



City of Bothell™

**BOTHELL CITY COUNCIL**

**\*\*\*VIRTUAL MEETING\*\*\***

**AGENDA**

June 2, 2020 - 6:00 PM

BOTHELL CITY HALL, 18415 101<sup>st</sup> AVE NE BOTHELL, WA 98011

Public Notice: Pursuant to Governor Inslee's Stay Home, Stay Healthy Proclamation, and in effort to curtail the spread of the COVID-19 virus, this City Council meeting will be conducted remotely. We encourage members of the public to also attend and participate in the meeting remotely, as described in more detail below.

In addition, in anticipation of the expiration of Proclamation 20-28 on May 31, 2020, City Hall will be open for in-person attendance. This option for in-person attendance is being offered strictly for the purpose of fully complying with the Open Public Meetings Act requirement, as interpreted by the state Attorney General's Office, that a physical location be provided where interested persons can attend. The availability of this option is not authorization or encouragement to violate the Governor's emergency orders. All members of the public are responsible for complying with the Governor's orders. *Those wishing to attend in person will be subject to social distancing and maximum occupancy mandates and will be required to wear a mask or face covering. Please note, however, that if Proclamation 20-28 is extended, this meeting will be held entirely remotely and virtually with no physical location open to the public.*

To attend the meeting:

- [Watch the meeting LIVE](#) online
- Watch the meeting live on BCTV Cable Access Channels 21/26 (must have Frontier/Comcast Cable)
- Listen to the meeting live by phone: +1-510-338-9438 USA Toll / Access code: 126-178-3091
- Attend in person - must adhere to social distancing rules and wear a face-covering
- Council meetings are also recorded and available the next day on the [City of Bothell YouTube Channel](#).

[To provide Visitor and/or Public Hearing comments:](#)

- Sign-up [here](#) to give your comment (submissions must be received by 3PM, day of meeting).

**MEMBERS OF THE CITY COUNCIL**

Mayor Liam Olsen

Deputy Mayor Jeanne Zornes

Councilmember Davina Duerr

Councilmember James McNeal

Councilmember Tom Agnew

Councilmember Rosemary McAuliffe

Councilmember Mason Thompson

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**REGULAR SESSION**

Call to Order, Roll Call and Pledge of Allegiance

## 1. Meeting Agenda Approval

During this item, the City Council may identify agenda items to be continued, withdrawn, or added.

## 2. Presentations, Reports, & Briefings

- A. Public Engagement Opportunities
  - None at this time.
- B. Proclamations
  - None at this time.
  -
- C. Special Presentations
  - None at this time.
- D. Staff Briefings
  - None at this time.
- E. City Manager Reports
  - Update of City's COVID-19 Response
- F. Council Committee Reports

## 3. Visitor Comment

Please email written comments to [CityClerk@bothellwa.gov](mailto:CityClerk@bothellwa.gov). Written comments will be acknowledged during the meeting and made part of the record. Individuals wishing to comment live during the meeting must submit a form [here](#) prior to 3PM (day of meeting). Verbal comments will be allowed 3 minutes to speak in person or via phone.

## 4. Consent Agenda

All items under this section will be passed with a single motion and vote. These items are of a routine nature. Prior to approval, City Council may request items be withdrawn from the consent agenda for separate discussion. Approval of the consent agenda authorizes the City Manager to implement each item in accordance with the staff recommendation.

Pgs. 7-8

- A. AB # 20-058 – Approve April 2020 Payroll and Benefit Transactions  
Recommended Action: Approve payroll and benefit transactions for April 1 – 30, 2020.

Pgs. 9-324

- B. AB # 20-059 – Approval of Adopting the King County Regional Hazard Mitigation Plan Update and the City of Bothell Hazard Mitigation Plan Annex  
Recommended Action: Adopt the King County Regional Hazard Mitigation Plan Update and the City of Bothell Hazard Mitigation Plan Annex.

Pgs. 325-338

- C. AB # 20-060 – Approval of Supplemental Agreement No. 6 with Jacob Engineering for the Non-Motorized Bridge at the Park at Bothell Landing  
Recommended Action: Approve Contract Supplement No. 6, in substantially the same form as presented, with Jacobs Engineering, Inc. in the amount of \$24,268 for construction engineering services for the Non-Motorized Bridge at the Park at Bothell Landing project.



- Pgs. 339-392 D. AB # 20-061 – Approve an Ordinance Regarding a Wireline and Small Wireless Facility Franchise Agreement with Crown Castle Fiber LLC, c/o Crown Castle  
Recommended Action: Adopt the proposed Ordinance granting a Small Wireless Facility Franchise to Crown Castle Fiber, LLC.
- Pgs. 393-402 E. AB # 20-062 – Approve an Ordinance Extending Comcast’s Cable Television Franchise Agreement until May 2025  
Recommended Action: No action is requested at this time; however, this item is currently scheduled for Council action on the June 16, 2020 consent agenda.

## 5. Public Hearings

Please email written comments to [CityClerk@bothellwa.gov](mailto:CityClerk@bothellwa.gov). Written comments will be acknowledged during the meeting and made part of the record. Individuals wishing to comment live during the meeting must submit a form [here](#) prior to 3PM (day of meeting). Verbal comments will be allowed 3 minutes to speak in person or via phone.

- Pgs. 403-480 A. AB # 20-063 – Public Hearing and Consideration of an Ordinance Amending the Bothell Municipal Code to Comply with Federal Emergency Management Administration Requirements for Special Flood Hazard Areas  
Recommended Action: Approve the proposed Ordinance (Attachment 1), Amending Sections of Bothell Municipal Code Chapter 14.04, Critical Areas Regulations, pertaining to flood management.
- Pgs. 481-488 B. AB # 20-064 – Public Hearing and Consideration of an Ordinance Amending the Bothell Municipal Code to Align with State Exceptions for Annual Comprehensive Plan Amendments and to Clarify Procedures for Providing State Environmental Policy Act (SEPA) Documentation to Advisory Bodies  
Recommended Action: Staff recommends that the Council adopt the attached Ordinance amending BMC 11.18.060 and 14.02.220.
- Pgs. 489-496 C. AB # 20-065 – Public Hearing on Retaining Interim Ordinance Temporarily Suspending Development Application and Permit Timelines  
Recommended Action: Staff recommends that the Council take no action at this time. The Interim Ordinance will remain in effect until October 7, 2020.

## 6. Ordinances & Resolutions

- Pgs. 497-518 A. AB # 20-066 - Consideration of an Ordinance Initiating Condemnation of Property Needed for the North Creek Trail Section 4 Project  
Recommended Action: Approve an ordinance initiating condemnation of property for the North Creek Trail Section 4 project, and authorize the City Manager to acquire the necessary right-of-way for the project, subject to future Council approval of deeds and easements documenting the acquisitions.
- Pgs. 519-530 B. AB # 20-067 - Consideration of a Resolution Temporarily Suspending the Capital Facilities Plan Update Process and Adopting an Abbreviated Process that Satisfies the Requirements of the Growth Management Act  
Recommended Action: Approve the Resolution temporarily suspending the Capital Facilities Plan Update process and adopting an abbreviated process that satisfies the requirements of the Growth Management Act.

## **7. Contracts and Agreements**

- Pgs. 531-542      A. AB # 20-068 - Consideration of an Interlocal Agreement for a North King County Mobile Integrated Healthcare Program  
Recommended Action: Authorize the City Manager to execute an Interlocal Agreement for a Mobile Integrated Healthcare Program with the City of Bothell, Northshore Fire Department, Woodinville Fire & Rescue, and the Shoreline Fire Department in substantially the same form as presented.

