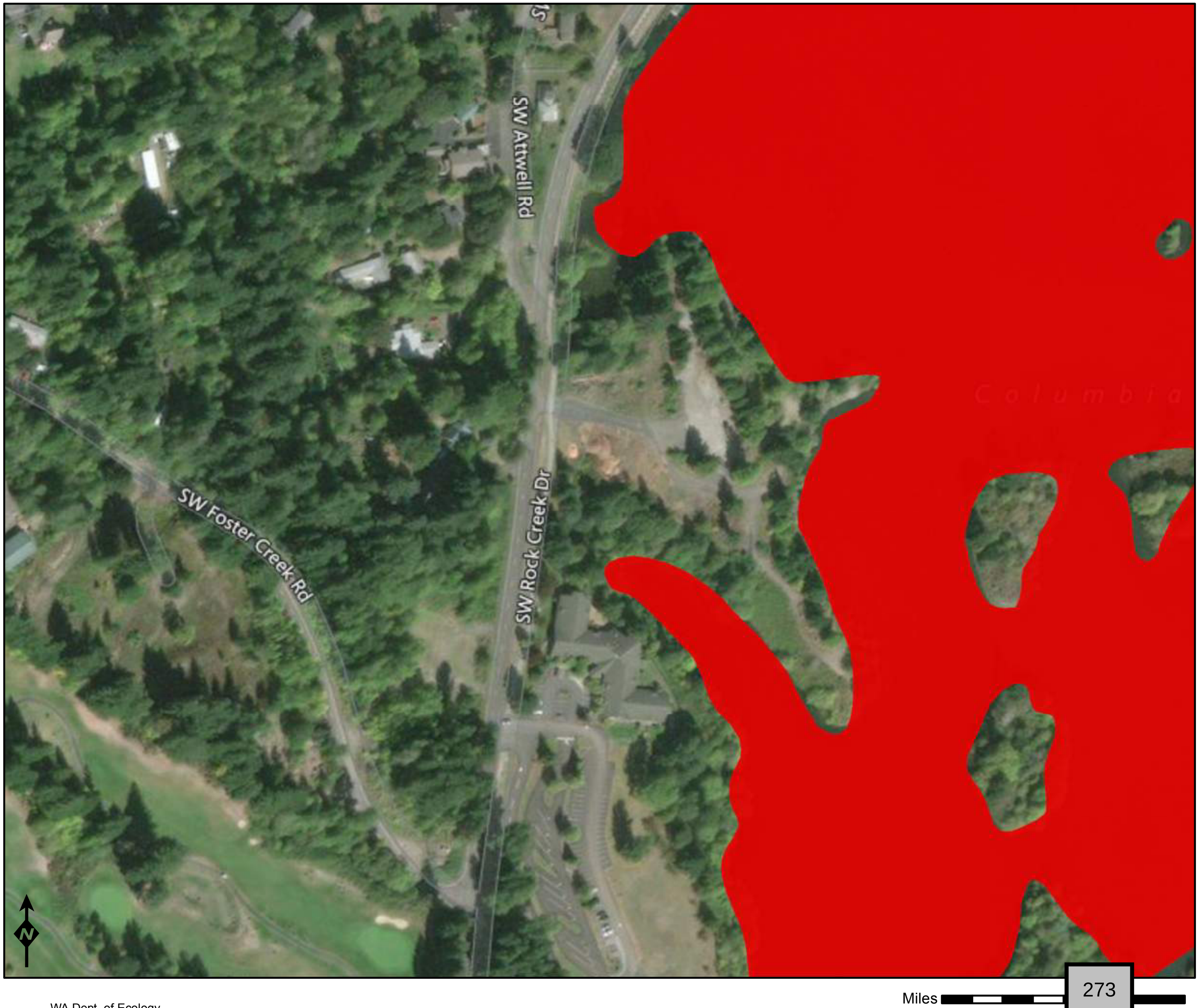
FIGURE 3: CONTRIBUTING BASIN

In: Stevenson
County: Skamania
State: WA
Datum: DATUM: NAD_1983

December 2018

Path: Q:\Vancouver\2019\A19.0048\00\GIS\02_MXD\WetlandRatings\Fig3_ContributingBasin.mxd

Figure 4. 303(d) Map - Listed Waters in Basin.



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

DEPARTMENT OF ECOLOGY State of Washington

Appendix C
Geotechnical Site Investigation Report

Northern, Inc.
Consulting Engineers   Environmental Scientists   Geologists
Construction Materials Testing   Geophysical Services

GEOTECHNICAL SITE INVESTIGATION REPORT

NEW FIRE HALL
SW ROCK CREEK DRIVE
STEVENSON, WASHINGTON

GNN PROJECT NO. 218-1038

DECEMBER 2018

Prepared for

CITY OF STEVENSON
7121 E. LOOP ROAD
P.O. BOX 371
STEVENSON, WA 98648

Prepared by

GN NORTHERN, INC.
CONSULTING GEOTECHNICAL ENGINEERS
YAKIMA, WASHINGTON
(509) 248-9798 / (541) 387-3387

Common Sense Approach to Earth and Engineering
Since 1995

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www.gnnorthern.com
gnnorthern@gnnorthern.com

Yakima • Kennewick • Spokane Valley • Hermiston, OR • Hood River, OR

At GN Northern our mission is to serve our clients in the most efficient, cost effective way using the best resources and tools available while maintaining professionalism on every level. Our philosophy is to satisfy our clients through hard work, dedication and extraordinary efforts from all of our valued employees working as an extension of the design and construction team.

GN Northern, Inc.

December 10, 2018

City of Stevenson
7121 E. Loop Road
P.O. Box 371
Stevenson, WA 98648

Attn: Leana (Johnson) Kinley, EMPA, CMC, City Administrator

Subject: Geotechnical Site Investigation Report
New Fire Hall
SW Rock Creek Drive
Stevenson, Washington

GNN Project No. 218-1038

Dear Ms. Kinley,

As requested, GN Northern (GNN) has completed a geotechnical site investigation for the proposed fire station to be constructed at a vacant site located on SW Rock Creek Drive, northwest of the intersection with Foster Creek Road, in the City of Stevenson, Washington.

Based on the findings of our subsurface study, we conclude that the site is suitable for the proposed construction provided that our geotechnical recommendations presented in this report are followed during the design and construction phases of the project.

This report describes in detail the results of our investigation, summarizes our findings and presents our recommendations concerning earthwork and the design and construction of foundation for the proposed project. It is important that GN Northern provide consultation during the design phase as well as field compaction testing and geotechnical monitoring services during the earthwork phase to ensure implementation of the geotechnical recommendations.

If you have any questions regarding this report, please contact us at 509-248-9798 or 541-387-3387.

Respectfully submitted,

GN Northern, Inc.

State of Washington Licensed Geologist
Engineering Geologist 2535
Karl A. Harmon

Karl A. Harmon, LEG, PE
Senior Geologist/Engineer

M. Yousuf Memon, PE
Geotechnical Engineer

M. Yousuf Memon
State of Washington
55606
Registered Professional Engineer
Exp: 7-15-2020

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APPENDICES

GN Northern, Inc.

1.0 PURPOSE AND SCOPE OF SERVICES

This report has been prepared for the proposed fire station to be constructed at a vacant site located on SW Rock Creek Drive, northwest of the intersection with Foster Creek Road, in the City of Stevenson, Washington; site location is shown on the *Vicinity Map* (Figure 1, Appendix I). Our investigation was conducted to collect information regarding subsurface conditions and present recommendations for suitability of the subsurface materials to support the proposed building and allowable bearing capacity for the proposed construction.

GN Northern, Inc. has prepared this report for use by the client and their design consultants in the design of the proposed development. Do not use or rely upon this report for other locations or purposes without the written consent of GN Northern, Inc.

Our study was conducted in general accordance with our *Proposal for Geotechnical Engineering Services* dated November 9, 2018. Notice to proceed was provided on November 15, 2018 in the form of a Professional Services Contract.

A draft site plan (*Option A: Site*) prepared by Mackenzie, dated 10/2/2018, was provided by Ms. Kinley via email on October 24, 2018. Field exploration, consisting of six (6) test-pits, was completed on December 4, 2018. Locations of the exploratory test-pits are shown on the *Site Exploration Map* (Figure 2, Appendix I), and detailed test-pit logs are presented in Appendix II.

This report has been prepared to summarize the data obtained during this study and to present our recommendations based on the proposed construction and the subsurface conditions encountered at the site. Results of the field exploration were analyzed to develop recommendations for site development, earthwork, pavements, and foundation bearing capacity. Design parameters and a discussion of the geotechnical engineering considerations related to construction are included in this report.

2.0 PROPOSED CONSTRUCTION

Based on the information presented on the draft site plan, we understand that a new ~12,400 SF fire hall building is proposed at the site. A parking lot with 22 stalls is planned along the south side of the building, with drive-lanes providing access to and from SW Rock Creek Road. Based on the 2016 Stevenson Fire Hall Strike Team Report referenced within the scope of work described in the

City of Stevenson's Request for Qualifications for the project, the fire station building will include an apparatus bay to house two brush trucks, one tender and up to three fire engines, along with cleanup and storage areas, a training room, offices for the fire chief and director, restrooms and utility rooms, and may also include sleeping, shower, laundry and copy rooms.

Structural loading information was not available at the time of this report. Based on our experience with similar projects, we expect maximum wall loads to be on the order of 3,000 plf and maximum column loads to be less than 75 kips. It shall be noted that assumed loading is based on limited preliminary information provided at the time of this report. If loading conditions differ from those described herein, GNN should be given an opportunity to perform re-analysis. Settlement tolerances for structures are assumed to be limited to 1 inch, with differential settlement limited to ½ inch.

3.0 FIELD EXPLORATION & LABORATORY TESTING

The field exploration was completed on December 4, 2018. A local public utility clearance was obtained prior to the field exploration. Six (6) exploratory test-pits were completed within the footprint of the proposed development; locations are shown on *Site Exploration Map* (Figure 2). Test-pits were excavated by Riley Materials using a Link-Belt 145x4 excavator to depths of approximately 13 to 14.5 feet below existing ground surface (BGS) and logged by a GNN field geologist/engineer. Upon completion, all excavations were loosely backfilled with excavation spoils.

The soils observed during our field exploration were classified according to the Unified Soil Classification System (USCS), utilizing the field classification procedures as outlined in ASTM D2488. A copy of the USCS Classification Chart is included in Appendix II. Photographs of the site and exploration are presented in Appendix IV. Depths referred to in this report are relative to the existing ground surface elevation at the time of our investigation. The surface and subsurface conditions described in this report are as observed at the time of our field investigation.

Representative samples of the subsurface soils obtained from the field exploration were selected for testing to determine the index properties of the soils in general accordance with ASTM procedures. The following laboratory tests were performed:

Table 1: Laboratory Tests Performed

Test	To determine
Particle Size Distribution (ASTM D6913)	Soil classification based on proportion of sand, silt, and clay-sized particles
Natural Moisture Content (ASTM D2216)	Soil moisture content indicative of in-situ condition at the time samples were taken
Atterberg Limits (ASTM D4318)	Liquid limit, plastic limit and plasticity index of soils

Results of the laboratory test are included on the test-pit logs and are also presented in graphic form in Appendix III attached to the end of the report.

4.0 SITE CONDITIONS

The project site is located northwest of the intersection of SW Rock Creek Drive and Foster Creek Road, approximately 0.3-miles north of State Highway 14 in the City of Stevenson, Washington. The 3.45-acre parcel is currently identified by the Skamania County Assessor as Parcel No. 02070200310000, and is located within Section 42, Township 2 North and Range 7 East, Willamette Meridian. Surrounding properties include existing residence(s) to the north, an assisted living facility on the east side of Rock Creek Drive, and a portion of the Skamania Lodge golf course on the southwest side of Foster Creek Road.

Based on our observations, the site currently includes a relatively flat area in the east-central portion of the site surrounded by natural hummocky terrain along the south, west and north sides. The central portion of the site is currently accessed via two un-paved driveways that also include buried culverts at the drainage ditch crossing along Rock Creek Drive. Surface conditions across the site include a dense growth of mature trees and vegetation, while the central portion of the site includes a gravel cover at the surface with a sparse vegetation growth. The City of Stevenson's Critical Areas & Geologic Hazards Map and the site plan prepared by MacKenzie identify a low-lying area in the northeastern portion of the site as a 'wetland'. Based on Google Earth topography, site elevations range from 163' at the peak of an elevated nob in the southern portion of the site to 102' in the low-lying area in the northeast portion. Surface elevations within the proposed building footprint range from 123' near the southwest corner to 115' along the northeast portion.

The history of past use and development of the property was not investigated as part of our scope of services for this geotechnical site investigation. However, from a cursory review of available USGS historic aerial photographs, it appears that the site had been developed by at least 1973. The USGS topographic map from 1979 shows a building structure in the north-central portion of the site (see Figure 2). The noted building later appears to be absent in the 1984 USGS historic aerial photo. A 2005 Lidar image of the area, available through the WA DNR Lidar Portal, also shows the apparent site disturbance and land leveling in this portion of the site. Buried wood debris encountered during our exploration in the vicinity of the pre-existing building (see *Subsurface Conditions* section below) further confirms man-made site alterations in this portion of the site.

5.0 SITE & REGIONAL GEOLOGY

The City of Stevenson and Skamania County are located in the South Cascades physiographic province that extends from the Columbia River to the south to Interstate 90 to the north, and is dominated by three massive stratovolcanoes. The current day volcanoes are the most recent installments of a 40-million-year-old volcanic complex called the Cascades Volcanic Arc. The bedrock geology of the western Columbia Gorge is dominated by Oligocene to early Miocene volcaniclastic rocks and minor interbedded lava flows of the ancestral Cascade Volcanic Arc. At many locations, the ancestral arc rocks are unconformably overlain by lava flows of the middle Miocene Columbia River Basalt Group, late Miocene to Pliocene fluvial deposits, or Quaternary olivine-phyric mafic lavas (Pierson et al., 2016).

The western part of the Columbia River Gorge is characterized by massive landslides on the Washington side, and the instability of these land masses is associated with abundant rainfall, high relief, composition and structure of the underlying rocks, tectonic uplift associated with the structural evolution of the Cascade Range and Yakima Fold Belt, and valley-side erosion by the incising Columbia River, which flows across the uplifting terrains (Pierson et al., 2016). Cascadia landslide complex is one such landslide feature that spans from the town of North Bonneville to the western portion of Stevenson. The Cascade landslide complex is subdivided into four individual landslides: the Carpenters Lake, Bonneville, and Red Bluffs landslides, as well as a reactivated part of the Red Bluffs landslide body known as the Crescent Lake landslide. Immediately east of the Cascade landslide complex is the newly recognized Stevenson landslide which is occupied by the City of Stevenson.

The project site is located near the eastern toe of the Red Bluffs landslide, approximately 1-mile east of the reactivated Crescent Lake landslide. The head scarp of the Red Bluffs landslide is located approximately 3½ miles northwest of the site. Surface geology at the site is mapped as Quaternary landslide deposits [Qls] of the Red Bluffs landslide (mass wasting deposits), consisting of poorly sorted blocks, boulders, gravels, and fines sediments produced by the gravitational failure and rotational-translational slide of bedrock and/or unconsolidated sediments above the bedrock (Korosec, 1987).

6.0 SUBSURFACE CONDITIONS

Based on the findings of our field exploration, subsurface soils at the project site include a variably-thick layer of artificial fill soils atop the native silty sand stratum (mass wasting deposits). The undocumented artificial fill soils were noted in the upper approximately 2.5 to 4 feet across the site, and as deep as 7 to 9 feet in test-pit TP-4 in the central portion of the proposed building. Fill soils were generally classified as Silty Gravel with Sand, and included significant wood debris and organic-rich clayey soils in the northern portion of the site. The fill soils at the site are likely to be related to the previous historic development at the site. The apparent native underlying soils were classified as Silty Sand with Gravel and included varying amounts of cobbles and boulders. The native soil stratum typically appeared medium dense. Test-pit logs in Appendix II show detailed descriptions and stratification of the soils encountered.

6.1 NRCS Soil Survey

Although altered at the surface, the soil survey map of the site prepared by the Natural Resources Conservation Service (NRCS) identifies the site soils as *Steever stony clay loam* with typical profile described as *stony clay loam* grading to *very gravelly loam*. Based on the NRCS map (Appendix V), these units generally consists of *well drained* materials.

6.2 Groundwater

Groundwater was encountered within the test-pits at depths ranging from approximately 10 to 12.5 feet BGS at the time of our exploration in early December. Approximate correlating groundwater elevations ranged from 113' in the southwest portion to 104' near the northeast portion. A review of the Washington Department of Ecology's online water well log database revealed a lack of nearby water wells in the site vicinity. Water levels within the nearby Rock Cove portion of the

Columbia River, controlled by the down-river Bonneville Dam, are typically noted at an elevation approximately 35 feet below the site elevation. Therefore, we believe groundwater at the site is not directly affected by pool elevations in the Columbia River, and is likely controlled by the complex hydrogeological conditions of the up-gradient mass-wasting landslide deposits. Groundwater levels will fluctuate with irrigation, precipitation, drainage, and regional pumping from wells.