## **8. Other Items**

- Pgs. 543-570      A. AB # 20-069 - Consideration of Dedicating State-Shared CARES Act Funding to the City for COVID-19 Related Expenses and to the Community for COVID-19 Related Assistance  
Recommended Action: Direct staff to proportion potential reimbursements to City cost recovery (\$500,000) and Community response efforts (\$500,000), and to bring the remaining funds (\$400,000) back to Council by August 4, 2020 for allocation.
- Pgs. 571-574      B. AB # 20-070 – Consideration of Options for Public Street and Private Property Uses in Response to COVID-19  
Recommended Action: Provide direction to the City Manager to:
1. Either, close Main Street or implement flex zones between 101st and 102nd Avenues NE at no cost to businesses. To open all flex zones without cost to businesses, Council will need to pass a motion to waive the 2020 flexible zone permit fees and monthly charge;
  2. Return on June 9 with an interim ordinance to amend the Bothell Municipal Code allowing restaurants to use private property/parking lots for outdoor dining;
  3. Return by mid-July with information and cost estimates to close residential streets to support outdoor activities and safe social distancing.
- Pgs. 575-578      C. AB # 20-071 -Consideration of the King County Council’s Economic Development Relief Funds for Phase 2 Reopening Kits  
Recommended Action: Provide direction to Staff regarding the expenditure of King County Council’s 2020 Emergency Fund for Businesses Impacted by COVID-19.

## **9. Study Session/Update/Discussion Items**

- None at this time.

## **10. Council Conversations**

During this item, Council members have the opportunity to informally discuss topics of City interest.

## **11. Executive Session/Closed Session**

- None at this time

Pursuant to the Washington Open Public Meetings Act, Title 42, Chapter 30, Revised Code of Washington, Sec. 42.30.110 (1), Executive Sessions or Closed Sessions may be held, under certain exceptions, at any time during the meeting that a need arises for the City Council to seek advice from the City Attorney as to the posted subject matter of this City Council meeting.

## **12. Adjourn**

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CERTIFICATE

I hereby certify that the above agenda was posted on 5/28/2020 by 6:00 P.M., on the official website and bulletin board at Bothell City Hall, 18415 101<sup>st</sup> Avenue NE, Bothell, WA, 98011, in accordance with RCW 42.30.077, at least 24 hours in advance of the published start time of the meeting.

Laura Hathaway, City Clerk

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**SPECIAL ACCOMODATIONS:** The City of Bothell strives to provide accessible meetings for people with disabilities. If special accommodations are required, please contact the ADA Coordinator at (425) 806-6151 at least one day prior to the meeting.

Copies of agenda bills and attachments listed in this agenda may be obtained from the City Clerk's Office the Friday before the meeting.

Bothell City Council meetings are aired live on Bothell Community Television (BCTV) Channel 21/26 (Comcast/Frontier) (available to Comcast and Frontier Cable customers within Bothell City limits). Meetings are generally replayed according to the following schedule (subject to change): Wednesday following the meeting at 10 a.m.; Friday, Saturday and Sunday following the meeting at 10 a.m. and 7 p.m. City Council and Planning Commission meetings and the BCTV schedule are viewable online at [www.bothellwa.gov](http://www.bothellwa.gov)

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## City of Bothell™

**City Council  
Agenda Bill  
AB # 20-058**

**TO:** Mayor Olsen and Members of the Bothell City Council

**FROM:** Chris Bothwell, Finance Director  
Maureen Schols, Deputy Finance Director (Presenter)

**DATE:** June 2, 2020

**SUBJECT:** Approve April 2020 Payroll and Benefit Transactions

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**POLICY CONSIDERATION:** This item asks the City Council to consider approval of payroll and benefit transactions for the period of April 1 – 30, 2020 totaling \$4,038,277.96 that were approved and paid for by the City Auditor.

- ✓ Direct deposit transactions #2000131783 - #2000132518 totaling \$1,976,961.49
- ✓ Payroll and benefit checks #39126 - #39153, plus wire benefit payments #704 - #715 totaling \$2,061,316.47

**HISTORY:**

**DATE ACTION**

**JUNE 5, 2000**

Ordinance 1810 appointed Finance Director/City Treasurer as City Auditor

In accordance with state statues, vouchers approved by the City Auditor are required to be ratified by City Council and notated in the minutes.

**DISCUSSION:** None.

**FISCAL  
IMPACTS:**

Funding for salaries and benefits are included in the Adopted 2019-2020 Budget.

**ATTACHMENTS:**

Att-1. April 2020 Payroll and Benefit Transactions.  
(For Council distribution only. Check listings are available for review in the Finance Department.)

**RECOMMENDED  
ACTION:**

Approve payroll and benefit transactions for April 1 – 30, 2020.

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## City of Bothell™

**City Council**  
**Agenda Bill**  
AB # 20-059

**TO:** Mayor Olsen and Members of the Bothell City Council

**FROM:** Jennifer Phillips, City Manager  
Jennifer Warmke, Emergency Preparedness Manager

**DATE:** June 2, 2020

**SUBJECT:** Approval of adopting the King County Regional Hazard Mitigation Plan Update and the City of Bothell Hazard Mitigation Plan Annex

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**POLICY CONSIDERATION:** Consider adopting the King County Regional Hazard Mitigation Plan Update and the City of Bothell Hazard Mitigation Plan Annex.

The hazard mitigation plan and city annex, both already approved by FEMA, allows the City of Bothell to be eligible for hazard mitigation project funding under the Federal unified hazard mitigation assistance grant program.

HISTORY:	DATE	ACTION
	<b>MARCH 22, 2018</b>	City Manager signed Letter of Intent for Participation
	<b>SEPTEMBER 12, 2019</b>	Bothell's Annex submitted to King County
	<b>OCTOBER 11, 2019</b>	Bothell's Annex approved by King County
	<b>APRIL 29, 2020</b>	King County Regional Hazard Mitigation Plan and Annexes approved by FEMA

In March of 2018, a partnership of King County cities and special purpose districts embarked on a planning process to prepare for and lessen the impacts of specified natural hazards by updating the King County Regional Hazard Mitigation Plan. Responding to federal mandates in the Disaster Mitigation Act of 2000 (Public Law 106-390), the partnership was formed to pool resources and to create a uniform hazard mitigation strategy that can be consistently applied to the defined planning area and used to ensure eligibility for specified grant funding success.

This effort represents the third comprehensive update to the initial hazard mitigation plan, approved by the Federal Emergency Management Agency (FEMA) in November of 2004, as well as a return to a truly regional effort following the truncated 2009 and 2014 planning process. The 57-member

planning partnership involved in this program includes King County, city and town governments, and special purpose districts. The planning area for the hazard mitigation plan was defined as all incorporated and unincorporated areas of King County as well as the incorporated areas of cities that cross County boundaries: Auburn, Bothell, Milton, and Pacific. The result of the organizational effort will be a FEMA and State Emergency Management Agency (WAEMD) approved multi-jurisdictional, multi-hazard mitigation plan.

**DISCUSSION:** Mitigation is defined in this context as any sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event. Mitigation planning is the systematic process of learning about the hazards that can affect the community, setting clear goals, identifying appropriate actions and following through with an effective mitigation strategy. Mitigation encourages long-term reduction of hazard vulnerability and can reduce the enormous cost of disasters to property owners and all levels of government. Mitigation can also protect critical community facilities, reduce exposure to liability, and minimize post-disaster community disruption.

Authorized under Section 404 of the Stafford Act, the HMGP administered by FEMA provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.

The Plan was prepared in accordance with the guidelines established by the Washington Military Department Emergency Management Division and has been aligned with the goals, objectives and priorities of the State's multi-hazard mitigation plan.

A 17-member stakeholder group was formed early in the planning process to guide the development of the Plan. In addition, residents were asked to contribute by sharing local knowledge of their individual area's vulnerability to natural hazards based on past occurrences. Public involvement has been solicited via a multi-media campaign that included two rounds of public comment, web-based information, a questionnaire and progress updates.