7.0 GEOLOGIC HAZARDS

Potential geologic hazards that may affect the proposed development include: [i] landslides & slope instability, [ii] seismic hazards (ground shaking, surface fault rupture, soil liquefaction, and other secondary earthquake-related hazards), and [iii] flooding & erosion. A small area near the western portion of the subject property is mapped by the City of Stevenson's Critical Areas & Geologic Hazards Map as 'Potentially Unstable Slope' which refers to an area with slopes of 25% or greater per Stevenson Municipal Code (SMC), Chapter 18.13, Section 18.13.090, Critical Area - Geologically Hazardous Areas. A discussion follows on the specific hazards to this site:

7.1 Landslides

The Bonneville landslide has been dated to have occurred from 1416-1452 A.D. by a combination of dating methods. The Red Bluffs landslide has crosscutting morphologic features suggesting a younger age than that of the Bonneville landslide, with an age range of 1760-1770 A.D. The Crescent Lake landslide has reactivated within the last few decades and currently is moving downslope at an average rate of 11–18 cm/year and possibly as fast as 25 cm/year (Pierson et al., 2016). Results of another recent study (Hu et al., 2015) showed that the central upper part of the Crescent Lake landslide moved a total of 700 mm downslope during a 4-year observation period from 2007 to 2011, and that the movement was seasonal and showed a strong correlation with winter precipitation. In contrast to the Crescent Lake landslide, coherent parts of Red Bluffs, Bonneville and Stevenson landslides were observed to remain stable during the observation period.

Although considered a recent landslide (< 1,000 years old), the Red Bluffs landslide is not considered an active landslide (movement in last 20 years). Based on Table 18.13.090-1, Landslide Hazard Classification, of the Stevenson Municipal Code (SMC), the landslide hazard for the site classifies as 'Moderate Hazard'.

7.2 Regional Faulting & Surface Fault Rupture

The nearest regional faulting with Quaternary displacement (< 130,000 years) consists of the Faults near The Dalles located approximately 12 miles east of the project site (Czajkowski, 2014). Published slip rates for these faults are listed at less than 0.2 mm/year. For the purposes of this report, an active fault is defined as a fault that has had displacement within the Holocene epoch or last 11,700 years. Due to the lack of any known active fault traces in the immediate site vicinity, surface fault rupture is unlikely to occur at the subject property. While future fault rupture could occur at other locations, rupture would most likely occur along previously established fault traces.

7.3 Earthquakes & Seismic Conditions

Earthquakes caused by movements along crustal faults, generally in the upper 10 to 15 miles, occur on the crust of the North America tectonic plate when built-up stresses near the surface are released. The two largest crustal earthquakes felt in the state of Washington included the 1872, M 6.8 quake near Lake Chelan and the 1936, M 6.0 Walla Walla earthquake. Noteworthy to the City of Stevenson, the Mount Saint Helens Seismic Zone is located approximately 30 miles towards the north-northwest. The following list provides information gathered from the online USGS database regarding historic earthquakes (≥4.0 M) within the past 50 years for epicenters within 100 kilometers of project site, sorted by magnitude (largest to smallest):

Table 2: Earthquakes within 100-kilometers of project site

Date(s) of Event	Magnitude(s)	Nearby Faults / Seismic Zone	Distance from Site (miles)
March to May, 1980	4.0 - 5.7	Mt. Saint Helens Seismic Zone	32.6 - 47.2
March 25, 1993	5.6	Mt. Angel Fault Zone	56.6
February 14, 1981	5.2	Mt. Saint Helens Seismic Zone	48.4
May 13, 1981	4.5	Mt. Saint Helens Seismic Zone	49.5
June 29, 2002	4.5	Faults near The Dalles	26.4
March 1, 1982	4.4	Mt. Saint Helens Seismic Zone	48.4
February 14, 2011	4.3	Mt. Saint Helens Seismic Zone	43.7
July 14, 2008	4.2	*unknown*	60.1
December 13, 1974	4.1	Faults near The Dalles	32.6
February 2, 1981	4.0	Toppenish Ridge Fault Zone	59.1

Based on seismic scenarios published by the Washington State Department of Natural Resources (DNR), M 7.0 Mount Saint Helens and M 7.1 Mill Creek earthquake events would result in a shaking intensity of 'V' (moderate shaking) on the Modified Mercalli Intensity (MMI) scale. We further used the USGS deaggregation tool which provides the relative contributions of hazard for each seismic source based on Probabilistic Seismic Hazard Analysis (PSHA). Based on the deaggregation, it appears that about 23% of the contribution to the probabilistic hazard at the site comes from the Cascadia Subduction Zone, with the remaining contribution primarily from the shallower sources.

7.4 Soil Liquefaction

Liquefaction is the loss of soil strength from sudden shock (usually earthquake shaking), causing the soil to become a fluid mass. In general, for the effects of liquefaction to be manifested at the surface, groundwater levels must be within 50 feet of the ground surface and the soils within the saturated zone must also be susceptible to liquefaction. Based on the published Liquefaction Susceptibility Map of of Skamania County, Washington (Palmer et al., 2004a), the site is mapped with a 'low to moderate' relative suceptibility for seismically-induced liquefaction to occur. A detailed assessment of the liquefaction potential at the site, including liquefaction-induced settlement and the effects of lateral spreading, is beyond the scope of this investigation.

7.5 Secondary Seismic Hazards

Additional secondary seismic hazards related to ground shaking include ground subsidence, tsunamis, and seiches. The site is far inland, so the hazard from tsunamis is non-existent. The potential hazard from seiches in also very low due to the elevation difference between the site and nearest water body.

7.6 Site Slopes

While hummocky terrain prevails across the majority of the site, the proposed area of development is relatively flat and level. A topographic plan of the site was unavailable at the time of this report. A field reconnaissance of the subject property was performed to observe site conditions and look for common geomorphic features of landslides as well as indications of possible signs demonstrating recent activity and instability of slide masses. No apparent indications of recent failures or significant slope instability were observed.

7.7 Flooding and Erosion

The subject property is mapped by Federal Emergency Management Agency (FEMA) as Zone 'C' which translates to areas of minimal flooding. Portions of the subject property are however situated in areas where sheet flow and erosion may occur. Soil erodibility is only one of several factors affecting the erosion susceptibility. Soil erosion by water also increases with the length and steepness of the site slopes due to the increased velocity of runoff and resulting greater degree of scour and sediment transport. The need for and design of erosion protection measures is within the purview of the design Civil Engineer. Appropriate erosion and sediment control plan(s) and a drainage plan shall be prepared by the project civil engineer with the final construction drawings. Erosion should be mitigated with appropriate BMPs consisting of proper drainage design including collecting and disposal (conveyance) of water to approved points of discharge in a non-erosive manner. Appropriate project design, construction, and maintenance will be necessary to mitigate the site erosion hazards.

8.0 SEISMIC DESIGN PARAMETERS

Based on subsurface data obtained during or field exploration, along with our review of the published NEHRP Site Class Map of Skamania County, Washington (Palmer et al., 2004b), a site class 'D' as defined by 2015 International Building Code (IBC) is applicable. According to Mapped Spectral Acceleration obtained from the USGS Seismic Design Maps using the 2015 IBC (Appendix VI), the following site-specific design values may be used:

Table 3: IBC Design Response Spectra Parameters

Seismic Design Parameter	Value (unit)
S_s	0.657 (g)
S_1	0.292 (g)
F_a	1.275 (unitless)
F_v	1.815 (unitless)
SM_s	0.838 (g)
SM_1	0.530 (g)
SD_s	0.558 (g)
SD_1	0.354 (g)

S_S = MCE spectral response acceleration at short periods
S_1 = MCE spectral response acceleration at 1-second period
F_a = Site coefficient for short periods
F_v = Site coefficient for 1-second period
SM_S = MCE spectral response acceleration at short periods as adjusted for site effects
SM_1 = MCE spectral response acceleration at 1-second period as adjusted for site effects
SD_S = Design spectral response acceleration at short periods
SD_1 = Design spectral response acceleration at 1-second period

It shall be noted that determination of an appropriate site class requires shear wave velocity, soil undrained shear strength, or standard penetration resistance (N-value) data in the upper 100 feet of the subsurface profile, which was beyond the scope of this investigation.

9.0 SUMMARY OF FINDINGS & CONCLUSIONS

Conditions imposed by the proposed development have been evaluated on the basis of assumed elevations and engineering characteristics of the subsurface materials encountered in the exploratory test-pits, and their anticipated behavior both during and after construction. The following is a summary of our findings, conclusions and professional opinions based on the data obtained from a review of selected technical literature and the site evaluation.

- Based on the findings of this geotechnical evaluation and our understanding of the proposed development, from a geotechnical perspective, it is our opinion that the site is suitable for the proposed development, provided the soil design parameters and site-specific recommendations in this report are followed in the design and construction of the project.

- Final design plans for the proposed development, including topographic, grading, drainage and finished elevations, were not provided at the time of this report**.** Once the plans are finalized, GNN **must** be provided an opportunity to review final design plans to provide revised recommendations if/as necessary.

- Site soils include a variably-thick layer of artificial fill soils atop the native silty sand with gravel. The undocumented artificial fill soils extended to depths ranging from 2.5 to 9 feet and included significant wood debris in the northern portion of the site.

- Groundwater was encountered within the test-pits at depths ranging from approximately 10 to 12.5 feet BGS at the time of our exploration in early December. Groundwater conditions will likely be a factor for design and construction at the site.

- The onsite silty sand and gravel soils, screened and processed to be free of oversize rocks (>5 inches) and any deleterious materials including trash and debris, are generally suitable for reuse as engineered fill and utility trench backfill.

- The proposed fire station building may be supported on conventional shallow foundations bearing on a layer of crushed rock atop the recompacted native subgrade in accordance with the recommendations of this report. However, due to presence of artificial fill soils with significant trash/debris within the proposed building footprint, over-excavation of the unsuitable fill soils to a competent native stratum and replacement with engineered fill will be required.

- Site grading shall incorporate the requirements of IBC 2015, Appendix J *Grading*.

- Upon completion, all test-pit excavations were loosely backfilled with excavation spoils. The contractor is responsible to locate the test-pits to re-excavate the loose soils and re-place as compacted engineered fill.

- The underlying geologic condition for seismic design is site class 'D'. The *minimum* seismic design should comply with the 2015 International Building Code (IBC) and ASCE 07-10, Minimum Design Loads for Buildings and Other Structures.

- The near-surface site soils are susceptible to wind and water erosion when exposed during grading operations. Preventative measures and appropriate BMPs to control runoff and reduce erosion should be incorporated into site grading plans.

- Based on the findings of our site evaluation, we recommend completing a site-specific liquefaction analysis to assess the risk of soil liquefaction and liquefaction-induced settlement at the site during a seismic event. Site-specific liquefaction analysis requires a 50-foot deep boring with continuous penetration testing.

10.0 GEOTECHNICAL RECOMMENDATIONS

The following geotechnical recommendations are based on our current understanding of the proposed project depicted on the site plan (Option A: Site) prepared by Mackenzie, dated 10/2/2018. The report is prepared to comply with the 2015 International Building Code Section 1803, Geotechnical Investigations, and as required by Subsection 1803.2, Investigations Required. Please note that Soil Design Parameters and Recommendations presented in this **Design-Level** report are predicated upon appropriate geotechnical monitoring and testing of the site preparation and foundation and building pad construction by a representative of GNN's Geotechnical-Engineer-of-Record (GER). Any deviation and nonconformity from this requirement may invalidate, partially or in whole, the following recommendations. We recommend that we be engaged to review grading and foundation plans in order to provide revised, augmented, and/or additional geotechnical recommendations as required.

10.1 Site Development – Grading

Site grading shall incorporate the requirements of IBC 2015 Appendix J. The project GER or a representative of the GER should observe site clearing, grading, and the bottoms of excavations before placing fills. Local variations in soil conditions may warrant increasing the depth of over-excavation and recompaction. Seasonal weather conditions may adversely affect grading operations. To improve compaction efforts and prevent potential pumping and unstable ground conditions, we suggest performing site grading during dryer periods of the year.

Soil conditions shall be evaluated by in-place density testing, visual evaluation, probing, and proof-rolling of the imported fill and re-compacted on-site soil as it is prepared to check for compliance with recommendations of this report. A moisture-density curve shall be established in accordance with the ASTM D1557 method for all onsite soils and imported fill materials used as structural fill.

10.2 Clearing and Grubbing

At the start of site grading, any vegetation, large roots, non-engineered/artificial fill, including trash and debris, and any abandoned underground utilities shall be removed from the proposed building and structural areas. The surface shall be stripped of all topsoil and/or organic growth (vegetation) that may exist within the proposed structural areas. The topsoil and organic rich soils shall either be stockpiled on-site separately for future use or be removed from the construction area. Depth of stripping can be minimized with real-time onsite observation of sufficient removals. Areas disturbed during clearing shall be properly backfilled and compacted as described below.

10.3 Suitability of the Onsite Soils as Engineered Fill

The onsite silty sand and gravel soils, screened and processed to be free of oversize rocks (>5 inches) and deleterious materials including trash and debris, are generally suitable for reuse as engineered fill and utility trench backfill. The clay-rich soils encountered within the fill strata in the northern portion of the site are not considered suitable for re-use. Suitable onsite soils shall be placed in maximum 8-inch lifts (loose) and compacted to at least 95% relative compaction (ASTM D1557) near its optimum moisture content. Compaction of these soils shall be performed within a range of ±2% of optimum moisture to achieve the proper degree of compaction.

10.4 Temporary Excavations

It shall be the responsibility of the contractor to maintain safe temporary slope configurations since the contractor is at the job site, able to observe the nature and conditions of the slopes and be able to monitor the subsurface conditions encountered. Unsupported vertical cuts deeper than 4 feet are not recommended if worker access is necessary. The cuts shall be adequately sloped, shored or supported to prevent injury to personnel from caving and sloughing. The contractor and subcontractors shall be aware of and familiar with applicable local, state and federal safety regulation including the current OSHA Excavation and Trench Safety Standards, and OSHA Health and Safety Standards for Excavations, 29 CFR Part 1929, or successor regulations.

According to chapter 296-155 of the Washington Administrative Code (WAC), it is our opinion that the soil encountered at the site is classified as Type C soils. We recommend that temporary, unsupported, open cut slopes shall be no steeper than 1.5 feet horizontal to 1.0 feet vertical (1.5H:1V) in Type C soils. No heavy equipment should be allowed near the top of temporary cut slopes unless the cut slopes are adequately braced. Final (permanent) fill slopes should be graded to an angle of 2H:1V or flatter. Where unstable soils are encountered, flatter slopes may be required.

10.5 Utility Excavation, Pipe Bedding and Trench Backfill

To provide suitable support and bedding for the pipe, we recommend the utilities be founded on suitable bedding material consisting of clean sand and/or sand & gravel mixture. To minimize trench subgrade disturbance during excavation, the excavator should use a smooth-edged bucket rather than a toothed bucket.

Pipe bedding and pipe zone materials shall conform to Section 9-03.12(3) of the *2018 WSDOT Standard Specifications.* Pipe bedding should provide a firm uniform cradle for support of the pipes. A minimum 4-inch thickness of bedding material beneath the pipe should be provided. Prior to installation of the pipe, the pipe bedding should be shaped to fit the lower part of the pipe exterior with reasonable closeness to provide uniform support along the pipe. Pipe bedding material should be used as pipe zone backfill and placed in layers and tamped around the pipes to obtain complete contact. To protect the pipe, bedding material should extend at least 6 inches above the top of the pipe.

Placement of bedding material is particularly critical where maintenance of precise grades is essential. Backfill placed within the first 12 inches above utility lines should be compacted to at least 90% of the maximum dry density (ASTM D1557), such that the utility lines are not damaged during backfill placement and compaction. In addition, rock fragments greater than 1 inch in maximum dimension should be excluded from this first lift. The remainder of the utility excavations should be backfilled and compacted to 95% of the maximum dry density as determined by ASTM D1557.

Onsite soils are considered suitable for utility trench backfill provided they are free of oversize material and trash/debris and can be adequately compacted. All excavations should be wide enough to allow for compaction around the haunches of pipes and underground tanks. We recommend that utility trenching, installation, and backfilling conform to all applicable federal, state, and local regulations such as OSHA and WISHA for open excavations.

Compaction of backfill material should be accomplished with soils within ±2% of their optimum moisture content in order to achieve the minimum specified compaction levels recommended in this report. However, initial lift thickness could be increased to levels recommended by the manufacturer to protect utilities from damage by compacting equipment.

10.6 Temporary Dewatering

Groundwater was encountered as shallow as 10 feet BGS at the time of our field exploration in late December. Seasonal variations, particularly during winter/spring, may elevate the groundwater table. Consequently, dewatering of excavations will be required for excavations extending below the groundwater table to facilitate construction. Dewatering should be accomplished in advance of construction, as necessary, so that excavation and placement of foundations, pipe, pipe bedding and backfill materials are completed in relatively dry conditions. Dewatering should be performed such that the groundwater level around nearby existing structures is unaffected, as lowering the water level around existing structures could induce settlements. Design and implementation of dewatering systems should be the responsibility of the contractor.

We recommend that the contract documents require the Contractor to prepare and submit a dewatering plan for review and approval by the geotechnical engineer. Contractor shall also be made responsible for the dewatering system installation and maintenance. In addition, the

Contractor should be responsible for control of surface water and should employ sloping, slope protection, ditching, sumps, and other measures as necessary.