Upon adoption of the King County Regional Hazard Mitigation Plan Update and the City of Bothell Annex, the City of Bothell will be eligible to apply for specified grants. The grant funds are made available to states and local governments and can be used to implement the long-term hazard mitigation measures specified



within the City of Bothell's annex of the King County Regional Hazard Mitigation Plan before and after a major disaster declaration.

The King County Regional Hazard Mitigation Plan is considered a living document such that, as awareness of additional hazards develops and new strategies and projects are conceived to offset or prevent losses due to natural disasters, the King County Regional Hazard Mitigation Plan will be evaluated and revised on a continual 5-year time frame.

**FISCAL IMPACTS:** This item has no financial implications. However, approval of this plan does allow the City to apply for future grants to implement long-term hazard mitigation measures as outlined in the City's Annex.

**ATTACHMENTS:**

Att-1.	City Annex to King Co Regional Hazard Mitigation Plan Update
Att-2.	King Co Regional Hazard Mitigation Plan Update (available electronically)
Att-3.	Draft Resolution

**RECOMMENDED ACTION:** Adopt the King County Regional Hazard Mitigation Plan Update and the City of Bothell Hazard Mitigation Plan Annex.

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# City of Bothell Plan Annex

## Introduction

The City of Bothell, incorporated in 1909, is in the north central region of King County and the south central region of Snohomish County and is located on I-405, 12 miles north of Seattle, Washington. The City shares its boundaries with the cities of Kirkland, Woodinville, Kenmore and unincorporated areas of Snohomish counties (see Attachment 1: Bothell Regional Street Map).

Since the first settlers arrived in the late 1800's, Bothell has evolved from a logging camp to an agricultural community to a bedroom suburb to a balanced city with well-established residential areas and thriving retail and employment centers. The historic downtown is home of the Bothell City Hall, Bothell Police Department, Bothell Downtown Fire Station and other City administrative offices.

The City is unique in that it encompasses two counties. Approximately 7.24 square miles are located in King County and 6.42 square miles are located in Snohomish County with a total area consisting of 13.66 square miles. Because Bothell is located in both Snohomish County and King County, it is subject to the planning and policies that have been adopted in both counties. Adopted policies are designed to ensure that city and county comprehensive plans are consistent.

Bothell has a Council-manager government governed by a City Council consisting of seven Council Members, each of whom is elected to a four-year term. Council elections are held every two years, with either three or four positions standing, depending upon the year. All positions are nonpartisan and at-large, elected by the entire city voting population. The Council passes ordinances and resolutions, approves the budget, sets policies and adjudicates issues, and elects from its own membership a Mayor and Deputy Mayor for two-year terms.

Day-to-day affairs in the city are administered by a City Manager appointed by the council.

Bothell is home to Cascadia College and the University of Washington, Bothell. The two institutions share the same campus, which opened in the year 2000. They not only provide for significant employment, but also help train a highly capable workforce for community businesses. Staff and students provide customers for local businesses and services. Partnerships with local businesses and industries provide mutual benefits and strengthen the overall vitality of the community.

### City of Bothell Profile

**Incorporated:** 1909

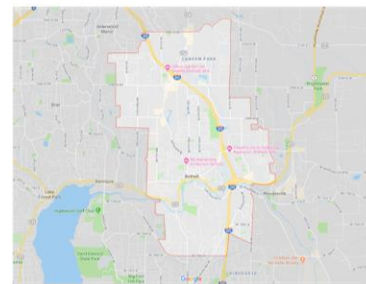
**Population:** 45,533 (2017)

**Location:** 47°46'18"N and 122°12'16"W, encompassing both King and Snohomish Counties

**Area:** 13.66 sq miles

**City Manager:** Jennifer Phillips

**Website:** [www.bothellwa.gov](http://www.bothellwa.gov)



### Jurisdiction Point of Contact:

Name: Jennifer Warmke  
 Title: Emergency Manager  
 Entity: City of Bothell  
 Phone: 425/806-6270  
 Email: [jennifer.warmke@bothellwa.gov](mailto:jennifer.warmke@bothellwa.gov)

### Plan Prepared By:

Name: Jennifer Warmke  
 Title: Emergency Manager  
 Entity: City of Bothell  
 Phone: 425/806-6270  
 Email: [jennifer.warmke@bothellwa.gov](mailto:jennifer.warmke@bothellwa.gov)

## Development Trends

The City of Bothell's population has historically grown at a rate of around 1 percent per year, except when annexations add large numbers of citizens to the City. The overall growth rate is expected to continue.

Bothell has evolved into a major regional employment hub. This growth was initiated by the availability of developable land in the North Creek Valley, but has been sustained by the City's geographically advantageous position within the Puget Sound region and a high quality of life which attracts employers and employees alike. Moreover, sufficient capacity exists within the North Creek and Canyon Park office/light industrial activity centers to accommodate employment growth.

As of 2019, Bothell is experiencing extensive detached single family residential development throughout the city, as well as substantial mixed-use, vertical multi-family growth and institutional redevelopment in and around the downtown core. This development is catalyzed by public roadway and other capital projects.

The Comprehensive Plan provides a vision of Bothell's future development. The vision includes an emphasis on infill development occurring in existing neighborhoods, rather than sprawl and an increase in multi-family housing in the downtown area. While this new development is not located within a distinct hazard zone, the concentration of development has an increased risk to the City when it comes to first response capabilities in the event of a large-scale disaster.

Major business parks are located east of I-405 in the North Creek Valley, with one large business park in the King County portion of the valley and one in the Snohomish County portion.

Employment throughout the city is diverse, although technology-related employment is a particular strength of Bothell. Bothell's ten largest employment groups provide roughly 5 percent of the jobs in the city. Professional and educational services are the principal area of employment in Bothell. This is followed by manufacturing, retail and construction services.

## City of Bothell Risk Summary

### *Hazard Risk and Vulnerability Summary*

HAZARD	RISK SUMMARY	VULNERABILITY SUMMARY	IMPACT SUMMARY
<b>Avalanche</b>	Bothell is not at risk for avalanches.		
<b>Earthquake</b>	Earthquakes can be the most destructive hazard Bothell can face if we have a moderate event on the Seattle Fault Zone. An earthquake is a shaking or sometimes violent trembling of the earth which results from sudden shifting of rock beneath the earth's crust. This sudden shifting releases energy in the form of seismic waves or wave-like movement of the earth's surface.	Bothell is geographically located in an area known as the Pacific Ring of Fire. A significant number of active fault lines or cracks in that crust have been identified in the central Puget Sound area including Seattle and King County. The nearest major active fault is the South Whidbey Fault, however the city has mapped liquefaction zones as depicted in Attachment 2: Seismic Liquefaction Map. At this time it is not possible to predict the exact date, duration or magnitude of an earthquake.	The most recent earthquake that affected the City was the Nisqually Quake in 2001. The 6.8 magnitude earthquake was centered under Anderson Island in south Puget Sound. While extensive damage due to this earthquake was sustained throughout areas of King County, Bothell experienced only minor damages and did not qualify for any reimbursable expenses.

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HAZARD	RISK SUMMARY	VULNERABILITY SUMMARY	IMPACT SUMMARY
<b>Flood</b>	6.10 % of the total land area of the city is within Special Flood Hazard Areas; however, of that land area 3.39% is located in Zone X which is an area protected by a levee. The city has good floodplain management regulations and has limited development; however, there are some structures already present in the floodplain.	With no structures in the City shown in the Repetitive Loss Report, structures within floodplains were analyzed. The floodplain boundaries within the City are shown in Attachment 3: Floodplain Map.	The most recent event of flooding in Bothell occurred in 2007. Between December 1 <sup>st</sup> and 17 <sup>th</sup> , 2007 the City received heavy rainfall resulting in extensive flooding across the City causing the evacuation of some residences and a business park. This is the one specific NCDC event recorded for flooding for 2007.
<b>Landslide</b>	7.88% of the total land area of the city is located in potential landslide areas per 2002 data. 3.92% of total land is in landslide deposit, scarp, or flank per 2015 DNR data. While not a common problem, landslides in Bothell are typically associated with either unusually heavy seasonal rains or local earthquake activity.	Over the past 10 years, the following neighborhood areas experienced landslides: <ul style="list-style-type: none"> <li>• Valhalla Subdivision</li> <li>• Regents Wood Condominium</li> <li>• 108<sup>th</sup>/112<sup>th</sup> Place NE, south of East Riverside Drive</li> <li>• Amber Ridge Subdivision</li> <li>• Norway Hill area</li> <li>• Brentwood Subdivision</li> <li>• Queensborough Subdivision</li> <li>• Boy Scout Property</li> <li>• West Riverside Drive</li> <li>• East Riverside Drive</li> <li>• Woodcrest</li> </ul>	Landslides have been a significant problem in Bothell's southwest area (primarily south of SR 522 and west of I-405) for many years, and several landslides occur every year during the rainy season. Storms have triggered a number of landslides as evidenced in the Attachment 4: Landslide Potential Map.  Deposits, according to data compiled in 2002 by the University of Washington, from soils reports produced by engineering firms that conducted explorations in the area. Additionally 2015 Washington State DNR draft data is depicted for Landslide deposits, scarps, and flanks visible and created using lidar.

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HAZARD	RISK SUMMARY	VULNERABILITY SUMMARY	IMPACT SUMMARY
<b>Severe Weather</b>	<p>Severe weather in Bothell can happen at any time of year but usually occurs between October and April. Severe weather can include unseasonable rain, snow, ice, extreme cold, and high winds. High wind events in Bothell are fairly common and are usually experienced as part of a winter weather pattern.</p> <p>Bothell's location within King County's marine climate results in very few extreme cold/ice events. Typically, the area experiences below freezing temperatures for 10-14 consecutive days in January or February.</p>	<p>The National Weather Service can forecast and track severe weather events that may be likely to produce severe high winds, hail, and lightening, but where these related hazards form and how powerful they might be remains unpredictable.</p> <p>Winds in excess of 45 miles per hour can cause road closures, significant damages to public and private property, and injuries to public safety, utility workers and private citizens. The most recent was the December 14-15, 2006 windstorm which caused widespread power outages from downed trees and rendering roads impassable.</p> <p>Snow accumulations in Bothell at elevations below 2,000 feet are uncommon. On average, Bothell will experience one or two snow storms during a winter season with minor accumulations.</p> <p>Additionally, Bothell is located in a convergence zone area which can result in more weather extremes and, at times, higher precipitation.</p>	<p>The most recent event happened in February of 2019 when a series of winter storms producing snow greatly affected the entire Puget Sound region. Impacts resulted in snow covered roads and numerous "snow days" for staff.</p> <p>Prior to that a period of time starting in December 12, 2008 and lasting to January 5, 2009 (refer to Hazard Events Since January 2006 HMP, page 3-4). Extreme cold, snow and then rain resulted in many collapsed structures in the City and an extended period of 24/7 operations for street clearing, debris removal and other operations associated with the severe weather. This event resulted in a preliminary damage assessment of \$361,000 for Bothell and qualified under DR#1825.</p> <p>On December 14-15, 2006 a windstorm causing downed trees and power lines which resulted in major power outages throughout the City for up to one week occurred. This event resulted in a preliminary damage assessment of \$73,808 for Bothell and qualified under DR#1682.</p> <p>On August 30, 1999 Bothell had hail that was ¾" in diameter that resulted from a severe thunderstorm.</p> <p>In 1995, a windstorm which resulted in downed trees and major power outages for up to one week resulted in the City receiving reimbursement through FEMA's Public Assistance Program for expenses incurred.</p>

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HAZARD	RISK SUMMARY	VULNERABILITY SUMMARY	IMPACT SUMMARY
<b>Tsunami</b>	Bothell is not at risk for tsunamis.		
<b>Volcano</b>	Bothell is not at a direct risk for volcano activity. The largest impact would be ash-fall.		
<b>Wildfire</b>	<p>A fire needs three elements in the right combination to ignite and grow – a heat source, fuel, and oxygen. How a fire behaves primarily depends on the characteristics of available fuel, weather conditions, and terrain. Weather plays a role in the forms of wind, low precipitation, and lightening. Terrain is an additional factor, as the topography of a region or local area influences the amount and moisture of available fuel. Other elements like barriers and land elevation also need to be taken into account as highways and lakes can affect spread of fire, as can an uphill/downhill orientation, as fire spreads more easily as it moves uphill. In addition to natural conditions for fire viability, humans also play a role. For these reasons, fire hazards are a very real risk for Bothell residents and businesses and must be vigilantly prepared for and mitigated against in efforts to keep our region and surrounding counties and communities safer.</p>	<p>Wildfires are rare occurrences in Bothell. The National Climatic Data Center does not have any records of wildfires that have occurred in Bothell. Typically any wildfires are contained rapidly and remain small, so that each has a minimal impact.</p> <p>The Bothell Fire Department trains up to 15 of our members in Wildland firefighting. All wildland firefighters are certified red card. In addition we have 3 members certified as engine bosses along with a certified strike team leader and another in training. The Bothell Fire Department also has a fully functioning Type 6 wildland engine company that is operational throughout the wildland season.</p> <p>With the increasing urbanization, the threat of wildland/urban interface fire grows, due to a rise in the building of homes and the prevalence of more comprehensive transportation systems. Many City residents live outside of the City center while commuting or telecommuting to work. As a result, wildfires can encroach onto residential properties and structure fires can invade wooded areas.</p>	<p>The NCDC does not list any wildfires or forest fires for Bothell, however the City's Fire Department has identified areas within the City that could cause potential problems. These areas are shown in Attachment 5: Urban Wildfire Map.</p> <p>A major fire in downtown did break out at the Mercantile Building on July 22, 2016, and damaged and closed more than 20 businesses. The fire dealt a blow to the redevelopment program and required state aid for rebuilding</p>

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HAZARD	RISK SUMMARY	VULNERABILITY SUMMARY	IMPACT SUMMARY
<b>Civil Disturbance</b>	Civil disorders have become a part of the urban environment in Washington State. Civil disorder typically begins as nonviolent gatherings. Injuries are usually restricted to police and individuals observed to be breaking the law.	<p>The economic impact to urban areas during civil unrest and following such events can be profound. Direct impacts include looting and smashed windows as well as endangering shop owners and customers. Indirect economic impacts result from the loss of business when potential customers do not approach businesses for extended periods of time. Customer impressions and habits can change from the experience of a single threatening event.</p> <p>For large scale crowd control incidents, Bothell Police Department participates as part of the Allied Law Enforcement Response Team (ALERT). This is a regional team that includes officers from Bothell, Everett, Edmonds, Lynnwood, Mukilteo, and Mountlake Terrace. Our participation on this team is memorialized in policy BPD 418.</p> <p>Also, as part of the policy that covers our patrol efforts, our response to “Crowds, Events, and Gatherings” is governed by policy BPD 408.10</p>	Bothell has no history of civil disorder events occurring.
<b>Cyber Incident</b>	Like other governments and businesses across the nation, Bothell relies heavily on computers and networks to conduct its normal business and is therefore susceptible to cyber-attack.	Cyber-attacks against computer systems could potentially shut down radio, telephone, and computer networks used to control and manage City or regional services, resulting in loss of those services or the inability to properly dispatch public safety and other personnel to the incidents.	Bothell has not had any reports or incidents of cyber-terrorism. However, the City has implemented mitigation efforts against the threat of cyber-terrorism are being addressed in several ways, one of which is incorporating plans that outline response procedures and creating redundant data sites.