10.7 Imported Crushed Rock Structural Fill

Imported structural fill shall consist of well-graded, crushed aggregate material meeting the grading requirements of Washington State Department of Transportation (WSDOT) Standard Specification 9-03.9(3) (1-1/4 inch minus Base Course Material) presented here:

Table 4: WSDOT Standard Spec. 9-03.9(3)

Sieve Size	Percent Passing (by Weight)
1¼ Inch Square	99 - 100
1 Inch Square	80 - 100
5/8 Inch Square	50 – 80
U.S. No. 4	25 - 45
U.S. No. 40	3 – 18
U.S. No. 200	Less than 7.5

A fifty (50) pound sample of each imported fill material shall be collected by GNN personnel prior to placement to ensure proper gradation and establish the moisture-density relationship (proctor curve).

10.8 Compaction Requirements for Engineered Fill

All fill or backfill shall be approved by a representative of the GER, placed in uniform lifts, and compacted to a minimum 95% of the maximum dry density as determined by ASTM D1557. The compaction effort must be verified by a representative of the GER in the field using a nuclear density gauge in accordance with ASTM D6938. The thickness of the loose, non-compacted, lift of structural fill shall not exceed 8 inches for heavy-duty compactors or 4 inches for hand operated compactors.

10.9 Foundation Bearing Support

Building structures may be supported on conventional shallow foundations bearing on recompacted dense native gravel stratum in accordance with the recommendations of this report. The minimum footing depth shall be 24 inches below adjacent grades for frost protection and bearing capacity considerations.

Following completion of site clearing and grubbing operations, all foundation areas shall be over-excavated to expose the native silty sand with gravel layer. We anticipate the native soils within the footprint of the proposed structure at approximate depths of 2.5 to 9 feet BGS. In order to reduce the risk of differential settlement, we recommend the differential in depth of foundation over-excavation be limited to 50% (i.e. if the deepest required foundation over-ex is 8 feet, then no portion of the foundation excavation shall be less than 4 feet). The exposed native silty sand shall be moisture-conditioned (as necessary) and compacted to at least 95 percent of the maximum dry density as determined by the ASTM D1557 method to a minimum depth of 12 inches. Any soft spots encountered during compaction shall be over-excavated an additional 12 inches and replaced as compacted fill. Depending on the time of the year and the finished site elevations, deeper foundation over-excavations may extend into groundwater; consequently, appropriate means of dewatering shall be employed by the contractor (see *Temporary Dewatering* section).

Foundation backfill shall consist of suitable screened/processed onsite soils (see *Suitability of Onsite Soils as Engineered Fill*) and/or imported 2-inch minus Gravel Borrow material (meeting the grading and quality requirements of 2018 WSDOT Standard Spec. Sec. 9-03.14(1)). The upper 12 inches of backfill directly below the foundations shall consist of imported 1¼”-minus crushed rock structural fill placed as engineered fill, moisture-conditioned and compacted to at least 95 percent of the maximum dry density as determined by the ASTM D1557.

Footings constructed in accordance with the above recommendations may be designed for an allowable bearing capacity of **2,500 pounds per square foot (psf)**. The allowable bearing pressure may be increased by 1/3 for short-term transient loading conditions. The estimated total settlement for footings is approximately 1-inch with differential settlement less than half that magnitude. The weight of the foundation concrete below grade may be neglected in dead load computations. Footings, foundations and masonry walls should be reinforced as necessary to reduce the potential for distress caused by differential movement.

Lateral forces on foundations from short term wind and seismic loading would be resisted by friction at the base of foundations and passive earth pressure against the buried portions. We recommend an allowable passive earth pressure for the compacted onsite soil of **220 pcf**. This lateral foundation resistance value includes a factor of safety of 1.5. We recommend a coefficient of friction of **0.45** be used between cast-in-place concrete and imported crushed rock fill. An appropriate factor of safety should be used to calculate sliding resistance at the base of footings.

10.10 Slab-on-Grade Floors

Place a minimum 6-inch layer of crushed aggregate fill beneath the slabs. The material shall meet the *WSDOT Specification* section 9-03.9 (3), "Crushed Surfacing Top Course", with less than 5 percent passing the No. 200 sieve (fines). The crushed rock material shall be compacted to at least 95% of the maximum dry density as determined by the ASTM D1557 method. Prior to placing the crushed rock layer, any artificial fill soils shall be completely removed and the native subgrade shall be moisture-conditioned (as necessary) and compacted to at least 95 percent of the maximum dry density as determined by the ASTM D1557 method to a minimum depth of 12 inches. Any soft spots or areas displaying pumping/deformation during compaction shall be over-excavated an additional 12 inches, backfilled with imported granular structural fill and re-compacted.

We recommend a modulus of subgrade reaction equal to 120 pounds per cubic inch (pci) based on a value for gravel presented in the Portland Cement Association publication No. EB075.01D. Slab thickness, reinforcement and joint spacing shall be determined by a licensed engineer based on the intended use and loading.

An appropriate vapor retarder (15-mil polyethylene liner) shall be used (ASTM E1745/E1643) beneath areas receiving moisture sensitive resilient flooring/VCT where prevention of moisture migration through slab is essential. The slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder. If a vapor retarder is used, we recommend placing a sand layer over the vapor retarder and immediately below the slab to promote proper curing and protect the vapor retarder during rebar placement. Relative humidity (RH) and moisture vapor emission rate (MVER) of concrete floor slabs shall be tested and measured in accordance with ASTM F2170-18 and ASTM E1869 when the building has been properly conditioned. Manufacturer's guidelines shall be adhered to in performing the slab moisture test. The architect shall determine the need and use of a vapor retarder and sand layer.

10.11 Perimeter Footing Drain

We recommend installing perimeter foundation drain systems. The drain-tiles should be installed adjacent to the outside of the footings with the drain pipe set at the bottom of footing. The drain-tile should be covered with a minimum of 6 inches of ½- to ¾ inch free-draining gravel and wrapped with a water-permeable geo-textile fabric (Mirafi ®140N or an equivalent) to limit the migration of fines that could clog the system. An alternative pre-wrapped perforated drain-tile may also be considered that would eliminate the need for wrapped aggregate around the drain pipe. The drain pipe should be installed with the perforations oriented downward.

If site topography allows, the drain-tile system should outlet by gravity drainage down slope from the structure; otherwise, it should be routed to an interior sump constructed below the footing subgrade elevation. The sump dimensions should be a minimum of 18 inches in diameter and extend a minimum of 24 inches below the bottom of the footing elevation to allow space for the pump, piping, and storage volume. Discharge from the sump should be conveyed to the surface a sufficient distance from the structure to limit re-infiltration to the drain-tile system.

10.12 Flexible Pavement

Due to the presence of undocumented artificial fills throughout the project site, remedial grading will be required to minimize the risk of pavement distress. We recommend that the new pavement section be constructed on an improved subgrade. Due to the presence of undocumented artificial fills soils at the site, pavement areas shall be over-excavated to completely remove all artificial fill soils and trash/debris to eliminate any potential risk of future distresses. Based on our subsurface exploration, we anticipate the likely depth of over-excavation to be on the order of maximum 9 feet BGS. Deeper depths of artificial fill soils may be encountered in isolated and/or unexplored areas, and will require proper over-ex and removal.

After appropriate over-excavation is complete and confirmed by a representative of the GER, the exposed native subgrade shall be scarified, moisture-conditioned to near-optimum and compacted to minimum 95% of the maximum density (per ASTM D1557) and to a dense and non-yielding surface. After a suitable subgrade is confirmed by a representative of the GER, the over-excavation shall be backfilled with engineered structural fill soil consisting of suitable/screened onsite soil (see *Suitability of Onsite Soils as Engineered Fill*) and/or imported 2-inch minus Gravel Borrow material (meeting the grading and quality requirements of 2018 WSDOT Standard Spec. Sec. 9-03.14(1)). Engineered structural fill soils shall be placed in max. 8-inch thick loose lifts and each lift compacted to 95% of ASTM D1557.

The following table presents recommended light-duty and heavy-duty asphalt pavement sections for proposed project to constructed atop the prepared subgrade:

Table 5: Recommended Asphalt Concrete Paving Sections

Traffic	Asphalt Thickness (inches)	Crushed Aggregate Base Course (inches)	Subgrade
Heavy Duty†	4.0	10*	upper 12 inches scarified, moisture conditioned and re-compacted to at least 95% of the maximum dry density as determined by ASTM D1557
Standard Duty ††	3.0	6	

†Heavy duty applies to pavements subjected to truck traffic and drive lanes
††Standard duty applies to general parking areas
*The upper 2” of crushed rock should be top course rock placed over the base course layer

Pavement section recommendations assume proper drainage and construction monitoring. Pavement shall be constructed on a dense and non-yielding surface. All fills used to raise low areas must be compacted structural fills and shall be placed under engineering control conditions. The HMAC utilized for the project should be designed and produced in accordance with Section 5-04 Hot Mix Asphalt of the Washington Department of Transportation 2018 Standard Specifications for Road and Bridge Construction (WSDOT Specifications). Aggregate Base material shall comply with Section 9-03.9(3) Crushed Surfacing of the WSDOT Specifications. Aggregate base or pavement materials should not be placed when the surface is wet.

10.13 Concrete (Rigid) Pavement Section

Concrete pavement design recommendations are based on an assumed modulus of rupture of 550 psi and a compressive strength of 4000 psi for concrete. Concrete mixture shall be Class 4000, 1” aggregate, and use severe exposure. Reinforcing steel shall be ASTM A615 Grade 60 and consist of #4’s at 18” each way in center of the section (special care shall be taken during construction to locate the reinforcing steel in the center of the mat). Construction joints (sawcuts) shall be 1/8” to ¼” wide and T/4 deep and provided at a maximum of 15’ spacing in each direction. 15’ spacing is appropriate for 1” or 1¼” aggregate. If ¾” aggregate is used, 10’ spacing shall be used instead.

Table 6: Recommended Concrete (PCC) Pavement Section

Area Designation	Pavement Section	
	PCC Concrete (inches)	Crushed Aggregate Base Course (inches)
Fire Station Apron Area	6	6

10.14 Subgrade Protection

The degree to which construction grading problems develop is expected to be dependent, in part, on the time of year that construction proceeds and the precautions which are taken by the contractor to protect the subgrade. The fine-grained soils currently present on site are considered to be moisture and disturbance sensitive due to their fines content and may become unstable (pumping) if allowed to increase in moisture content and are disturbed (rutted) by construction traffic if wet. If necessary, the construction access road should be covered with a layer of gravel or quarry spalls course. The soils are also susceptible to erosion in the presence of moving water. The soils shall be stabilized to minimize the potential of erosion into the foundation excavation. The site shall be graded to prevent water from ponding within construction areas and/or flowing into excavations. Accumulated water must be removed immediately along with any unstable soil. Foundation concrete shall be placed and excavations backfilled as soon as possible to protect the bearing grade. We further recommend that soils that become unstable are to be either:

- Removed and replaced with structural compacted gravel fill, or
- Mechanically stabilized with a coarse crushed aggregate (possibly underlain with a geotextile) and compacted into the subgrade.

10.15 Surface Drainage

With respect to surface water drainage, we recommend that the ground surface be sloped to drain away from the structure. Final exterior site grades shall promote free and positive drainage from the building areas. Water shall not be allowed to pond or to collect adjacent to foundations or within the immediate building area. We recommend that a gradient of at least 5% for a minimum distance of 10 feet from the building perimeter be provided, except in paved locations. In paved areas, a minimum gradient of 1% should be provided unless provisions are included for collection/disposal of surface water adjacent to the structure. Catch basins, drainage swales, or other drainage facilities should be aptly located. All surface water such as that coming from roof downspouts and catch basins be collected in tight drain lines and carried to a suitable discharge point, such as a storm drain system. Surface water and downspout water should not discharge into a perforated or slotted subdrain, nor should such water discharge onto the ground surface adjacent to the building. Cleanouts should be provided at convenient locations along all drain lines.

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10.16 Wet Weather Conditions

The near surface project site soils are fine-grained and sensitive to moisture during handling and compaction. Proceeding with site earthwork operations using these soils during wet weather could add project costs and/or delays. The stability of exposed soils may rapidly deteriorate due to a change in moisture content. Therefore, if at all possible, complete site clearing, preparation, and earthwork during periods of warm, dry weather when soil moisture can be controlled by aeration. During or subsequent to wet weather, drying or compacting the on-site soils will be difficult. It may be necessary to amend the on-site soils or import granular materials for use as structural fill. If earthwork takes place in wet weather or wet conditions, the following recommendations should be followed:

- Fill material should consist of clean, granular soil, and not more than 3 percent fines (by weight) should pass the No. 200 sieve. Fines should be non-plastic. These soils would have to be imported to the site.
- Earthwork should be accomplished in small sections and carried through to completion to reduce exposure to wet weather. Soils that becomes too wet for compaction should be removed and replaced with clean, granular material.
- The construction area ground surface should be sloped and sealed to reduce water infiltration, to promote rapid runoff, and to prevent water ponding.
- To prevent soil disturbance, the size or type of equipment may have to be limited.
- Work areas and stockpiles should be covered with plastic. Straw bales, straw wattles, geotextile silt fences, and other measures should be used as appropriate to control soil erosion.
- Excavation and fill placement should be observed on a full-time basis by a representative of GER to determine that unsuitable materials are removed and that suitable compaction and site drainage is achieved.

11.0 REFERENCES

Czajkowski, J.L., and Bowman, J.D., 2014. Faults and Earthquakes in Washington State. Washington State Department of Natural Resources (DNR), Washington Division of Geology and Earth Resources, Open-File Report 2014-05.

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U.S. Department of the Interior, U.S. Geological Survey (USGS), (1979). Bonneville Dam Quadrangle, Washington-Oregon, 7.5 Minute Series (Topographic). DMA 1675 III NW-Series V891.

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Washington State Department of Natural Resources (DNR), Washington Division of Geology and Earth Resources, on-line mapping tool, https://fortress.wa.gov/dnr/protectiongis/geology/

12.0 CONTINUING GEOTECHNICAL SERVICES

GNN recommends that the Client should maintain an adequate program of geotechnical consultation, construction monitoring, and soils testing during the final design and construction phases to monitor compliance with GNN's geotechnical recommendations. Maintaining GNN as the geotechnical consultant from beginning to end of the project will provide continuity of services. If GN Northern, Inc. is not retained by the owner/developer and/or the contractor to provide the recommended geotechnical inspections/observations and testing services, the geotechnical engineering firm or testing/inspection firm providing tests and observations shall assume the role and responsibilities of Geotechnical Engineer-of-Record.

GNN can provide construction monitoring and testing as additional services. The costs of these services are not included in our present fee arrangement, but can be obtained from our office. The recommended construction monitoring and testing includes, but is not necessarily limited to, the following:

- Consultation during the design stages of the project.
- Review of the grading and drainage plans to monitor compliance and proper implementation of the recommendations in GNN's Report.
- Observation and quality control testing during site preparation, grading, and placement of engineered fill as required by the local building ordinances.
- Geotechnical engineering consultation as needed during construction

13.0 LIMITATIONS OF THE GEOTECHNICAL SITE INVESTIGATION REPORT

This GEOTECHNICAL SITE INVESTIGATION REPORT ("Report") was prepared for the exclusive use of the Client. GN Northern, Inc.'s (GNN) findings, conclusions and recommendations in this Report are based on selected points of field exploration, and GNN's understanding of the proposed project at the time the Report is prepared. Furthermore, GNN's findings and recommendations are based on the assumption that soil, rock and/or groundwater conditions do not vary significantly from those found at specific exploratory locations at the project site. Variations in soil, bedrock and/or groundwater conditions could exist between and beyond the exploration points. The nature and extent of these variations may not become evident until during or after construction. Variations in soil, bedrock and groundwater may require additional studies, consultation, and revisions to GNN's recommendations in the Report.

In many cases the scope of geotechnical exploration and the test locations are selected by others without consultation from the geotechnical engineer/consultant. GNN assumes no responsibility and, by preparing this Report, does not impliedly or expressly validate the scope of exploration and the test locations selected by others.

This Report's findings are valid as of the issued date of this Report. However, changes in conditions of the subject property or adjoining properties can occur due to passage of time, natural processes, or works of man. In addition, applicable building standards/codes may change over time. Accordingly, findings, conclusions, and recommendations of this Report may be invalidated, wholly or partially, by changes outside of GNN's control. Therefore, this Report is subject to review and shall not be relied upon after a period of **one (1) year** from the issued date of the Report.

In the event that any changes in the nature, design, or location of structures are planned, the findings, conclusions and recommendations contained in this Report shall not be considered valid unless the changes are reviewed by GNN and the findings, conclusions, and recommendations of this Report are modified or verified in writing.

This Report is issued with the understanding that the owner or the owner's representative has the responsibility to bring the findings, conclusions, and recommendations contained herein to the attention of the architect and design professional(s) for the project so that they are incorporated into the plans and construction specifications, and any follow-up addendum for the project. The owner or the owner's representative also has the responsibility to verify that the general contractor and all subcontractors follow such recommendations during construction. It is further understood that the owner or the owner's representative is responsible for submittal of this Report to the appropriate governing agencies. The foregoing notwithstanding, no party other than the Client shall have any right to rely on this Report and GNN shall have no liability to any third party who claims injury due to reliance upon this Report, which is prepared exclusively for Client's use and reliance.

GNN has provided geotechnical services in accordance with generally accepted geotechnical engineering practices in this locality at this time. GNN expressly disclaims all warranties and guarantees, express or implied.

Client shall provide GNN an opportunity to review the final design and specifications so that earthwork, drainage and foundation recommendations may be properly interpreted and implemented in the design and specifications. If GNN is not accorded the review opportunity, GNN shall have no responsibility for misinterpretation of GNN's recommendations.

<u>Although GNN can provide environmental assessment and investigation services for an additional cost, the current scope of GNN's services does not include an environmental assessment or an investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, surface water, groundwater, or air on, below, or adjacent to the subject property.</u>

APPENDICES

Appendix I

Site Vicinity Map (Figure 1)

Site Exploration Map (Figure 2)

FIGURE 1: VICINITY MAP **PROJECT NO. 2**

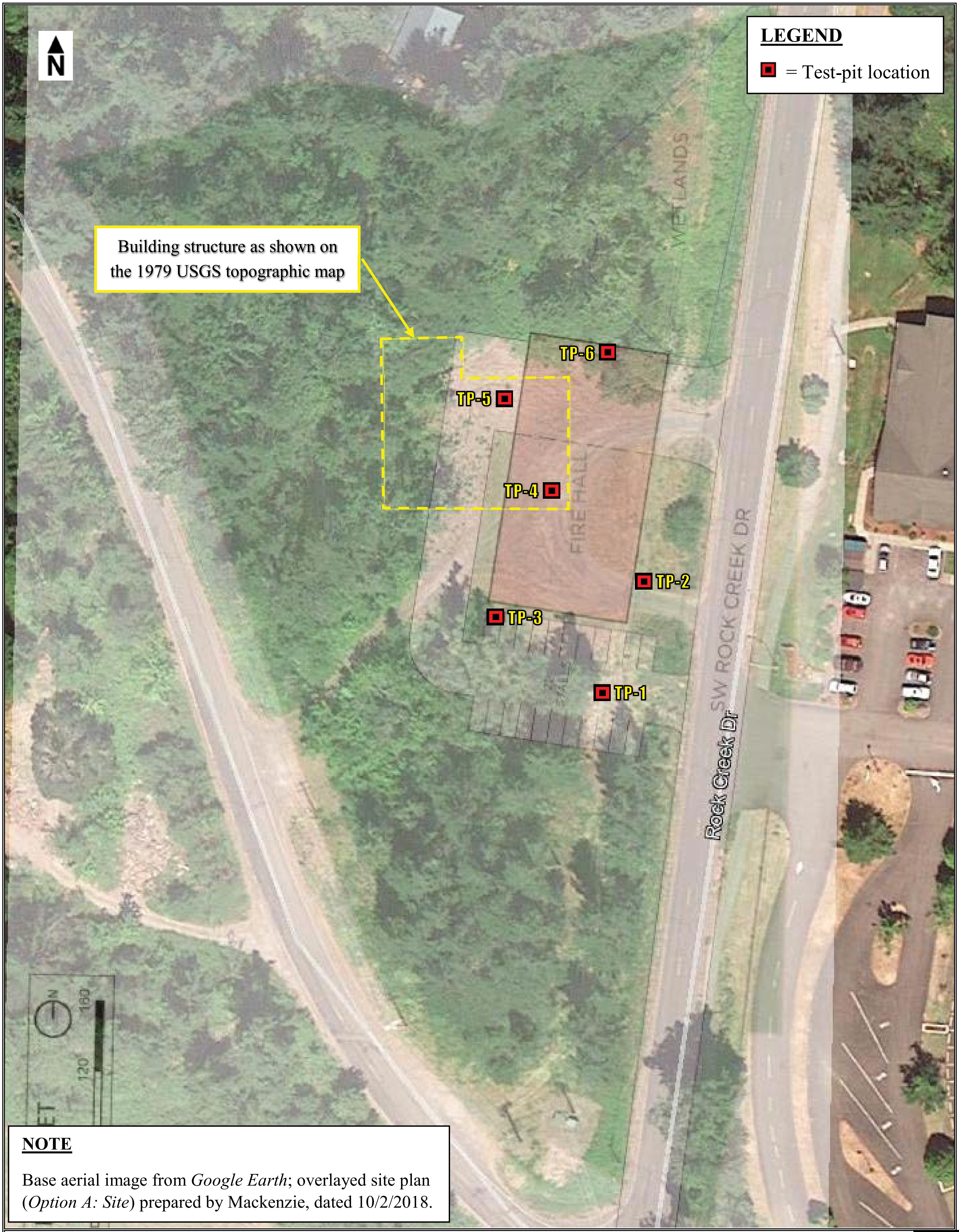

FIGURE 2: SITE EXPLORATION MAP **PROJECT NO. 218-1**

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Appendix II
Exploratory Test-Pit Logs
Key Chart (for Soil Classification)

GN Northern Inc.
11115 E. Montgomery, Suite C
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Fax: (509) 248-4220

TEST PIT NUMBER TP-1

CLIENT City of Stevenson
PROJECT NAME New Fire Hall
PROJECT NUMBER 218-1038
PROJECT LOCATION SW Rock Creek Drive, Stevenson, WA
DATE STARTED 12/4/18 **COMPLETED** 12/4/18
GROUND ELEVATION 126 ft **TEST PIT SIZE** 24 X 96 inches
EXCAVATION CONTRACTOR Riley Materials
GROUND WATER LEVELS:
EXCAVATION METHOD Link-Belt 145x4 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY MYM **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 45°41'14.87"N, 121°53'59.85"W
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0–3.5			GM		FILL: SILTY GRAVEL WITH SAND, (GM) brown, subrounded, moist, appears loose to medium dense, with cobbles, with boulders, with roots (3.5 / 122.5)
3.5–14.0	GB (~4.0–4.5)	MC = 29% Fines = 16%	SM		SILTY SAND WITH GRAVEL, (SM) brown, fine grained, moist, appears medium dense, some medium to coarse sand, (APPARENT NATIVE)
					- becomes dry to damp
	GB (~9.5–10.0)	MC = 17% Fines = 16%			(14.0 / 112.0)

- Groundwater not encountered at time of excavation
- Referenced elevations are approximate and based on Google Earth topography

Bottom of test pit at 14.0 feet.

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TEST PIT NUMBER TP-2

CLIENT City of Stevenson
PROJECT NAME New Fire Hall
PROJECT NUMBER 218-1038
PROJECT LOCATION SW Rock Creek Drive, Stevenson, WA
DATE STARTED 12/4/18 **COMPLETED** 12/4/18
GROUND ELEVATION 120 ft **TEST PIT SIZE** 24 X 96 inches
EXCAVATION CONTRACTOR Riley Materials
GROUND WATER LEVELS:
EXCAVATION METHOD Link-Belt 145x4 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY MYM **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 45°41'15.50"N, 121°53'59.52"W
AFTER EXCAVATION 12.50 ft / Elev 107.50 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elev.
0.0–0.5					TOPSOIL	119.5
0.5–2.8			GM		APPARENT FILL: SILTY GRAVEL WITH SAND, (GM) brown, subrounded, moist, appears loose to medium dense	117.3
2.8–14.5	GB	MC = 38% Fines = 30%	SM		SILTY SAND WITH GRAVEL, (SM) brown, fine grained, moist, appears medium dense, with cobbles, with boulders, with gravel, (APPARENT NATIVE) - pocket of gravels & cobbles noted on west excavation wall from ~4 to 7.5 feet	105.5

Depth scale: 0.0, 2.5, 5.0, 7.5, 10.0, 12.5

- Groundwater level at ~12.5' BGS after excavation
- Referenced elevations are approximate and based on Google Earth topography

Bottom of test pit at 14.5 feet.

AC-126

GN Northern Inc.
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TEST PIT NUMBER TP-3

CLIENT City of Stevenson
PROJECT NAME New Fire Hall
PROJECT NUMBER 218-1038
PROJECT LOCATION SW Rock Creek Drive, Stevenson, WA
DATE STARTED 12/4/18 **COMPLETED** 12/4/18
GROUND ELEVATION 124 ft **TEST PIT SIZE** 24 X 96 inches
EXCAVATION CONTRACTOR Riley Materials
GROUND WATER LEVELS:
EXCAVATION METHOD Link-Belt 145x4 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY MYM **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 45°41'15.30"N, 121°54'0.69"W
AFTER EXCAVATION 11.00 ft / Elev 113.00 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elev.
0.0 – 0.5				TOPSOIL	123.5
0.5 – 2.5		GM		APPARENT FILL: SILTY GRAVEL WITH SAND, (GM) brown, subrounded, moist, appears loose to medium dense	121.5
2.5 – 13.5		SM		SILTY SAND WITH GRAVEL, (SM) brown, fine grained, moist, appears medium dense, with cobbles, with boulders, with gravel, (APPARENT NATIVE) - becomes dry to damp	110.5

- Groundwater level at ~11' BGS after excavation
- Referenced elevations are approximate and based on Google Earth topography

Bottom of test pit at 13.5 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 12/10/18 17:53 - C:\USERS\GN NORTHERN\DROPBOX\5-ACTIVE PROJECTS\218-1038 NEW FIRE HALL, STEVENSON\218-1038 LOGX.GPJ

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TEST PIT NUMBER TP-4

CLIENT City of Stevenson
PROJECT NAME New Fire Hall
PROJECT NUMBER 218-1038
PROJECT LOCATION SW Rock Creek Drive, Stevenson, WA
DATE STARTED 12/4/18 **COMPLETED** 12/4/18
GROUND ELEVATION 119 ft **TEST PIT SIZE** 24 X 96 inches
EXCAVATION CONTRACTOR Riley Materials
GROUND WATER LEVELS:
EXCAVATION METHOD Link-Belt 145x4 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY MYM **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 45°41'16.01"N, 121°54'0.25"W
AFTER EXCAVATION 10.25 ft / Elev 108.75 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0			GM		FILL: SILTY GRAVEL WITH SAND, (GM) brown, subrounded, moist to wet, appears loose
2.5					- becomes Clayey Sand (SC), black to greenish blue, with buried wood debris and organics
	GB	MC = 28% LL = 50 PL = 26 Fines = 29%			
5.0					
7.5					- POSSIBLE NATIVE
	GB	MC = 24% Fines = 0%			
9.0			SM		110.0 SILTY SAND WITH GRAVEL, (SM) brown, fine grained, moist to wet, appears medium dense, (APPARENT NATIVE)
10.0					▽
12.5					
13.0					106.0

- Groundwater level at ~10.25' BGS after excavation
- Referenced elevations are approximate and based on Google Earth topography

Bottom of test pit at 13.0 feet.

GN Northern Inc.
11115 E. Montgomery, Suite C
Spokane Valley, WA, 99206
Telephone: (509) 248-9798
Fax: (509) 248-4220

TEST PIT NUMBER TP-5

CLIENT City of Stevenson
PROJECT NAME New Fire Hall
PROJECT NUMBER 218-1038
PROJECT LOCATION SW Rock Creek Drive, Stevenson, WA
DATE STARTED 12/4/18 **COMPLETED** 12/4/18
GROUND ELEVATION 118 ft **TEST PIT SIZE** 24 X 96 inches
EXCAVATION CONTRACTOR Riley Materials
GROUND WATER LEVELS:
EXCAVATION METHOD Link-Belt 145x4 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY MYM **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 45°41'16.54"N, 121°54'0.65"W
AFTER EXCAVATION 10.50 ft / Elev 107.50 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Elev.
0.0–0.5					CRUSHED GRAVEL	117.5
0.5–4.8			GM		FILL: SILTY GRAVEL WITH SAND, (GM) brown to black, subrounded, moist, appears loose to medium dense, some cobbles, with organic odor, some trash/debris (wood, glass)	113.3
4.8–13.5	GB	MC = 26% Fines = 18%	SM		SILTY SAND WITH GRAVEL, (SM) brown, fine grained, moist, appears medium dense, some gravel, some medium to coarse sand, (APPARENT NATIVE)	104.5

- Groundwater level at ~10.5' BGS after excavation
- Referenced elevations are approximate and based on Google Earth topography

Bottom of test pit at 13.5 feet.

GN Northern Inc.
11115 E. Montgomery, Suite C
Spokane Valley, WA, 99206
Telephone: (509) 248-9798
Fax: (509) 248-4220

TEST PIT NUMBER TP-6

CLIENT City of Stevenson
PROJECT NAME New Fire Hall
PROJECT NUMBER 218-1038
PROJECT LOCATION SW Rock Creek Drive, Stevenson, WA
DATE STARTED 12/4/18 **COMPLETED** 12/4/18
GROUND ELEVATION 116 ft **TEST PIT SIZE** 24 X 96 inches
EXCAVATION CONTRACTOR Riley Materials
GROUND WATER LEVELS:
EXCAVATION METHOD Link-Belt 145x4 Excavator
AT TIME OF EXCAVATION ---
LOGGED BY MYM **CHECKED BY** KAH
AT END OF EXCAVATION ---
NOTES Approx. GPS Coords.: 45°41'16.80"N, 121°53'59.81"W
AFTER EXCAVATION 12.00 ft / Elev 104.00 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0				TOPSOIL	
0.5		GM	▨	FILL: SILTY GRAVEL WITH SAND, (GM) brown to black, subrounded, moist, appears loose to medium dense, some cobbles, some woody debris	115.5
4.0		SM		SILTY SAND WITH GRAVEL, (SM) brown, fine grained, moist, appears medium dense, some gravel, some medium to coarse sand, (APPARENT NATIVE)	112.0
10.0				- with boulders	
12.0				▼	
14.0					102.0

Depth scale: 0.0, 2.5, 5.0, 7.5, 10.0, 12.5

- Groundwater level at ~12' BGS after excavation
- Referenced elevations are approximate and based on Google Earth topography

Bottom of test pit at 14.0 feet.

Northern, Inc.
Kennewick, Yakima, Spokane, Hermiston (OR)

KEY CHART

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N-VALUE					
COARSE-GRAINED SOILS			FINE-GRAINED SOILS		
DENSITY	N (BLOWS/FT)	FIELD TEST	CONSISTENCY	N (BLOWS/FT)	FIELD TEST
Very Loose	0 – 4	Easily penetrated with ½-inch reinforcing rod pushed by hand	Very Soft	0 – 2	Easily penetrated several inches by thumb
Loose	4 – 10	Difficult to penetrate with ½-inch reinforcing rod pushed by hand	Soft	2 – 4	Easily penetrated one inch by thumb
Medium -Dense	10 – 30	Easily penetrated with ½-inch rod driven with a 5-lb hammer	Medium-Stiff	4 – 8	Penetrated over ½-inch by thumb with moderate effort
Dense	30 – 50	Difficult to penetrate with ½-inch rod driven with a 5-lb hammer	Stiff	8 – 15	Indented about ½-inch by thumb but penetrated with great effort
Very Dense	> 50	penetrated only a few inches with ½-inch rod driven with a 5-lb hammer	Very Stiff	15 – 30	Readily indented by thumb
			Hard	> 30	Indented with difficulty by thumbnail

USCS SOIL CLASSIFICATION				
MAJOR DIVISIONS			GROUP DESCRIPTION	
Coarse-Grained Soils <50% passes #200 sieve	**Gravel** and **Gravelly Soils** <50% coarse fraction passes #4 sieve	**Gravel** (with little or no fines)	GW	Well-graded **Gravel**
			GP	Poorly Graded **Gravel**
		Gravel (with >12% fines)	GM	Silty **Gravel**
			GC	Clayey **Gravel**
	Sand and **Sandy Soils** >50% coarse fraction passes #4 sieve	**Sand** (with little or no fines)	SW	Well-graded **Sand**
			SP	Poorly graded **Sand**
		Sand (with >12% fines)	SM	Silty **Sand**
			SC	Clayey **Sand**
Fine-Grained Soils >50% passes #200 sieve	**Silt** and **Clay** Liquid Limit < 50		ML	**Silt**
			CL	Lean **Clay**
			OL	Organic **Silt** and **Clay** (low plasticity)
	Silt and **Clay** Liquid Limit > 50		MH	Inorganic **Silt**
			CH	Inorganic **Clay**
			OH	Organic **Clay** and **Silt** (med. to high plasticity)
Highly Organic Soils			PT	**Peat** — **Top Soil**

LOG SYMBOLS	
2S	2" OD Split Spoon (SPT)
3S	3" OD Split Spoon
NS	Non-Standard Split Spoon
ST	Shelby Tube
CR	Core Run
BG	Bag Sample
TV	Torvane Reading
PP	Penetrometer Reading
NR	No Recovery
GW	Groundwater Table

MODIFIERS	
DESCRIPTION	RANGE
Trace	<5%
Little	5% – 12%
Some	>12%

MOISTURE CONTENT	
DESCRIPTION	FIELD OBSERVATION
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but not visible water
Wet	Visible free water

SOIL CLASSIFICATION INCLUDES

1. Group Name
2. Group Symbol
3. Color
4. Moisture content
5. Density / consistency
6. Cementation
7. Particle size (if applicable)
8. Odor (if present)
9. Comments

MAJOR DIVISIONS WITH GRAIN SIZE								
SIEVE SIZE								
12"	3"	3/4"	4	10	40	200		
GRAIN SIZE (INCHES)								
12	3	0.75	0.19	0.079	0.0171	0.0029		
Boulders	Cobbles	Gravel		Sand			Silt and Clay	
		Coarse	Fine	Coarse	Medium	Fine		

Conditions shown on boring and testpit logs represent our observations at the time and location of the fieldwork, modifications based on lab test, analysis, and geological and engineering judgment. These conditions may not exist at other times and locations, even in close proximity thereof. This information was gathered as part of our investigation, and we are not responsible for any use or interpretation of the information by others.