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HAZARD	RISK SUMMARY	VULNERABILITY SUMMARY	IMPACT SUMMARY
<b>Dam Failure</b>	Bothell is not at direct risk of dam failures as we do not have dams and are not in an inundation area. However, Seattle Public Utilities (SPU) Tolt Dam and reservoir is the primary source of drinking water supply for the city's water system.	There are no direct dam failure impacts to property within the city. Loss of water supply associated with the Tolt Dam failure located approximately 25 miles east of Bothell would result in severe water supply and fire response impacts.	Bothell has no history of direct, or indirect impacts from dam failure events.
<b>Hazardous Materials Incident</b>	A majority of the fixed planning facilities in Bothell are located in the commercial and industrial areas of the City. Based on the location of the fixed facilities, that area of the City has a higher probability of a chemical release.	<p>The industrial and geographic characteristics of our City continue to place Bothell at risk for probably hazardous materials releases. Many factors determine the impact of a potential incident including quick and solid decision-making by emergency officials, location and type of release, evacuation and shelter-in-place needs, public health concerns, and relevant economic considerations. Additionally, while most incidents are generally brief, the resulting recovery and cleanup may take time to exact.</p> <p>Bothell Fire utilizes the Eastside Hazmat team which is comprised of hazmat team members from Bothell, Woodinville, Kirkland, Bellevue, Eastside Fire and Redmond. The Bellevue Fire Department maintains Hazmat One which will be dispatched in the event of a Hazmat incident. We are also working on additional HazTech units which may be located in Woodinville and Eastside Fire. In addition, Bothell Fire trains with and maintains a large multi person/patient decontamination unit located in a mobile trailer at our Queensborough station #44.</p>	There has been one significant spill in Bothell which occurred at the AT&T building on August 1, 2008. Cleanup at this site has been on-going since that time and is not complete.

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HAZARD	RISK SUMMARY	VULNERABILITY SUMMARY	IMPACT SUMMARY
<b>Public Health Emergency</b>	Public health consequences may be direct or indirect and can affect both a local population's health and its health infrastructure. The direct consequences of a public health disaster are counted in the number of injuries and fatalities occurring as a result of the incident.	All disasters have public health consequences. Natural disasters will affect local populations by causing physical injury, property loss and economic hardship. We also are vulnerable to pandemics and outbreaks of other novel communicable diseases, as well as to the chronic diseases that increasingly affect the health of the population. Although the public health consequences of each of these hazards may be significant, they can be moderated through proactive planning, practice and evaluation.	Bothell has not had any recorded public health emergencies.
<b>Terrorism</b>	Terrorist targets tend to be located in urban areas. Seats of government, stadiums and public meeting places are high-value targets that produce substantial news coverage.	The U.S. population has largely been spared the impacts of international terrorism until recently. However, Washington State and King County locations have witnessed examples of terrorist activity over the last decade.	Bothell has no history of terrorism events occurring.

### *Assets at Risk*

ASSET	VALUE (\$)	RISK SUMMARY	VULNERABILITY SUMMARY	IMPACT SUMMARY
<b>Park at Bothell Landing Amphitheater</b>	N/A	Floodplain Area	The amphitheater has flooded numerous times, however there has been no damage associated with the flooding.	While the amphitheater has flooded numerous times since it was built, it was planned for in the design and construction to withstand that.
<b>North Creek Sportsfields 1, 2, 3, and 4</b>	Turf replacement \$1million at each field; restroom facilities ~\$400k; lighting ~\$700k; lost revenue	Zone X Floodplain Liquefaction Area	Fields 1, 2 and 4 are synthetic turf fields. Damage to the synthetic turf fields and the dirt infield of North Creek Field 3 has the potential to be significant and costly in the event of levy failure.	This area is primarily open space, however fields 2 and 4 have restroom/ maintenance storage facilities on site. The fields generate approximately \$250,000 in revenue per year and cost about one million dollars to replace per field. The impact to the Department and City could be significant.

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ASSET	VALUE (\$)	RISK SUMMARY	VULNERABILITY SUMMARY	IMPACT SUMMARY
<b>Park at Bothell Landing</b>	~\$4.5million	Liquefaction Area Urban Wildfire Area	This area is at a low risk for hazards due to liquefaction or urban wildfire.	This 5.87 acre park has buildings of historical significance to Bothell. A couple of the buildings are on the National Historical Registry. (Hannan House/ Historical Museum, Berkstrom Cabin, Bothell's 1 <sup>st</sup> Schoolhouse, and the Lytle House). The property also has restrooms, parking, trails, kayak rentals with water access, picnic tables and playground areas throughout the park. The park is one of Bothell's most heavily used parks given its location next to the regional King County trail system and being downtown in Bothell. The impact to the City would be medium.
<b>East Norway Hill</b>	N/A	Urban Wildfire Area	This area is at a low risk for urban wildfire.	The 25 acre park has a large open play field with a picnic table and bench. The rest of the park is mostly wooded trails and wetlands. The impact is low.
<b>Blyth Park</b>	~ \$250k	Urban Wildfire Area	This area is at a low risk for urban wildfire.	This 40.8 acre park has rentable large and small shelters, picnic areas with tables, horseshoe pit, volleyball, playground, an 18-hole disc golf course, parking, restrooms, trails and trail connections to W Riverside Trail, Sammamish River Trail and Bothell's newest open space formerly known as the Wayne Golf Course. The revenue streams from the rentable shelters if they were rendered unusable would have a medium impact on the Department.
<b>Haynes Open Space</b>	N/A	Urban Wildfire Area	This area is at a low risk for urban wildfire.	This 4.7 acre area is primarily open space and the impact is low.

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ASSET	VALUE (\$)	RISK SUMMARY	VULNERABILITY SUMMARY	IMPACT SUMMARY
<b>Centennial Park</b>	\$3 million	Urban Wildfire Area	This area is at a low risk for urban wildfire.	This 54 acre park is primarily made up of passive use open space and trails. The park also has one of Bothell's first school houses which is available for rent. The park contains a small play area, walkable trails, a picnic shelter, restrooms and parking. The impact is relatively low.
<b>North Creek Forest</b>	N/A	Urban Wildfire Area	This area is at a low risk for urban wildfire.	This 64 acre park is primarily made up of open space and trails. The impact is low.
<b>Former Wayne Golf Course</b>	N/A	Urban Wildfire Area	This area is at a low risk for urban wildfire.	The open space contains 85 acres of passive use open space and 4 acres of active space. The City is currently performing a Feasibility study on the 4 acres of active space to determine what kind of economic engine could be placed there to help offset the costs of restoring and maintaining the newly acquired open space. The impact is low.
<b>Valhalla Sewer Lift Station</b>	\$1.1 million	Landslide Area	This area is at a low risk for landslide.	Backed up sewers which could be a potential health hazard and river contamination.
<b>East Riverside Drive Sewer Lift Station #43</b>	\$1.19 million	Landslide Area	This area is at moderate risk for landslide.	Backed up sewers which could be a potential health hazard and river contamination.

## Plan Update Process

Since 2005, the City of Bothell has been part of an annex to the King County Regional Hazard Mitigation Plan.

The Emergency Preparedness Manager, Jennifer Warmke, led the most recent revision of the City of Bothell's Annex to the King County Regional Hazard Mitigation Plan and will maintain the document in cooperation with the King County Office of Emergency Management.

The City utilized the King County HIVA Hazard Analysis which identifies all the likely natural and technological hazards that might or have occurred within the county. The city reviewed all hazards and addressed those that affect the city in the Hazard Risk and Vulnerability Summary.

This annex evaluates the risks that all natural hazards pose to the residents and property of the City of Bothell by presenting a profile and analysis of hazardous events, an assessment of vulnerable community assets, potential hazard mitigation strategies, and methods for building community support and ensuring adoption.