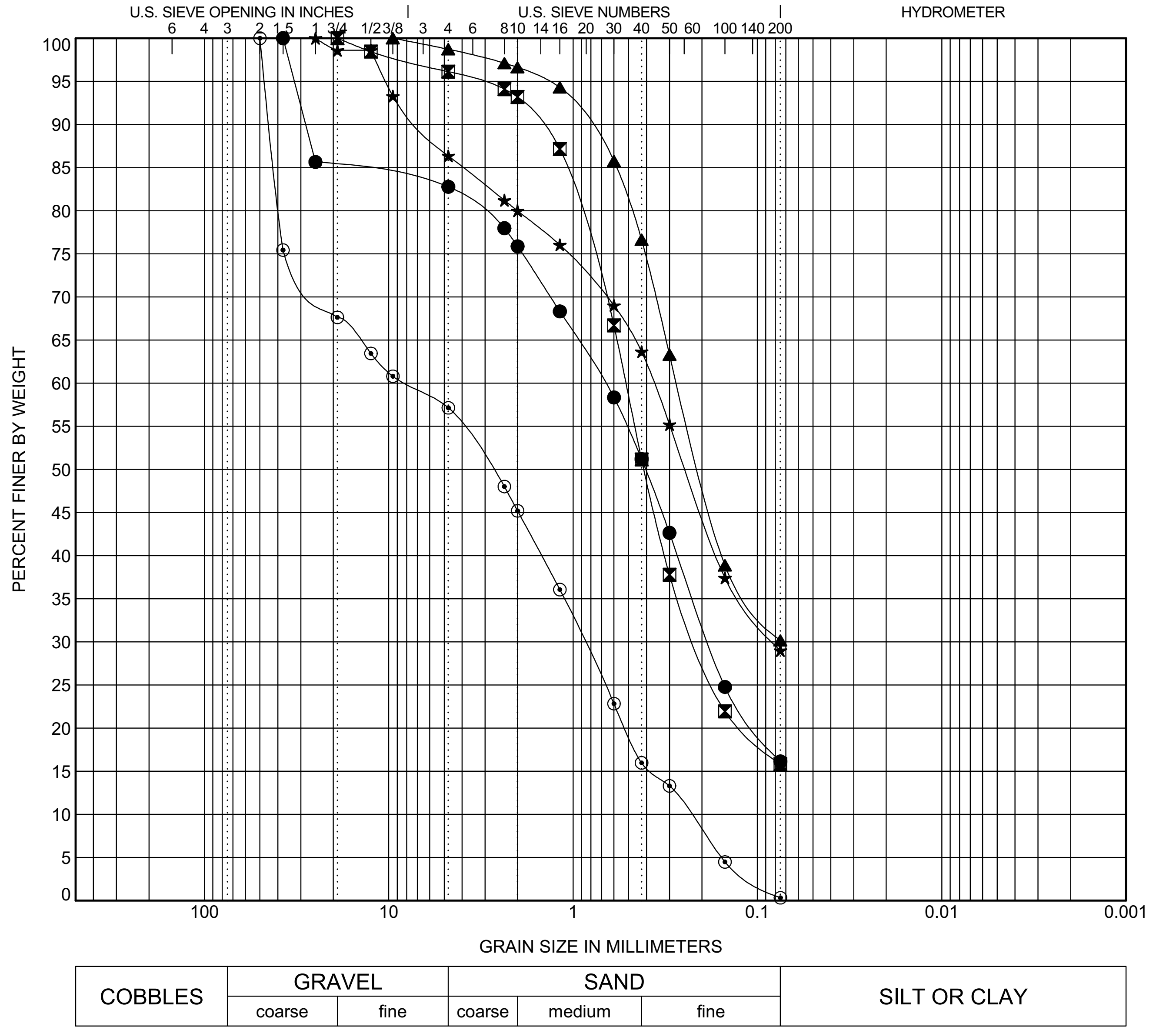
Appendix III
Laboratory Testing Results

GN Northern Inc.
11115 E. Montgomery, Suite C
Spokane Valley, WA, 99206
Telephone: (509) 248-9798
Fax: (509) 248-4220

GRAIN SIZE DISTRIBUTION

CLIENT City of Stevenson **PROJECT NAME** New Fire Hall

PROJECT NUMBER 218-1038 **PROJECT LOCATION** SW Rock Creek Drive, Stevenson, WA



	BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	**TP-1**	**4.0**	**SILTY SAND WITH GRAVEL (SM)**					
⊠	**TP-1**	**9.5**	**SILTY SAND (SM)**					
▲	**TP-2**	**3.0**	**SILTY SAND (SM)**					
★	**TP-4**	**3.0**	**CLAYEY SAND (SC)**	**50**	**26**	**24**		
⊙	**TP-4**	**8.0**	**POORLY GRADED SAND WITH GRAVEL (SP)**				**0.40**	**35.27**

	BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP-1**	**4.0**	**37.5**	**0.671**	**0.184**		**17.2**	**66.6**	**16.1**	
⊠	**TP-1**	**9.5**	**19**	**0.517**	**0.213**		**3.9**	**80.3**	**15.8**	
▲	**TP-2**	**3.0**	**9.5**	**0.273**			**1.3**	**68.6**	**30.2**	
★	**TP-4**	**3.0**	**25**	**0.365**	**0.081**		**13.7**	**57.3**	**29.0**	
⊙	**TP-4**	**8.0**	**50**	**8.164**	**0.866**	**0.231**	**42.9**	**56.8**	**0.3**	

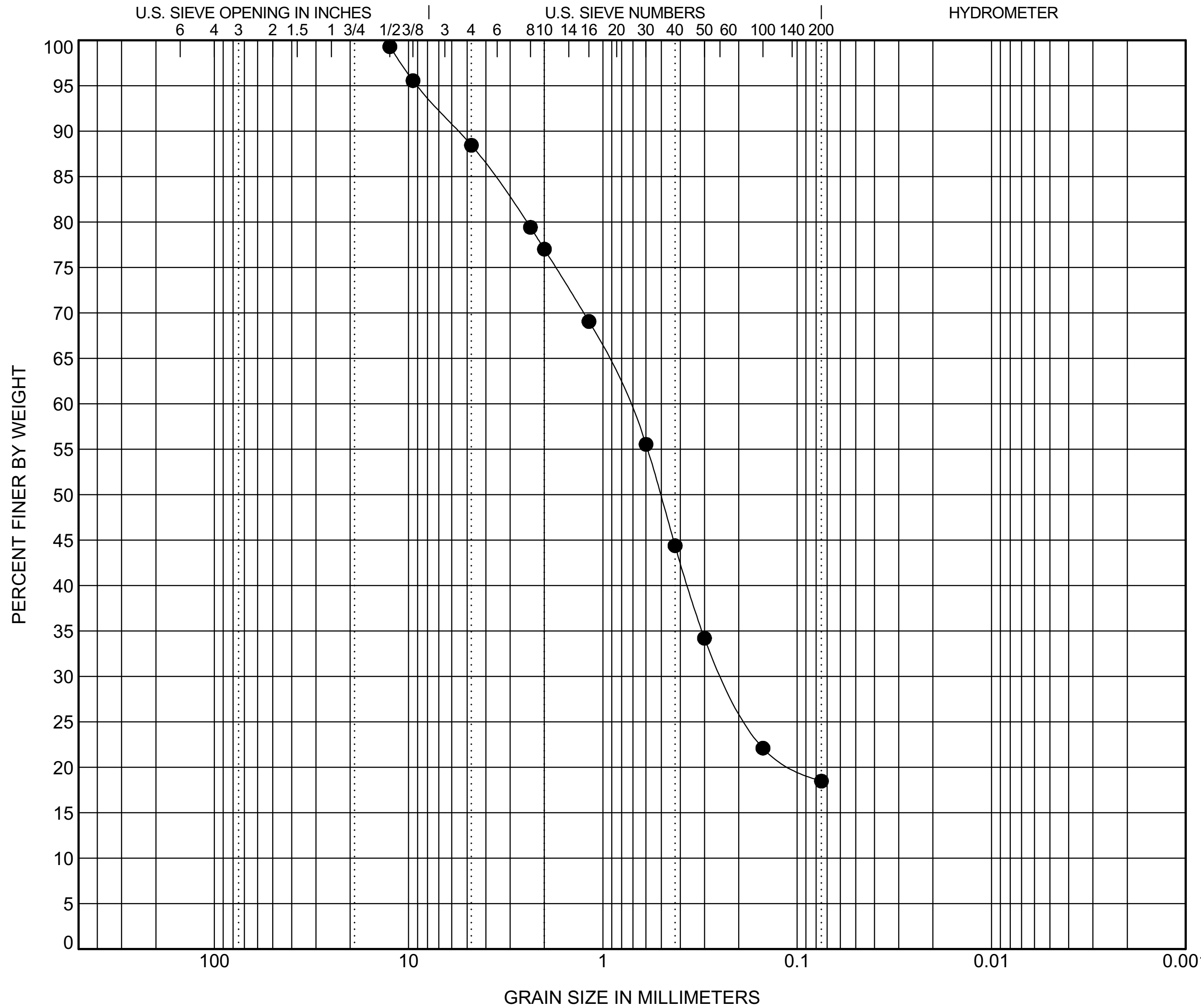
GRAIN SIZE - TEMPLATE_JESSE.GDT - 12/10/18 17:54 - C:\USERS\GN NORTHERN\DROPBOX\5-ACTIVE PROJECTS\218-1038 NEW FIRE HALL, STEVENSON\218-1038 LOGX.GPJ

GN Northern Inc.
11115 E. Montgomery, Suite C
Spokane Valley, WA, 99206
Telephone: (509) 248-9798
Fax: (509) 248-4220

GRAIN SIZE DISTRIBUTION

CLIENT City of Stevenson **PROJECT NAME** New Fire Hall

PROJECT NUMBER 218-1038 **PROJECT LOCATION** SW Rock Creek Drive, Stevenson, WA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	**TP-5**	**5.0**	**SILTY SAND (SM)**					

	BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP-5**	**5.0**	**12.5**	**0.75**	**0.236**		**10.8**	**70.0**	**18.5**	

GRAIN SIZE - TEMPLATE_JESSE.GDT - 12/10/18 17:54 - C:\USERS\GN NORTHERN\DROPBOX\5-ACTIVE PROJECTS\218-1038 NEW FIRE HALL, STEVENSON\218-1038 LOGX.GPJ

GN Northern Inc.
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Spokane Valley, WA, 99206
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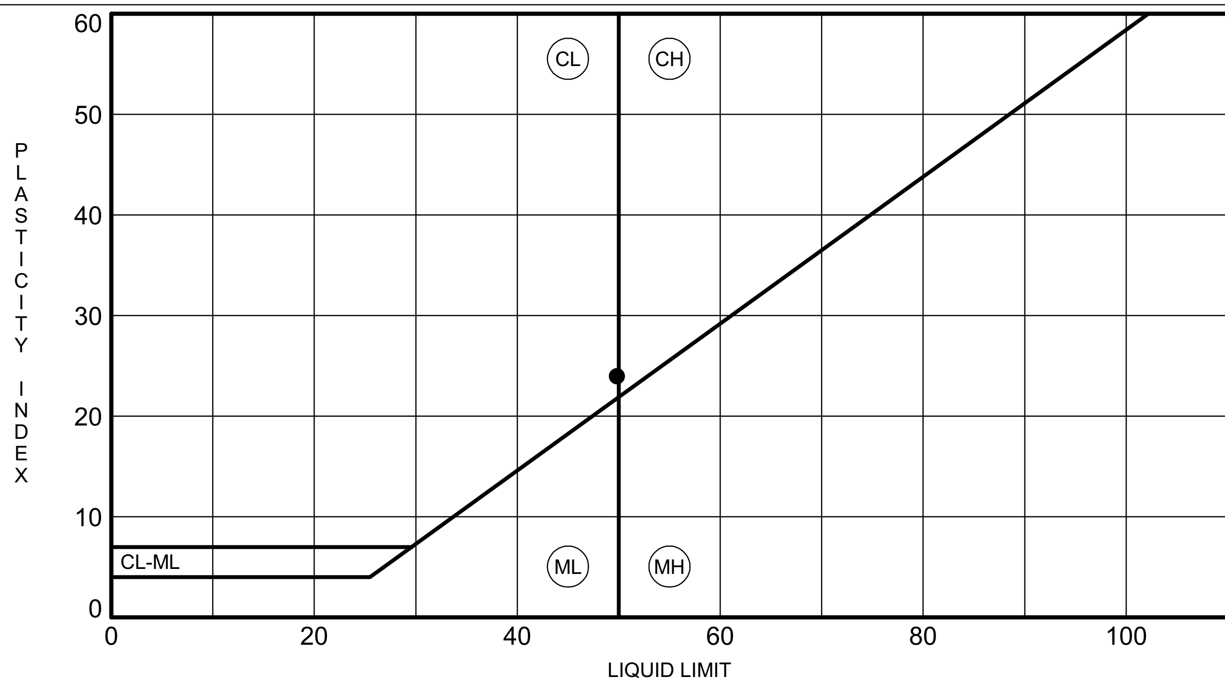
Fax: (509) 248-4220

ATTERBERG LIMITS' RESULTS

CLIENT City of Stevenson **PROJECT NAME** New Fire Hall

PROJECT NUMBER 218-1038 **PROJECT LOCATION** SW Rock Creek Drive, Stevenson, WA



	BOREHOLE	DEPTH	LL	PL	PI	Fines	Classification
●	**TP-4**	**3.0**	**50**	**26**	**24**	**29**	**CLAYEY SAND (SC)**

ATTERBERG LIMITS - TEMPLATE_JESSE.GDT - 12/10/18 17:55 - C:\USERS\GN NORTHERN\DROPBOX\5-ACTIVE PROJECTS\218-1038 NEW FIRE HALL, STEVENSON\218-1038 LOGX.GPJ

Appendix IV
Site & Exploration Photographs

View of site conditions looking north

View of site conditions looking southwest

Excavation of test-pit TP-1 looking north

View of exposed soil profile within test-pit TP-1

Excavation of test-pit TP-2 looking south

View of exposed soil profile within test-pit TP-2

PLATE 1: SITE & EXPLORATION PHOTOGRAPHS **PROJECT NO. 218-1038**

Excavation of test-pit TP-3 looking west

View of exposed soil profile within test-pit TP-3

Excavation of test-pit TP-4 looking north

View of exposed soil profile within test-pit TP-4

View of exposed soil profile within test-pit TP-4

View of exposed soil profile within test-pit TP-5

PLATE 2: SITE & EXPLORATION PHOTOGRAPHS **PROJECT NO. 218-1038**

Appendix V
NRCS Soil Survey

United States Department of Agriculture

NRCS

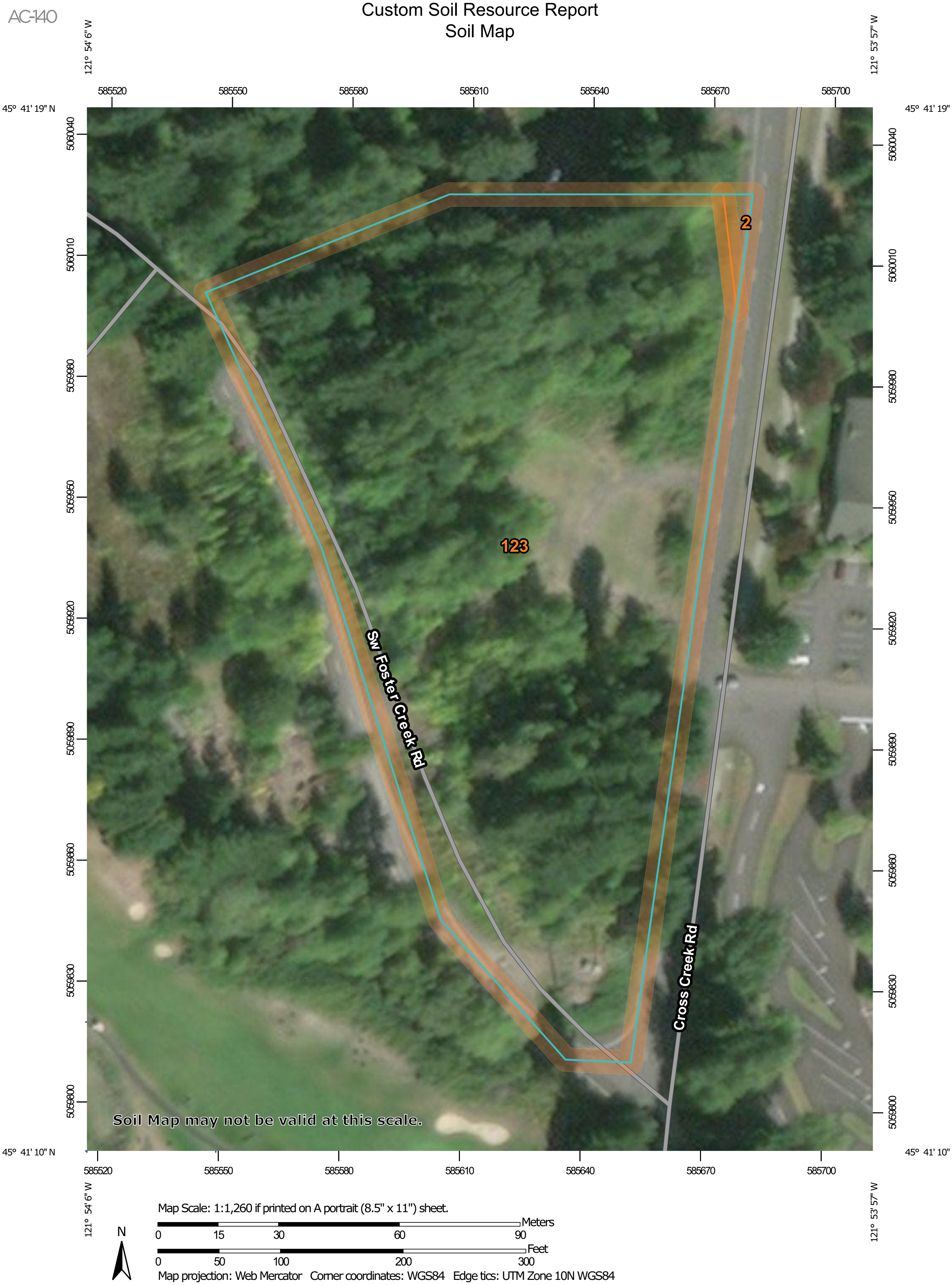
Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for
Skamania County Area, Washington

New Fire Hall

Custom Soil Resource Report
Soil Map



Skamania County Area, Washington

2—Arents, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1hhrw
Elevation: 0 to 200 feet
Mean annual precipitation: 40 to 80 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 90 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Arents and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arents

Setting

Landform: Terraces

Typical profile

H1 - 0 to 24 inches: gravelly sandy loam
H2 - 24 to 60 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Hydric soil rating: No

123—Steever stony clay loam, 2 to 30 percent slopes

Map Unit Setting

National map unit symbol: 1hhq7
Elevation: 50 to 1,500 feet
Mean annual precipitation: 70 to 85 inches
Mean annual air temperature: 48 degrees F
Frost-free period: 130 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Steever and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Steever

Setting

Landform: Mountain slopes

Typical profile

H1 - 0 to 5 inches: stony clay loam
H2 - 5 to 12 inches: gravelly clay loam
H3 - 12 to 60 inches: very gravelly loam

Properties and qualities

Slope: 2 to 30 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 7.1 inches)

Interpretive groups

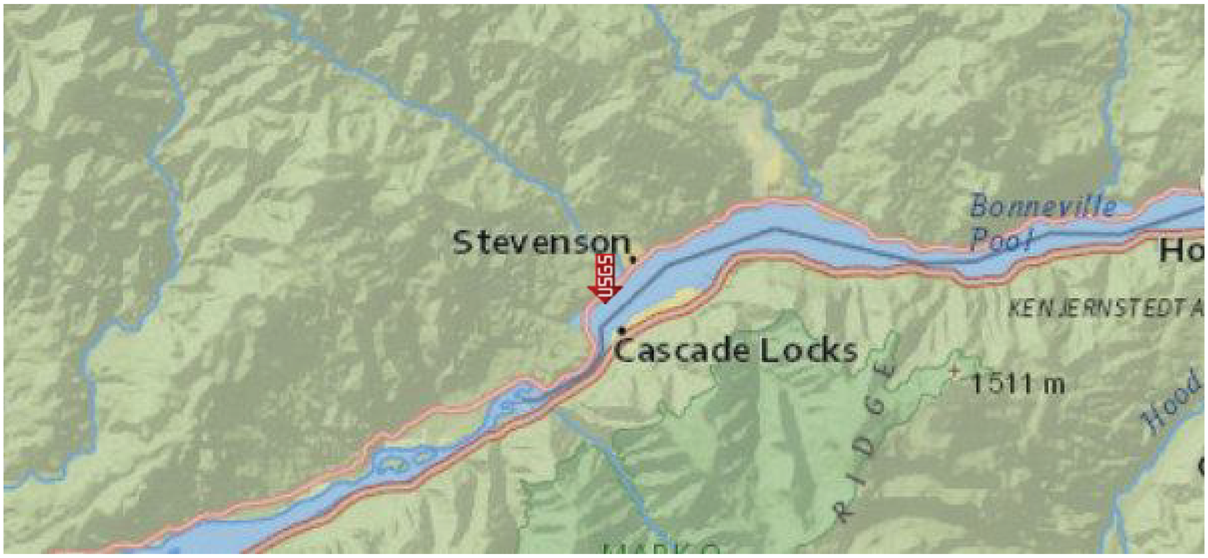
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Forage suitability group: Droughty Soils (G003XF403WA)
Hydric soil rating: No

Appendix VI
USGS Design Maps Summary

USGS Design Maps Summary Report

User–Specified Input

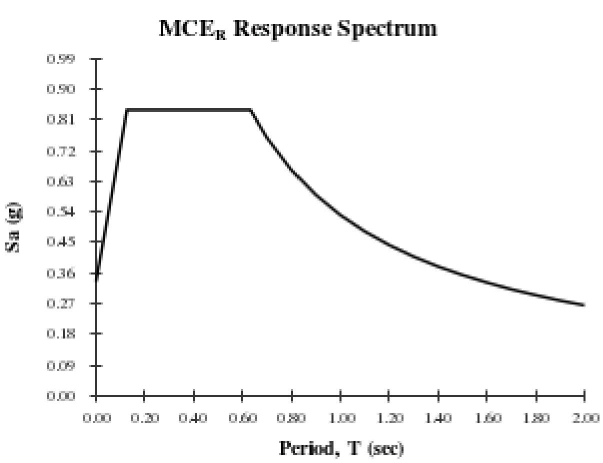
Report Title	City of Stevenson - New Fire Hall Sun December 9, 2018 04:47:30 UTC
Building Code Reference Document	2012/2015 International Building Code (which utilizes USGS hazard data available in 2008)
Site Coordinates	45.68782°N, 121.90026°W
Site Soil Classification	Site Class D – "Stiff Soil"
Risk Category	IV (e.g. essential facilities)

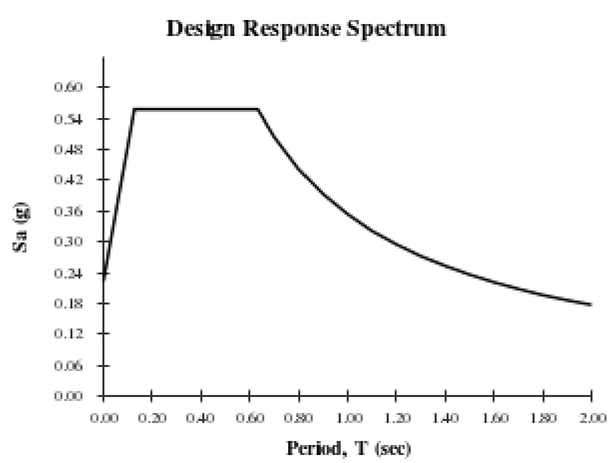


USGS–Provided Output

S_S =	0.657 g	S_{MS} =	0.838 g	S_{DS} =	0.558 g
S_1 =	0.292 g	S_{M1} =	0.530 g	S_{D1} =	0.354 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





Site Assessment
City of Stevenson
Stevenson, Washington

Appendix D
City Application Forms and Fee Schedules

Tracking Number:______________________

CONDITIONAL USE PERMIT APPLICATION

PO Box 371 Stevenson, Washington 98648 Phone: (509)427-5970 Fax: (509)427-8202

Applicant/Contact:____

Mailing Address:____

Phone:_________________________ Fax:_________________________

E-Mail Address (Optional):____

Property Owner:____

Mailing Address:____

Phone:_________________________ Fax:_________________________

If There are Additional Property Owners, Please Attach Additional Pages and Signatures as Necessary

Property Address (Or Nearest Intersection):____

____

Tax Parcel Number:_________________________ **Zoning:**_________________________

Lot Size:_________________________ **Current Use of Property:**_________________________

Brief Narrative of Request:____

____

____

____

____

____

____

Water Supply Source:_____________________ **Sewage Disposal Method:**_____________________

I/we hereby provide written authorization for the City to reasonably access to the subject property to examine the proposal and carry out the administrative duties of the Stevenson Municipal Code.

I/we hereby certify my/our awareness that application fees are non-refundable, there is no guarantee that a permit will be issued, and that any permit issued as a result of this application may be revoked if at any time in the future it is determined that the statements in support of this application are false or misleading.

Incomplete applications will not be accepted. ● Please ensure that all submittals are included

Signature of Applicant: ____ **Date:**_________________

Signature of Property Owner: ____ **Date:**_________________

For Official Use Only:

Date Application Received__________________ ● Date Application Complete__________________

SUBMIT TO:
City Hall
7121 NE Loop Road

Conditional Use Permit

Submittal Requirements

A Conditional Use is a use listed as conditional in the relevant zoning district and permitted only after review as provided in SMC 17.39. A Conditional Use Permit is a permit issued by the Planning Commission that authorizes the recipient to make use of property in accordance with the requirements of SMC 17- Zoning as well as any additional requirements imposed by the Planning Commission.

Applications for a Conditional Use Permit are subject to review by the Planning Commission. In granting a Conditional Use Permit, the Planning Commission must find that the development in its proposed location:

1. *Will not endanger the public health or safety;*
2. *Will not substantially reduce the value of adjoining or abutting property;*
3. *Will be in harmony with the area in which it is located; and*
4. *Will be in conformity with the Comprehensive Plan, transportation plan, or other plan officially adopted by the Council.*

The following information is required for all Conditional Use Permit Applications. Applications without the required information will not be accepted. Site plans are to be prepared by a qualified professional, submitted on 8½"x11" or 11"x17" paper, and drawn to a standard engineering scale (e.g. 1"=10', 1"=20', ⅛"=1', etc.).

- ☐ **Application Fee** (Amount:_____________ Date:_____________ Receipt #:_________________)
- ☐ **Completed and Signed Conditional Use Permit Application**
- ☐ **Copies of the Property Title or Other Proof of Ownership**
- ☐ **Descriptions of Any Existing Restrictive Covenants or Conditions**
- ☐ **Two (2) Copies of a Site Plan, Clearly Showing the Following:**
  - ☐ The Location and Dimensions of All Existing and Proposed Structures
  - ☐ A Floor Plan of the Structure Housing the Proposed Conditional Use
  - ☐ A North Arrow and Scale
  - ☐ The Location and Dimensions of Any Drainfields, Public Utilities, Easements, Rights-of-Way or Streets within or Adjacent to Any Affected Lot
  - ☐ The Location and Dimensions of All Parking Areas
- ☐ **A Narrative Discussing How the Proposal Meets the Four Criteria Described Above**
- ☐ **A List of the Names and Mailing Addresses of All Property Owners Within 300 Feet of the Subject Property** (Obtainable Through the Skamania County Assessor's Office)
- ☐ **Any Information Associated with Proposals Reviewed under SMC 17.39**
- ☐ **Any Other Information Requested by the Planning Director to Aid the Planning Commission in Evaluating the Conditional Use Permit Application**

Tracking Number:____________________

CRITICAL AREAS PERMIT APPLICATION

Critical Areas Permits, Exemption Requests, Reasonable Use Allowances

PO Box 371 Stevenson, Washington 98648 Phone: (509)427-5970 Fax: (509)427-8202

Request:

☐ Critical Areas Permit ☐ Written Determination of Exemption ☐ Reasonable Use Allowance

Applicant/Contact:______________________________

Mailing Address:______________________________

Phone:____________________ Fax:____________________

E-Mail Address (Optional):______________________________

Property Owner:______________________________

Mailing Address:______________________________

Phone:____________________ Fax:____________________

If There are Additional Property Owners, Please Attach Additional Pages and Signatures as Necessary

---

Subject Property Address (Or Nearest Intersection)**:**______________________________

Tax Parcel Number:____________________ **Zoning:**____________________

Brief Project Summary:______________________________

____

Water Supply Source:____________________ **Sewage Disposal Method:**____________________

Critical Areas On or Near Subject Property (Check All That Apply)**:**

☐ Geologic Hazard Area ☐ Fish & Wildlife Habitat Area ☐ Wetland Area ☐ Critical Aquifer Recharge Area

Any Additional Information Regarding Critical Areas on or Near Subject Property:____________________

____

____

____

____

As the property owners of the real property described in this proposal, our signatures indicate our approval of this proposal, with the understanding that the proposal is subject to review, approval, and/or denial under SMC 18.13.

I/we hereby provide written authorization for the City to reasonably access to the subject property to examine the proposal and carry out the administrative duties of the Stevenson Municipal Code.

Incomplete applications will not be accepted. • Please ensure that all submittals are included

Signature of Applicant: ______________________________ **Date:**____________________

Signature of Property Owner:______________________________ **Date:**____________________

For Official Use Only:

Date Application Received____________________ • Date Application Complete____________________

SUBMIT TO:
City Hall
7121 NE Loop Road

Critical Areas

Submittal Requirements

The following information is required for all Critical Areas Applications. Applications without the required information will not be accepted. Site plans are to be prepared by a qualified professional, submitted on 8½"x11" or 11"x17" paper, and drawn to a standard engineering scale (e.g. 1"=10', 1"=20', ⅛"=1', etc.).

☐ **Application Fee** (Amount:______________ Date:______________ Receipt #:__________________)

☐ **Completed and Signed Critical Areas Permit Application**

☐ **Any Associated Land Use and Building Permit Applications**

☐ **Two (2) Complete Site Plan Proposals—Drawn to scale, showing the proposal site and all adjoining areas within 100 feet, and including the following:**
- ☐ A Vicinity Map
- ☐ A North Arrow
- ☐ All property boundary lines **and** dimensions
- ☐ The location and width of all public and private roads
- ☐ The location and size of all existing structures, utility lines, easements, septic tanks and drainfields, wells, and other improvements
- ☐ The location and extent of all proposed structures and/or uses
- ☐ The location, species, and diameter of all significant trees
- ☐ The location and description of all critical areas and buffers

The following information is required for a Critical Areas Permit in Geologic Hazard Areas. All Reports are to be prepared by a Qualified Professional. Only those reports that apply to a proposal are required, and it is the responsibility of the applicant to determine which reports will be required. The City of Stevenson maintains a map inventory to aid in this determination and you are encouraged to meet with City staff prior to submitting an application.

☐ **Landslide Hazard Areas**
- ☐ Geotechnical Assessment, Including
  - Existing and Available Geologic Information
  - LIDAR-Based Geologic Map
  - Surface and Probable Subsurface Geologic Conditions
  - Site Plan Delineating Landslide Hazards
  - Contour Map Delineating
- ☐ Geotechnical Stabilization Report (For High & Moderate Hazard Areas)
  - Surface and Subsurface Geology, Hydrology, Soils, and Vegetation (Soil and Rock Unit Descriptions, Groundwater Levels, Springs, Water Seepage Areas, etc.)
  - Site History
  - Topographic Data at scale of 1"=50' and 2-foot contour intervals
  - Engineering Geology Analysis and Results
    - Confirming Hazard Category
    - Summarizing Borings, Test Pits, and All Other Methods and Tests
    - Providing Monitoring Results of Groundwater Levels, Surface Surveys, and Inclinometer Measurements
    - Detailing a Geologic Site Model
  - Geotechnical Engineering Analysis and Results
    - Estimating Slope Stability and Effects of Construction Over Time
    - Providing the Assumed or Established Site and Subsurface Conditions used in the Stability Analysis
    - Describing the Method of Analysis and Results
    - Suggesting Mitigation of Adverse Site Conditions and/or Slope Stabilization Measures
    - Recommending
      - That Site Grading and Structures Will Not Reduce Slope Stability on Lands Containing no Obvious Instability and Modest Proposed Improvements
      - That Proposed Development Will Not Decrease the Factor of Safety Below Acceptable Limits Determined by the Geotechnical Engineer on Lands Containing Active Landslides, Inactive Landslide Complexes, or Designated as Potentially Unstable Slopes

Critical Areas

Submittal Requirements, Continued

☐ **Erosion Hazard Areas**
- ☐ Erosion Control Plan
  - Minimizing Alteration of Topography and Vegetation Removal and Disturbance,
  - Designing Foundations that Conform to Existing Topography and Reduce Topographic Modification
  - Designing Roads, Driveways, Trails, Walkways, and Parking Areas with Low Gradients and/or parallel to the natural site contours
- ☐ Erosion Control Management Practices
  - Installation of Erosion and Sedimentation Controls (e.g. Silt Fences, Earthen Berms, etc.) Prior to Any Clearing or Grading
  - Implementation of BMPs to Protect Disturbed Areas from Erosion (e.g. Vegetative Ground Cover, Filter Fabrics, etc.)
- ☐ Drainage Plan
  - Designing Surface Drainage Including Downspouts that avoid draining to Erosion Hazard Areas
  - Incorporating the Following Activities only when a Qualified Professional Determines finds that such systems will not result in an increase in erosion and verifies that such systems are installed as designed and function as predicted.
    - Stormwater Retention and Detention Systems, Including Percolation Systems Utilizing Buried Pipe
    - On-Site Sewage Disposal System Drainfields Which are Also in Compliance With City Regulations
    - Utility Lines and Pipes

The following information is often required for a Critical Areas Permit in Fish & Wildlife Habitat Areas. All Reports are to be prepared by a Qualified Professional. Only those reports that apply to a proposal are required, and it is the responsibility of the applicant to determine which reports will be required. The City of Stevenson maintains a map inventory to aid in this determination and you are encouraged you meet with City staff prior to submitting an application.