This was done by incorporating existing plans and ordinances and working closely with King and Snohomish counties, local jurisdictions, businesses, residents and City departments, along with a wide variety of regional agencies to ensure that proper information was obtained and that every potential aspect to risks and mitigation was addressed.

A planning team, composed of planning participants and technical advisors (see Jurisdiction Planning Team) provided technical review and input for the annex development and also served as the recommending body to the Bothell City Council.

Additionally, there were a number of opportunities for the City to become involved in the regional planning process. The City of Bothell was represented at the all planning meetings that were conducted by the King County Office of Emergency Management on December 13<sup>th</sup>, 2018, March 4<sup>th</sup>, 2019, June 3<sup>rd</sup>, 2019, July 25<sup>th</sup>, 2019 and August 22<sup>nd</sup>, 2019.

The residents of Bothell were also able to provide comments on participating in this process. Information was provided on the City's website and during two public/community outreach events on August 13<sup>th</sup>, 2019 and September 5<sup>th</sup>, 2019.

Opportunities for public comment were provided during the drafting stage and prior to approval. All meetings were posted and open to the public. A copy of the draft was made available on the City of Bothell's Emergency Preparedness page at [www.bothellwa.gov/preparedness](http://www.bothellwa.gov/preparedness) and by request to the Emergency Preparedness Manager. Specific comments and questions about the annex were directed to the City of Bothell's Emergency Preparedness Manager.

### *Jurisdiction Planning Team*

NAME	TITLE	ORGANIZATION	CONTRIBUTION
<b>Jennifer Warmke</b>	Emergency Manager	City of Bothell	Composer
<b>Jaclynn Brandenburg</b>	Deputy Public Works Director	City of Bothell	Contributor
<b>Dan Peddy</b>	Public Works Ops Mgr	City of Bothell	Contributor
<b>Boyd Benson</b>	Utilities and Development Division Manager	City of Bothell	Contributor
<b>Jeff Sperry</b>	Fleet and Facilities Mgr	City of Bothell	Reviewer
<b>Steve Morikawa</b>	Capital Division Mgr	City of Bothell	Contributor
<b>Nik Stroup</b>	Parks Director	City of Bothell	Contributor
<b>Dave Swasey</b>	Building Official	City of Bothell	Contributor
<b>Michael Kattermann</b>	Community Development Director	City of Bothell	Reviewer
<b>Jeff Smith</b>	Development Services Manager	City of Bothell	Reviewer
<b>Daryn Brown</b>	GIS Supervisor	City of Bothell	Contributor
<b>Doug McDonald</b>	Deputy Chief Fire Ops	City of Bothell	Contributor
<b>Butch Noble</b>	Deputy Chief Community Risk Reduction	City of Bothell	Contributor
<b>Lisa Rossiter</b>	IS Systems Supervisor	City of Bothell	Contributor
<b>Laura Moon</b>	Finance Admin Support Manager	City of Bothell	Contributor
<b>Kellye Mazzoli</b>	Assistant City Manager	City of Bothell	Reviewer
<b>Mike Johnson</b>	Police Captain	City of Bothell	Reviewer

## Plan Update Timeline

PLANNING ACTIVITY	DATE	SUMMARY	ATTENDEES
<b>Initial Planning Meeting</b>	June 4, 2019	Review of process, annex and mitigation strategy discussion, timeline.	Jennifer W., Jaclynn B., Dan P., Boyd B., Nik S., Dave S., Daryn B., Butch N., Doug M. Lisa R., Mike J., Laura M., Michael K., Steve M.
<b>GIS Map Discussion</b>	June 18, 2019	Discuss of GIS and mapping needs for plan.	Jennifer W., Daryn B.
<b>Review of Annex (pages 1-12)</b>	July 16, 2019	Thorough review of pages 1-12 of annex, including maps; outline of future timelines.	Jennifer W., Jaclynn B., Nik S., Dan P., Dave S., Doug M., Butch N., Laura M., Boyd B., Daryn B.
<b>Development of Mitigation Strategies</b>	July 16, 2019	General review of previous strategies and brainstorm/research of new strategies.	Jennifer W., Jaclynn B., Nik S., Dan P., Dave S., Doug M., Butch N., Laura M., Boyd B., Daryn B.
<b>Review of Public Works Mitigation Strategies</b>	July 31, 2019	Reviewed mitigation strategies with public works (including transportation, capital facilities, water and wastewater, utilities and development services)	Jaclynn B., Dan P., Steve M., Boyd B., Jennifer W.
<b>Finalization of GIS Maps and Identification of Assets</b>	August 8 <sup>th</sup> , 2019	Finalized mapping components and reviewed city assets in hazard areas.	Daryn B., Jennifer W.
<b>Review of Mitigation Strategies and Final Annex Review</b>	August 14 <sup>th</sup> , 2019	Review and prioritization of mitigation strategies and final annex review.	Nik S., Daryn B., Mike K., Jaclynn B., Dan P., Steve M., Jennifer W.

## Public Outreach

### Public Outreach Events

EVENT	DATE	SUMMARY	ATTENDEES
<b>Preparedness and Mitigation Outreach Event</b>	August 13 <sup>th</sup> , 2019	The City teamed with the UW-B Nursing Program to provide a preparedness and mitigation outreach event. The event was shared widely on a variety of social media channels, included a write-up by UW-Bothell, and attracted more than 50 city staff, UW-Bothell students, and members of the public. The event included demonstrations, hands-on activities, games and refreshments.	EM Staff, UW students, city staff, Shag residents, and other members of the public



EVENT	DATE	SUMMARY	ATTENDEES
<b>Preparedness and Mitigation Outreach Event</b>	September 5 <sup>th</sup> , 2019	Combined with Premera to provide a preparedness and mitigation outreach event. Information was shared via social media and the event included educational sessions and handouts.	Members of the public, Premera employees and families, city staff, EM and Fire Staff

## Jurisdiction Hazard Mitigation Program

Hazard mitigation strategies were developed through a two-step process. Each jurisdiction met with an internal planning team to identify a comprehensive range of mitigation strategies. These strategies were then prioritized using a process established at the county level and documented in the base plan.

Bothell's future mitigation efforts were established based on plans and studies (listed below) as well as information provided by the City's own subject matter experts. Each of the initiatives in this plan was identified as necessary to meet the goals and objectives of the City as they relate to level of service, preservation, health and safety, and design standards. Each department that submitted projects for the various plans within the City reviewed the benefit of the proposed project, cost of project and the complexity of project before the projects were included in the Transportation, Waste Water, Fresh Water, and Comprehensive City Plans.

Within the City's Annex, all of the projects were prioritized based on the information provided by each department and documentation from contractors, engineers and researchers and the degree to which the projects collaborate with the City's strategies and goals as well as the regional strategies and goals established by King County Office of Emergency Management. In addition, each project was determined to align with the City of Bothell's future strategic and financial goals.

### Plan Monitoring, Implementation, and Future Updates

King County leads the mitigation plan monitoring and update process and schedules the annual plan check-ins and bi-annual mitigation strategy updates. Updates on mitigation projects are solicited by the county for inclusion in the countywide annual report. As part of participating in the 2020 update to the Regional Hazard Mitigation Plan, every jurisdiction agrees to convene their internal planning team at least annually to review their progress on hazard mitigation strategies and to update the plan based on new data or recent disasters.

As part of leading a countywide planning effort, King County Emergency Management will send to planning partners any federal notices of funding opportunity for the Hazard Mitigation Assistance Grant Program. Proposals from partners will be assessed according the prioritization process identified in this plan and the county

### Plan Goals

1. Access to Affordable, Healthy Food
2. Access to Health and Human Services
3. Access to Parks and Natural Resources
4. Access to Safe and Efficient Transportation
5. Affordable, Safe, Quality Housing
6. Community and Public Safety
7. Early Childhood Development
8. Economic Development
9. Equitable Law and Justice System
10. Equity in Government Practices
11. Family Wage Jobs and Job Training
12. Healthy Built and Natural Environments
13. Quality Education
14. Strong, Vibrant Neighborhoods

will, where possible, support those partners submitting grant proposals. This will be a key strategy to implement the plan.