☐ **Preliminary Habitat Assessment, Including the Following** (For Proposals Near Habitat Areas)
- ☐ The Name and Contact Information for the Applicant
- ☐ The Name and Address of the Qualified Professional Preparing the Report
- ☐ The Dates, Names, and Qualifications of the Persons Preparing the Report and Documentation of Any Fieldwork Performed on the Site
- ☐ A Description of the General Character of the Property, Including
  - Location
  - Existing Developments
  - Vegetation Types
  - Adjacent Land Uses
  - Past Land Uses on the Property (If Available)
- ☐ A Detailed Description of the Critical Area and a Qualitative Analysis of its General Condition
- ☐ Recent Photographs of the Property, Including Detailed Photos of the Habitat Resource in Question
- ☐ The Classifications of the Fish and Wildlife Conservation Area as Defined by this Chapter
- ☐ An Outline of Standard Buffer Widths, Available Buffer Reductions, or Potential Opportunities for Enhancement/Mitigation

☐ **Habitat Mitigation Plan, Including the Following**(For Proposals Affecting Habitat Areas or Buffers)
- ☐ The Information Required in a Preliminary Habitat Assessment
- ☐ A Site Plan Showing
  - Critical Areas
  - Buffers
  - Dimensions and Limits of Areas to be Cleared
  - Proposed Construction Sequencing
  - Grading and Excavation Details, Including Erosion and Sedimentation Control Features
  - Detailed Site Diagrams or Other Drawings Showing Construction Techniques or Final Outcomes

Critical Areas

Submittal Requirements, Continued

☐ **Habitat Mitigation Plan, Continued**

- ☐ A Description of the Specific Efforts Made to Avoid and Minimize Impacts to Priority Habitats and Their Buffers
- ☐ A Brief Narrative of the Proposed Activities Subject to This Chapter and Include Specific Citations of the Applicable Chapter Sections
- ☐ The Anticipated Impacts to the Habitat Area or Buffer, the Proposed Mitigation Actions, and the Purposes of the Compensation Measures
- ☐ The Environmental Goals and Objectives of the Proposed Mitigation and the Goals and Objectives Must be Related to the Functions and Values of the Impacted Critical Area
- ☐ A Program for Monitoring the Construction and Maturation of the Mitigation Project, and Ultimately to Assess the Success or Failure of the Proposed Mitigation Measures
- ☐ Measureable Performance Standards for Evaluating Whether or Not the Goals and Objectives of the Mitigation Project have been Successfully Attained and Whether or Not the Requirements of the Chapter have been Met (e.g. Water Quality Standards, Vegetation Abundance Indices, Species Richness and Diversity Targets, Habitat Diversity Indices, etc.)
- ☐ The Potential Courses of Action and Any Corrective Measures to be Taken When Monitoring or Evaluation Indicates Projected Performance Standards have Not been Met

The following information is often required for a Critical Areas Permit in Wetland Areas. All Reports are to be prepared by a Qualified Professional. Only those reports that apply to a proposal are required, and it is the responsibility of the applicant to determine which reports will be required. The City of Stevenson maintains a map inventory to aid in this determination and you are encouraged you meet with City staff prior to submitting an application.

☐ **Preliminary Wetland Assessment**

- ☐ The Name and Contact Information for the Applicant
- ☐ The Name and Address of the Qualified Professional Preparing the Report
- ☐ The Project Extent and Location
- ☐ The Soil Series Information for the Site According to Natural Resources Conservation Service Maps
- ☐ A Narrative Explaining
  - The Existing Improvements or Developments on the Site
  - The Surrounding Land Uses
  - The Detailed Notes on Vegetation Present
  - The Results of Soil Test Pits Including Soil Color and Saturation Levels
  - The Presence or Absence of Wetland Indicators
- ☐ The Photographs of the Site

☐ **Wetland Delineation** (For Proposals on Sites Containing Wetlands)

- ☐ The Name and Contact Information for the Applicant
- ☐ The Name and Address of the Primary Author(s) of the Wetland Delineation Report
- ☐ A USGS Topographic Map With Site Clearly Defined
- ☐ A National Wetland Inventory Map Showing Site
- ☐ A Soil Conservation Service Soils Map of the Site
- ☐ A Site Map at a Scale no Smaller than 1”=400”, if Practical, Showing
  - Wetland Boundaries (As Staked and Flagged in the Field)
  - Sample Sites and Sample Transects
  - Boundaries of Forested Areas
  - Boundaries of Wetland Rating Classes if Multiple Rating Classes Exist
- ☐ An Aerial Photograph of the Project Area (At a Scale No Smaller than 1”=400”)
- ☐ A Discussion of Methods and Results With Special Emphasis on Technique Used from the Wetlands Delineation Manual
- ☐ The Acreage of Each Wetland Identified on the Site Based on a Survey
- ☐ All Completed Field Data Sheets (US Army Corps of Engineers Format for Three Parameter Application) Numbered to Correspond to Each Sample Site

Critical Areas

Submittal Requirements, Continued

☐ **Wetland Mitigation Plan, Including the Following** (For Proposals Impacting Wetlands and Buffers)

- ☐ Baseline Information
  - The Wetland Delineation Report
  - Descriptions and Maps of the Vegetative Conditions at the Site
  - Descriptions and Maps of the Hydrological Conditions at the Site
  - A Description of the Soil Conditions at the Site Based on On-Site Anaylsis
  - A topographic Map of the Site
  - An Assessment of the Functional Uses of the Existing Wetland and Buffer
- ☐ Enhancement Plan
  - The Goals and Objectives of the Proposed Project
  - A Description of the Wetland Type to be Created, Rehabilitated, Restored, or Enhanced
  - A Description of the Specific Efforts Made to Avoid and Minimize Impacts to the Wetland Areas and Their Buffers
  - A Map Showing Proposed Wetland and Buffer (Base and Proposed Buffers)
  - A Site Plan
  - A Discussion and Map of the Density and Materials of Plantings
  - A Preliminary Drainage Plan Identifying the Location of Proposed Drainage Facilities
  - A Discussion of Water Sources for the Wetland
- ☐ Detailed Construction Plan
  - The Construction Sequence
  - The Grading and Excavation Details
  - The Water and Nutrient Requirements for Planting
  - The Specification of Substrate Stockpiling Techniques
  - The Planting Instructions
  - Site and Cross-Sectional Diagrams
  - A Topographic Map Showing Slope Percentage and Final Grade
- ☐ Quantitative Performance Standards
- ☐ Monitoring Program (5-Year Minimum)
  - Hydrologic Monitoring Stations
  - Vegetation Plots
  - Photo Stations
- ☐ Contingency Plan

The following information is required in order to determine whether a Critical Areas Report is necessary for Critical Aquifer Recharge Areas. If required, all Reports are to be prepared by a Qualified Professional. Proposals meeting one or more of the Primary Criteria below, or two or more of the Secondary Criteria below, then a Vulnerability Rating Report will be required. It is the responsibility of the applicant to determine which reports will be required. The City of Stevenson maintains a map inventory to aid in this determination and you are encouraged you meet with City staff prior to submitting an application.

☐ **Primary Criteria**

- ☐ The Development Proposal is Within a Wellhead Protection Area Designated Under WAC 246-290 Public Water Supplies
- ☐ The Development Proposal is Within an Aquifer Recharge Area Mapped and Identified by a Qualified Groundwater Scientist
- ☐ The Site will be Utilized for Processing, Storing, or Handling a Hazardous Substance (as now or hereafter defined in RCW 70.105D Hazardous Waste Cleanup-Model Toxics Control Act), in Applications or Quantities Larger Than is Typical of Household Use
- ☐ The Site Will be Utilized for Hazardous Waste Treatment and Storage as Set Forth in RCW 70.105 Hazardous Waste Management, as now or hereafter amended

☐ **Secondary Criteria**

- ☐ The Site Contains Highly Permeable Soils as Designated in the NRCS Soil Survey for Skamania County
- ☐ The Development Proposal is Within a Sole Source Aquifer Recharge Area Designated Pursuant to the Federal Safe Drinking Water Act

Critical Areas

Submittal Requirements, Continued

☐ **Secondary Criteria, Continued**
- ☐ The Development Proposal Involves a Major or Short Subdivision and Includes Present or Future Plans to Construct Three or More Dwelling units Where the Dwelling Units will not be Connected to a Public Sewer System and Any of the Lots are Less Than One (1) Net Acre in Size
- ☐ The Development Proposal Involves a Commercial and/or Industrial Site That is not on a Public Sewer System and the Main Structure Exceeds Four Thousand (4,000) Square Feet
- ☐ The Development is Within Two Hundred (200) Feet of the Ordinary High Water Mark of a Perennial River, Stream, Lake or Pond

☐ **Vulnerability Rating, Including the Following** (When Required)
- ☐ Permeability of the Vadose Zone (Upper and Lower)
- ☐ Depth to Groundwater
- ☐ Slope or Gradient
- ☐ Contaminant Loading Rating

The following information is required to evaluate whether a *Written Determination of Exemption* will be issued. *All requirements of the specific exemption request must be met in order for the City to issue a Written Determination of Exemption. Only those reports that apply to a proposal are required, and it is the responsibility of the applicant to determine which reports will be required.*

- ☐ Forest Practices
- ☐ Seismic Hazard Areas
- ☐ Frequently Flooded Areas
- ☐ Tree Removal
- ☐ Recreation
- ☐ Utilities
- ☐ Activities Subject to Previous Review
- ☐ Agricultural Activities
- ☐ Volcanic Hazard Areas
- ☐ Weed Control
- ☐ Site Investigation
- ☐ Emergencies
- ☐ Trails

The following information is required when an applicant asserts that SMC 18.13 would deny all *Reasonable Economic Use* *of a legal lot. All analyses and reports are to be prepared by a* *Qualified Professional*. *Only those reports that apply to a proposal are required, and it is the responsibility of the applicant to determine which reports will be required. The City of Stevenson maintains a map inventory to aid in this determination and you are encouraged you meet with City staff prior to submitting an application.*

☐ **A Description of the Amount of the Site which is within the Setbacks and Buffers Required Under this Chapter and SMC 17- Zoning**

☐ **An Analysis of the Impact that the Proposal would have on all Applicable Critical Areas**

☐ **An Analysis of whether any other Reasonable Use is Possible that would Result in Less Impact on Critical Areas and Associated Buffers**

☐ **An Analysis of any Modifications Needed to the Required Front, Side, and Rear Setbacks; and Buffer Widths to Provide for a Reasonable use of the Site while Providing Greater Protection to Critical Areas**

☐ **A Design of the Proposal so that the Amount of Development Proposed as Reasonable Use will have the Least Impact Practicable on Critical Areas**

☐ **Such Other Information as the City Determines is Reasonably Necessary to Evaluate the Issue of Reasonable Use as it Relates to the Proposal**

Tracking Number:____________________

VARIANCE APPLICATION

PO Box 371 Stevenson, Washington 98648 Phone: (509)427-5970 Fax: (509)427-8202

Applicant/Contact:____________________

Mailing Address:____________________

Phone:____________________ Fax:____________________

E-Mail Address (Optional):____________________

Property Owner:____________________

Mailing Address:____________________

Phone:____________________ Fax:____________________

If There are Additional Property Owners, Please Attach Additional Pages and Signatures as Necessary

Property Address (Or Nearest Intersection):____________________

____

Tax Parcel Number:____________________ **Zoning:**____________________

Lot Size:____________________ **Current Use of Property:**____________________

Brief Narrative of Request:____________________

____

____

____

____

____

____

Water Supply Source:____________________ **Sewage Disposal Method:**____________________

I/we hereby provide written authorization for the City to reasonably access to the subject property to examine the proposal and carry out the administrative duties of the Stevenson Municipal Code.

I/we hereby certify my/our awareness that application fees are non-refundable, there is no guarantee that a permit will be issued, and that any permit issued as a result of this application may be revoked if at any time in the future it is determined that the statements in support of this application are false or misleading.

Incomplete applications will not be accepted. ● Please ensure that all submittals are included

Signature of Applicant: ____________________ **Date:**____________________

Signature of Property Owner: ____________________ **Date:**____________________

For Official Use Only:
Date Application Received____________________ ● Date Application Complete____________________

VarianceApplication2011.docx
Page 1 of 2

SUBMIT TO:
City Hall
7121 NE Loop Road

Variance

Submittal Requirements

A Variance is an authorization from the Board of Adjustment to a property owner to depart from the literal requirements of the provisions of SMC 17-Zoning or SMC 16.02-Short Plat & Short Subdivisions because the strict enforcement of their provisions would casue the owner undue hardship in view of the facts and conditions applying to the specific parcel of property. A Variance will be granted by the Board of Adjustment when it finds that:

1. *The granting of the variance will not constitute a grant of special privilege inconsistent with the limitations upon other properties in the vicinity and district in which the subject property is located;*
2. *The strict application of the land use regulation is found to deprive the subject property of rights and privileges enjoyed by other property in the vicinity and under identical zoning district classifications, because of special circumstances applicable to the subject property, including size, shape, topography, location or surroundings;*
3. *The granting of the variance will not be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity and zoning district in which the subject property is located.*
4. *The granting of the variance will not be detrimental to the purposes of the land use regulatory code from which the variance is requested, and will not conflict with the goals and policies of the comprehensive plan;*
5. *The hardship creating the need for a variance is not self-imposed and that the variance requested is the minimum variance which will alleviate the hardship.*

The following information is required for all Variance Applications. Applications without the required information will not be accepted. Site plans are to be submitted on 8½"x11" or 11"x17" paper, and drawn to a standard engineering scale (e.g. 1"=10', 1"=20', ⅛"=1', etc.).

- ☐ **Application Fee** (Amount:_____________ Date:_____________ Receipt #:_________________)
- ☐ **Completed and Signed Variance Application**
- ☐ **Descriptions of Any Existing Restrictive Covenants or Conditions**
- ☐ **Two (2) Copies of a Site Plan, Clearly Showing the Following:**
  - ☐ The Location and Dimensions of All Existing and Proposed Structures
  - ☐ A Floor Plan of Any Structure Involved with a Variance Request
  - ☐ A North Arrow and Scale
  - ☐ The Location and Dimensions of Any Drainfields, Public Utilities, Easements, Rights-of-Way or Streets within or Adjacent to Any Affected Lot
  - ☐ The Location and Dimensions of All Parking Areas
- ☐
- ☐ **A Narrative Discussing How the Proposal Meets the Five (5) Criteria Described Above**
- ☐ **A List of the Names and Mailing Addresses of All Property Owners Within 300 Feet of the Subject Property** (Obtainable Through the Skamania County Assessor's Office)
- ☐ **Any Other Information Requested by the Planning Director to Aid the Planning Commission in Evaluating the Variance Request**

APPLICATION FOR IMPROVEMENT
Page 1 of 2

SUBMIT TO:
City of Stevenson
7121 E Loop Road
PO Box 371
Stevenson, WA 98648
Phone 509-427-5970 FAX 509-427-8202
http://ci.stevenson.wa.us/

For Office Use Only:

Date Received: ______________________________

Building Permit #______________________________

This *Application for Improvement* is used to apply for Building Permits, Plumbing Permits, Mechanical Permits, Roofing Permits, Fill & Grade Permits, Land Use Permits, Sign Permits, etc. Two copies of a completed Site Plan are to be submitted with your Application for Improvement. Additional items are required to be submitted for one and two family dwellings and multi-family / commercial buildings (see separate checklists).

Owner:

Name: ______________________________

Mailing Address: ______________________________

City, State, Zip: ______________________________

Phone Numbers: ______________________________

Physical Address: ______________________________

Tax Lot # ______________________________

Approach Street Name: ______________________________

Nearest Cross Streets: ______________________________

Contractor:

Name: ______________________________

Contractors License #: ______________________________

Mailing Address: ______________________________

City, State, Zip: ______________________________

Phone Numbers: ______________________________

Complete description of all work to be performed: (this section must be completed on all applications)

Building ... Width ____________ Length ____________ Height ____________ Area (sq.ft.) ____________

Applicant's estimate of value $ ____________

H:\Building Department\Building Permits & Applications\Application Forms\Application for Improvement etc.xlsx

APPLICATION FOR IMPROVEMENT

I hereby certify that the above information is true and correct, and agree to comply with all City Ordinances and State Laws regulating building and construction. Furthermore, I understand that I will be subject to field inspections and plan checks in accordance with the 2012 International Construction Code. I hereby authorize the City of Stevenson reasonable access to the subject property to examine the proposal and carry out the administrative duties of the Stevenson Municipal Code.

As an owner/builder you are allowed to contract with licensed contactors to complete your building project.
By signing this form you are stating you have no intent to hire unlicensed personnel to complete your construction project.

If applicant has not received prior approval for water and sewer service, the building permit may be delayed.

This APPLICATION becomes null and void if a Permit is not issued within 180 days after completion of review by the Building Inspector and/or Planner. The applicant may request **in writing** an extension of the application period subject to Planning and Building Inspector approvals.

________________________ __________________

Signature Date

____

Printed Name

IMPORTANT TAX BREAK INFORMATION FOR ADDITIONS TO SINGLE FAMILY RESIDENCES

When you construct an ADDITION onto a single-family residence, you are allowed a tax break for up to three years, PROVIDED:

1. You file a "Notice of Intent to Construct" prior to the improvement being made. The forms are available from the Skamania County Assessor's office.
2. The improvement represents 30% or less of the original value of the structure.
3. The exemption cannot be claimed more than once in a five year period.
4. The tax break starts after you file a "Notice of Completion" with the Assessor's Office.

*** For additional information please call the County Assessor's office at (509) 427-3720.

H:\Building Department\Building Permits & Applications\Application Forms\Application for Improvement etc.xlsx

Planning Fees	The City of Stevenson	509-427-5970
Effective August 1st, 2017	PO Box 371	509-427-8202 (fax)
Resolution 296	Stevenson, WA 98648	www.ci.stevenson.wa.us

Annexation	
Election Method	$750.00
Notice of Intent	$500.00
Petition	$250.00
Zoning New Areas	$250.00
Appeals	
To City Council	$0.00
To Board of Adjustment	$0.00
Boundary Line Adjustment	
Typical	$150.00
Combination of Lots	$75.00
Comprehensive Plan Revision	$1,250.00
Conditional Use	$500.00
Critical Areas	
Written Determination of Exemption	$25.00
Critical Areas Permit (CAP)	$200.00
CAP Plus Mitigation & Monitoring Plans	$500.00
Reasonable Use Allowance (RUA)	$300.00
RUA Plus Mitigation & Monitoring Plans	$600.00
Land Use/ Building Permit	$25.00
Nonconforming Use Review (BOA)	$500.00
Ordinance Revisions	$1,000.00
Parking	
Joint Use of Parking	$500.00
Parking Interpretation	$0.00
Planned Unit Development	$1,500.00 plus $75 per lot
Reduction in City Boundaries	$1,000.00
Shorelines Management Program	
Substantial Development, Conditional Use, and/or Variance	$1,000.00
Statement of Exemption	$25.00
Short Plat	$1,500.00 plus $75 per lot
SEPA Checklist	$200.00
Subdivision	
Preliminary Plat	$1,500.00 plus $75 per lot
Variance	$750.00
Final Plat	$0.00 plus $100 per lot
Variance	$500.00
City Utility Extension Beyond Plan Area	$500.00
Zoning	
Resolution of Intent	$1,000.00
Rezoning Request	$1,250.00
Zoning Interpretation	$0.00
Zoning Verification Letter	$200.00
Miscellaneous Charges:	
8 1/2 x 11 & 8 1/2 x 14 copies	$0.10
11 x 17 copies	$0.25
Color City Map (11 x 17)	$1.50
Zoning Map	$1.50
Blank Mylar	$50.00

*Outside Consultant Review Fees

When it is necessary to utilize the services of professional consultants such as but not limited to engineers, surveyors, hydrologists, biologists or other specialists to assist the City with its review of the applications identified in this Fee Schedule (i.e., SEPA, Short Plat, Planned Unit Development, Subdivision, Critical Areas, Mobile Home Park, etc.), the costs for the outside consultant's reviews will be the responsibility of the applicant. The costs for these services will be billed monthly to the applicant based on all actual costs for labor,

**Publication, Recording & Election Fees

Publication fees are included in application fees, however, when it is necessary to record a document associated with a successful application and/or when it is necessary to hold an election associated with a request, the actual cost of such recording and/or election shall be the responsibility of the applicant.

***Hearing Examiner

For any appeal or proposal reviewed by the City of Stevenson Hearing Examiner, 50% of the costs for the Hearing Examiner will be the responsibility of the proponent. This fee will be charged in lieu of the amounts listed above. The costs for these services will be billed monthly to the applicant based at 50% of the actual invoice recieved by the City. Final permits and/or plat approvals will not be issued until all costs have been met.

***Planned Unit Developments

Subdivision Preliminary Plat and Short Plat application fees may be waived, at the discretion of the Planning Director, for projects which have obtained approval as a Planned Unit Development.

CITY OF STEVENSON BUILDING PERMIT FEES

City of Stevenson
PO Box 371, Stevenson, WA 98648
Phone 509-427-5970 FAX 509-427-8202
http://ci.stevenson.wa.us/

A. Building Permits:

The determination of value or valuation under any of the provisions of this code shall be made by the Building Official. The Building Official shall use the square footage building valuation data standards set forth in the International Code Council's Building Safety Journal as updated to guide the establishment of valuation for a permit. A copy of said valuation standards shall be on file and available for public use and inspection at Stevenson City Hall.

Total Valuation	Fee
$1.00 to $500.00	$23.50
$501 to $2,000	$23.50 for the first $500.00 plus $3.05 for each additional $1,000.00, or fraction thereof, to and including $2,000.00.
$2,001 to $25,000	$69.25 for the first $2,000.00 plus $14.00 for each additional $1,000.00 or fraction thereof, to and including $25,000.00.
$25,001 to $50,000	$391.25 for the first $25,000.00 plus $10.10 for each additional $1,000.00, or fraction thereof, to and including 50,000.00
$50,001 to $100,000	$643.75 for the first $50,000.00 plus $7.00 for each additional $1,000, or fraction thereof, to and including 100,000.00
$100,001 to $500,000	$993.75 for the first $100,000.00 plus $5.60 for each additional $1,000.00, or fraction thereof, to and including $500,000.00
$500,001 to $1,000,000	$3,233.75 for the first $500,000.00 plus $4.75 for each additional $1,000.00, or fraction thereof, to and including $1,000,000.00.
$1,000,001 and up	$5,608.75 for the first $1,000,000.00 plus $3.65 for each additional $1,000.00, or fraction thereof.

+	**Plan Review Fees**	**65% of the building permit fee.**	
A1.	**Roofing Permits:** Fees will be $50.00 for the first $3,200 value plus $50.00 for each additional $3,200 or fraction thereof.		
A2.	**Public Fireworks Display Permit (RCW 70.77.131)**		$90.00
A3.	**Manufactured Homes:** Fees for placement permits follow the schedule above with the exception of the 65% fee for the plan review.		
A4.	**"SAME AS" plans:** The Building Official may waive a portion of the plan review fee if the same plan is submitted for more than one permit.		
A5.	**Demolition Permits** (Fees will be a flat assessment. Applies only to structures over 200 square feet)		$10.00
A6.	**Fire Suppression Systems.** Fees for Fire Suppression or Prevention Systems will follow the schedule above (A).		
E.	**Other Inspections and Fees:**		
1.	Inspections outside of normal business hours (minimum charge - two hours)		$52.00/hr
2.	Re-Inspections		$45.00/hr
3.	Inspections for which no fee is specifically indicated (minimum charge - one-half (1/2) hour)		$45.00/hr
4.	Additional plan review required by changes, additions or revisions to plans (minimum charge - one-half (1/2) hour)		$45.00/hr
5.	For use of outside consultants for plan checking and inspections, or both		Actual costs
F.	**Planning Department Review of Building Permit Application**		$10.00
1.	For new construction, remodels with a foot print alteration, all sign and grading permits.		

IMPORTANT TAX BREAK INFORMATION FOR ADDITIONS TO SINGLE FAMILY RESIDENCES

When you construct an ADDITION onto a single-family residence, you are allowed a tax break for a period of three years, PROVIDED:

1. You file a "Notice of Intent to Construct" PRIOR TO THE IMPROVEMENT BEING MADE. These forms are available from the Skamania County Assessor's office.
2. The improvement represents 30% or less of the CURRENT ASSESSED VALUE of the structure.
3. The exemption cannot be claimed more than once in a five year period.
4. The tax break starts AFTER you file a "Notice of Completion" with the Assessor's Office. Otherwise you will be taxed at the regular rate.

*** For additional information call the County Assessor.

H:\Building Department\2016 Bldg Stuff\Application for Improvement etc

MECHANICAL FEE SCHEDULE
PAGE 1 OF 2

For Office Use Only:

Date Received: ________________________

Permit #______________________________

Owner Name: ________________________________

Submit this fee schedule attached to a completed "Application for Improvement" when mechanical fees apply.
A Mechanical Permit may be part of a Building Permit or issued as a stand-alone permit when applicable.

	Mechanical Permit Fee Schedule:		**Fee**
1.	For the issuance of each mechanical permit	$23.50	
2.	For issuing each supplemental permit for which the original permit has not expired, been canceled or finaled.	$10.70	
	Unit Fee Schedule (Note: The following do not include permit-issuing fees)		
1.	**Furnaces** For the installation or relocation of forced-air or gravity-type furnace or burner, including ducts and vents attached to such appliance up to and including 100,000 btu/h (29.3 kW)	$14.80	
	For the installation or relocation of forced-air or gravity-type furnace or burner, including ducts and vents attached to such appliance over 100,000 btu/h (29.3 kW)	$18.20	
	For the installation or relocation of each floor furnace, including vent	$14.80	
	For the installation or relocation of each suspended heater, recessed wall heater or floor mounted unit heater.	$14.80	
2.	**Appliance Vents** For the installation, relocation or replacement of each appliance vent installed and not included in an appliance permit.	$7.25	
3.	**Repairs or Additions** For the repair of, the alternation of, or addition to each heating appliance, refrigeration unit, cooling unit, absorption unit, or each heating, cooling absorption or evaporative cooling system, including installation of controls regulated by the Mechanical Code.	$13.70	
4.	**Boilers, Compressors and Absorption Systems** For the installation or relocation of each boiler or compressor to and including 3 horsepower (10.6 kW) or each absorption system to and including 100,000 Btu/h (29.3kW)	$14.70	
	For the installation or relocation of each boiler or compressor over 3 horsepower (10.6 kW) to and including 15 horsepower (52.7 kW), or each absorption system over 100,000 Btu/h (29.3kW) to and including 500,000 Btu/h (146.6kW)	$27.15	
	For the installation or relocation of each boiler or compressor over 15 horsepower (52.7 kW) to and including 30 horsepower (105.5 kW), or each absorption system over 500,000 Btu/h (146.6 kW) to and including 1,000,000 Btu/h (291.3 kW)	$37.25	
	For the installation or relocation of each boiler or compressor over 30 horsepower (105.7 kW) to and including 50 horsepower (176 kW), or each absorption system over 1,000,000 Btu/h (293.1 kW) to and including 1,750,000 Btu/h (512.9 kW)	$55.47	
	For the installation or relocation of each boiler or compressor over 50 horsepower (176 kW) or each absorption system over 1,750,000 Btu/h (512.9 kW).	$92.65	

MECHANICAL FEE SCHEDULE
PAGE 2 OF 2

5.	**Air Handlers** For each air handling unit to and including 10,000 cubic feet per minute (cfm) (4719 L/s), including ducts attached thereto Note: *This fee does not apply to an air-handling unit which is a portion of a factory-assembled appliance, cooling system, evaporative cooler or absorption unit for which a permit is required elsewhere in the Mechanical Code.*	$10.65	
	For each air-handling unit over 10,000 cfm (4710 L/s)	$18.10	
6.	**Evaporative Coolers** For each evaporative cooler other than a portable type	$10.65	
7.	**Ventilation and Exhaust** For each ventilation fan connected to a single duct.	$7.25	
	For each ventilation system which is not a portion of any heating or air-condition system.	$10.65	
	For the install action of each hood which is served by a mechanical exhaust, including the ducts	$10.65	
8.	**Incinerators** For the installation or relocation of each domestic type incinerator	$18.20	
9.	**Solid Fuel Burning Appliance** For the installation or relocation of each domestic type Solid Fuel Burning Appliance	$30.00	
10.	**Miscellaneous** When applicable, permit fees for fuel gas piping shall be as follows: For each gas piping system of one to four outlets	$5.00	
	For each gas piping system of five or more outlets, for each outlet	$1.00	
	When applicable, permit fees for process piping shall be as follows: For each appliance or piece of equipment regulated by the Mechanical Code but not classed in other application categories or for which no other fee is listed in the table.	$10.65	
		Total	

PLUMBING FEE SCHEDULE

For Office Use Only:

Date Received: ________________________

Permit #_____________________________

Owner Name: ________________________________

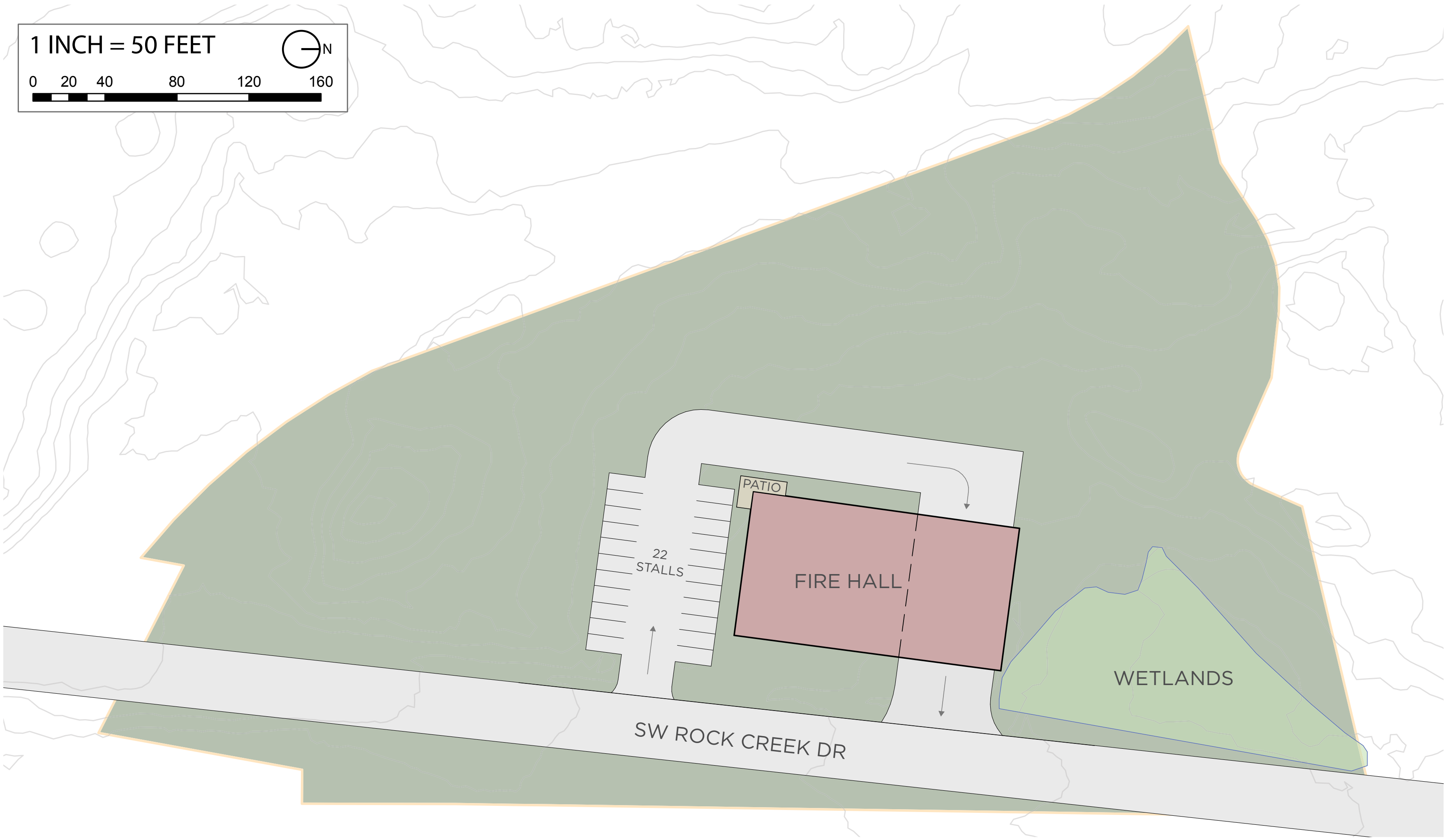
Submit this fee schedule attached to a completed "Application for Improvement" when plumbing fees apply.
A Plumbing Permit may be part of a Building Permit or issued as a stand-alone permit when applicable.

	Plumbing Permit Fee Schedule:		**Fee:**
1.	For issuing each permit.	$22.00	
2.	For issuing each supplemental permit	$10.00	
	Unit Fee Schedule (Note: The following do not include permit-issuing fee)		
1.	For each additional plumbing fixture on one trap or a set of fixtures on one trap (including water, drainage piping and backflow protection therefore	$7.00	
2.	For each building sewer and each trailer park sewer	$15.00	
3.	Rainwater systems - per drain (inside building)	$7.00	
4.	For each private sewage disposal system (where permitted)	$40.00	
5.	For each water heater and or vent	$7.00	
6.	For each gas piping system of one to five outlets	$5.00	
7.	For each additional gas piping system outlet, per outlet	$1.00	
8.	For each industrial waste pretreatment interceptor including its trap and vent, except kitchen-type grease interceptors functioning as fixture traps	$7.00	
9.	For each installation, alteration or repair or water piping and/or water, each	$7.00	
10.	For each repair or alteration of a drainage or vent piping, each fixture	$7.00	
11.	For each lawn sprinkler system on any one meter including backflow protection devices therefore.	$7.00	
12.	For atmospheric-type vacuum breakers no included in item 12: 1 to 5 Over 5, each	$5.00 $1.00	
13.	For each back flow protective device other than atmospheric type vacuum breakers: 2 inch (51 mm) diameter and smaller	$7.00	
	Over 2 inch (51 mm) diameter	$15.00	
14.	For each gray water system	$40.00	
15.	For initial installation and testing of a reclaimed water system.	$30.00	
16.	For each annual cross-connection testing of a reclaimed water system (excluding initial test)	$32.05	
17.	For each medical gas piping system serving one to five inlet(s)/outlet(s) for a specific gas	$53.40	
18.	For each additional medical gas inlet(s)/outlets(s)	$5.35	
		Total	

Site Assessment
City of Stevenson
Stevenson, Washington

Appendix E
Schematic Site and Floor Plan

City of Stevenson
May 2019



Stevenson Fire Department
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