The next plan update is expected to be due in April 2025. All jurisdictions will submit letters of intent by 2023, at least two years prior to plan expiration. The county will lead the next regional planning effort, beginning at least 18 months before the expiration of the 2020 plan.

### Plan Integration

When plans and planning processes are more integrated, it is possible to achieve greater impact through clearer definition, smarter investment, partnerships, and innovation. Successful integration requires coordination between planning efforts and, especially, cross-participation in planning processes. The goals of plan integration are to:

- Ensure consistency with jurisdiction priorities across all planning processes
- Leverage opportunities to further multi-benefit initiatives that are supported by multiple planning processes
- Achieve common measures of success for outcomes

The hazard mitigation plan can benefit from integration with planning processes that:

- Prioritize and invest in infrastructure
- Regulate development
- Set strategic direction for programs

To other planning processes, the hazard mitigation plan brings risk and vulnerability information to help prioritize projects and set development standards or regulations. The mitigation plan also comes with potential funding for investments in cost-effective risk-reduction projects. On the other hand, the mitigation plan depends on other plans and processes to implement many strategies. Since the mitigation plan is not itself a regulatory or budgetary document, strategies identified in the mitigation plan are often best implemented through those processes or programs.

There are many plans and planning processes within King County that impact hazard risk. These include strategic plans, long-range plans, resource plans, and capital plans.

PLAN TITLE	DESCRIPTION	LEAD	INTEGRATION STRATEGY
<b>Capital Facilities Plan</b>	Capital facilities plans identify and prioritize large scale projects.	Public Works Department	<ul style="list-style-type: none"><li>• Integrate mitigation strategies from capital plans</li><li>• Encourage the use of hazard information to prioritize capital improvements</li><li>• Support city departments with funding gaps in accessing Hazard Mitigation Assistance to complete or expand projects that are identified as important but are unfunded or partially funded</li></ul>



<b>Comprehensive Plan</b>	This plan is the long-range guiding policy document for all land use and development regulations in the City of Bothell.	Executive Department	<ul style="list-style-type: none"> <li>Encourage updates to the critical areas ordinance</li> <li>Provide feedback and comments on the plan</li> </ul>
<b>Comprehensive Emergency Management Plan</b>	The CEMP is for use by local government department directors, managers and staff in mitigating, preparing for, responding to, and recovering from disasters.	Executive Department	<ul style="list-style-type: none"> <li>The Hazard Mitigation Plan provides the risk profiles that support the development of the CEMP</li> <li>The Hazard Mitigation Plan is also a component (the mitigation component) of the CEMP</li> </ul>

### Continued Public Participation

King County and its partner cities already maintains substantial public outreach capabilities, focusing on personal preparedness and education. Information on ongoing progress in implementing the hazard mitigation plan will be integrated into public outreach efforts. This will provide King County residents, already engaged in personal preparedness efforts, with context and the opportunity to provide feedback on the county's progress and priorities in large-scale mitigation. In the vertical integration of risk-reduction activities from personal to local to state and federal, it is important that the public understand how its activities support, and are supported by, larger-scale efforts.

The outreach and mitigation teams will also continue to work with media and other agency partners to publicize mitigation success stories and help explain how vulnerabilities are being fixed. When possible, public tours of mitigation projects will be organized to allow community members to see successful mitigation in action.

### Hazard Mitigation Authorities, Responsibilities, and Capabilities

#### Plans

PLAN TITLE	RESPONSIBLE AGENCY	POINT OF CONTACT	RELATIONSHIP TO HAZARD MITIGATION PLAN
<b>Comprehensive Plan</b>	Community Development	Michael Kattermann	Helped build mitigation strategies
<b>Comprehensive Emergency Management Plan</b>	Emergency Management	Jennifer Warmke	Referenced in Annex and Mitigation Strategies
<b>Capital Facilities Plan</b>	Finance	Gretchen Zundel	Helped build mitigation strategies
<b>Transportation Improvement Program</b>	Public Works	Steven Morikawa	Helped build mitigation strategies
<b>Biennial Budget</b>	Finance	Laura Moon	City funding
<b>Wastewater System Comprehensive Plan</b>	Public Works	Boyd Benson	Helped build mitigation strategies
<b>Water System Comprehensive Plan</b>	Public Works	Boyd Benson/Dan Peddy	Helped build mitigation strategies

<b>Stormwater Comprehensive Plan</b>	Public Works	Boyd Benson	Helped build mitigation strategies
<b>Continuity of Operations/Government Plan</b>	Emergency Management	Jennifer Warmke	Referenced in Mitigation Strategies
<b>Parks, Recreation and Open Space Plan</b>	Parks	Nik Stroup	Currently under update

The City of Bothell's Annex to the Regional Hazard Mitigation Plan was created utilizing project information outlined in multiple strategic, comprehensive and financial plans developed by the City. These plans include:

### *Programs, Policies, and Processes*

<b>PROGRAM/POLICY</b>	<b>RESPONSIBLE AGENCY</b>	<b>POINT OF CONTACT</b>	<b>RELATIONSHIP TO HAZARD MITIGATION PLAN</b>
<b>Bothell Municipal Code</b>	City Council	Jennifer Phillips	City Regulations
<b>Building Codes</b>	Building Division	David Swasey	Building Regulations
<b>Fire Codes</b>	Fire	Butch Noble	Fire Regulations
<b>Bothell Design and Construction Standards</b>	Public Works	Boyd Benson	Design and construction standards and specifications
<b>Comprehensive Emergency Management Plan</b>	Emergency Management	Jennifer Warmke	All Aspects
<b>Critical Areas Ordinance</b>	Planning Division	Jeff Smith	Planning Regulations
<b>Zoning</b>	Planning Division	Jeff Smith	Zoning Regulations
<b>State Environmental Policy Act</b>	Community Development	Jeff Smith	Environmental Regulations
<b>Procurement Policy</b>	Finance	Chris Bothwell	Contracts, Professional Services, Goods
<b>2021-2022 Budget</b>	Finance	Chris Bothwell	Contracts, Professional Services, Goods
<b>Bothell Police Department</b>	Police	Mike Johnson	Civil Disturbance and Terrorism
<b>CJIS (Criminal Justice Information Systems) Security Requirement</b>	Information Services	Lisa Rossiter	Cybersecurity
<b>PCI (Payment Card Industry) Security Requirements</b>	Information Services	Lisa Rossiter	Cybersecurity
<b>Washington Cities Insurance Authority (WCIA) cybersecurity requirements</b>	Information Services	Lisa Rossiter	Cybersecurity
<b>City of Bothell Information Security Administrative Order 2.4.1</b>	Information Services	Lisa Rossiter	Cybersecurity

### Entities Responsible for Hazard Mitigation

AGENCY/ORGANIZATION	POINT OF CONTACT	RESPONSIBILITY(S)
Emergency Preparedness	Jennifer Warmke	Composer
Community Development	Dave Swasey	Contributor
Public Works	Jaclynn Brandenburg	Contributor
Parks	Nik Stroup	Contributor
Fire	Doug McDonald	Contributor
Police	Mike Johnson	Reviewer
Executive	Kellye Mazzoli	Reviewer
Information Services	Lisa Rossiter	Contributor
GIS	Daryn Brown	Contributor
Finance	Laura Moon	Contributor

### National Flood Insurance Program

#### National Flood Insurance Program Compliance

What department is responsible for floodplain management in your community?	Public Works
Who is your community's floodplain administrator? (title/position)	Public Works Director
What is the date of adoption of your flood damage prevention ordinance?	Ordinance 1946; July 2005
When was the most recent Community Assistance Visit or Community Assistance Contact?	October 4, 2012
Does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are?	No
Do your flood hazard maps adequately address the flood risk within your community? If so, please state why.	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of training/assistance is needed?	No
Does your community participate in the Community Rating System (CRS)? If so, what is your CRS Classification and are you seeing to improve your rating? If not, is your community interested in joining CRS?	No
How many Severe Repetitive Loss (SRL) and Repetitive Loss (RL) properties are located in your jurisdiction?	SRL: 0 RL: 0
Has your community ever conducted an elevation or buy out of a flood-prone property? If so, what fund source did you use? If not, are you interested in pursuing buyouts of flood prone properties?	No

## Hazard Mitigation Strategies

Bothell's future mitigation efforts were established based on plans and studies (listed in Programs, Policies and Processes) as well as information provided by the City's own subject matter experts. Each of the initiatives in this plan was identified as necessary to meet the goals and objectives of the City as they relate to level of service, preservation, health and safety, and design standards. Each department that submitted projects for the various plans within the City reviewed the benefit of the proposed project, cost of project and the complexity of project before the projects were included in the Transportation, Waste Water, Fresh Water, and Comprehensive City Plans.

All of the projects were prioritized based on the information provided by each department and documentation from contractors, engineers and researchers and the degree to which the projects collaborate with the City's strategies and goals as well as the regional strategies and goals established by King County Office of Emergency Management. In addition, each project was determined to align with the City of Bothell's future strategic and financial goals.

### 2015 Hazard Mitigation Strategy Status

STRATEGY	DESCRIPTION	PRIORITY	STATUS
<b>Improvements to Morningside Reservoir and Booster Station.</b>	Provide seismic valves, security barriers and improve notification and response.	N/A	Completed
<b>Rehabilitate City Bridges</b>	Provide for seismic and safety improvements, as well as the preservation and maintenance of the existing integrity.	N/A	Completed
<b>Backup power at Maywood water pump station</b>	Installation of backup power supply.	Included in 2019 strategies	Now included in 2019 Hazard Mitigation Strategies
<b>Realign SR 522</b>	Create a new streamlined "T" intersection with left turn lanes, sidewalks, traffic signals, utilities, lighting and landscaping	N/A	Completed
<b>Disaster Preparedness education</b>	Provide education to general public and businesses within the community.	Included in 2019 strategies	Now included in 2019 Hazard Mitigation Strategies
<b>Emergency Funding</b>	Provide funding for immediate action to address landslides, erosion, deterioration, vandalism, and spot hazardous locations.	N/A	Removing
<b>Capacity and Safety Improvements</b>	Provide capacity and safety improvements and include roadway widening to a five lane roadway with intermittent median landscaping, bicycle lanes, curb, gutter and sidewalk.	Included in 2019 strategies	Now included in 2019 Hazard Mitigation Strategies

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STRATEGY	DESCRIPTION	PRIORITY	STATUS
<b>SR 524 Intersection Improvements</b>	Widen the roadway in the southbound direction from 2 to 3 lanes from SR 524 to about 500' north of 220 <sup>th</sup> St SE.	N/A	Removed
<b>SR 527 and 39<sup>th</sup> Ave SE Safety and Access Improvements</b>	Access improvements will be limited to roadway widening to provide for left turn packets and improve sight distances.	N/A	Removed
<b>Multiway Boulevard Improvements</b>	Provide four travel lanes, left turn land, two sided landscape medians and two side lanes with parking and wide sidewalks.	N/A	Completed
<b>Well-Field Redevelopment</b>	Pen Park Reservoir Tank was replaced with new 1MG reservoir tank. Upgrade of well-fields determined to be cost prohibitive, but city will maintain water rights.	Included in 2019 strategies	Now included in 2019 Hazard Mitigation Strategies
<b>Sammamish River Bridge replacement</b>	Seismic retrofit of bridge.	N/A	Construction in 2019
<b>Widen newly annexed SR 522 segment</b>	Provide for continuous business access and transit lane in both directions, sidewalk on the north side of highway and other related street improvements.	N/A	Construction in 2019
<b>Horse Creek Pipeline upgrade</b>	Provide for a hybrid open channel/pipe system upgrade.	N/A	Completed
<b>Consolidation of Critical Facilities</b>		N/A	Remove
<b>Maintain compliance with National Flood Insurance Program</b>	Meet the minimum requirements of the NFIP by: enforcing the adopted flood damage prevention ordinance; participating in the floodplain identification and mapping updates; and providing public assistance and information on floodplain requirement and impacts.	N/A	Remove as this is ongoing an in currently plans.
<b>Repetitive Loss Mitigation</b>	Where appropriate, support retrofitting, purchase, or relocation of structures located in hazard-prone areas.	N/A	Specific projects addressed in 2019 Hazard Mitigation Strategies.

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STRATEGY	DESCRIPTION	PRIORITY	STATUS
<b>Plan Integration</b>	Integrate the hazard mitigation plan into other plans, ordinances, or programs to dictate land uses within the jurisdiction.	N/A	Plans are already integrated with this annex.
<b>Support County-Wide Initiatives</b>	Continue to support county-wide initiatives identified in this plan.	N/A	Initiatives integrated into this annex.
<b>Plan Maintenance Support</b>	Actively participate in the plan maintenance strategies as identified in this plan.	N/A	Remove, this is already part of the plan.
<b>Standby Power at City Hall</b>	Provide for standby power generator sufficient to operate City Hall in the event of a loss of electrical power.	Included in 2019 strategies	Now included in 2019 Hazard Mitigation Strategies
<b>Maintain Emergency Response Supplies</b>	Maintain personnel supplies, consumables, and equipment to support 150 responders for seven days of emergency response activities.	N/A	Remove, this has been addressed in budgets.
<b>Generator Power at Bothell Operations Center</b>	Provide for standby power generator sufficient to operate the Bothell Operations Center in the event of a loss of electrical power.	Included in 2019 strategies	Now included in 2019 Hazard Mitigation Strategies
<b>Ensure Operational Readiness of the ECC</b>	Continue to ensure the operational readiness of the ECC to include technology updates.	N/A	Remove, this has been addressed in budget.
<b>Establish a backup ECC</b>	Establish a backup ECC at the Bothell Operations Center.	Included in 2019 strategies	Now included in 2019 Hazard Mitigation Strategies
<b>Replacement of Aging Fire Stations</b>	Replacement of three aging fire stations with new facilities that meet modern requirements.	N/A	Remove. A bond has been passed to fund this project.
<b>Eliminate flood hazard in northbound right lane of 120<sup>th</sup> Ave NE</b>	Project will separate right-of-way flows from Parr Creek and elevate the roadway along with stabilization measure to prevent future roadway flooding and settlement.	Included in 2019 strategies	Now included in 2019 Hazard Mitigation Strategies
<b>Eliminate flood hazard along 35<sup>th</sup> Ave SE between 228<sup>th</sup> and 240<sup>th</sup></b>	Project will increase pipe sizes as necessary for capacity along 35 <sup>th</sup> Ave and 24 <sup>th</sup> Ave and will restore Cole/Woods Creek to its natural channel to prevent splitting flows down 35 <sup>th</sup> Ave SE.	Included in 2019 strategies	Now included in 2019 Hazard Mitigation Strategies

## 2020 Hazard Mitigation Strategies

STRATEGY	LEAD AGENCY/POC	TIMELINE	PRIORITY
<b>Backup Power for Critical City Facilities</b>	Public Works/Fleet & Facilities Mgr & Water/Sewer Manager	Two project currently have applications under HMGP.	High
<b>Ensure Community Resilience</b>	Emergency Preparedness	Currently looking to hire part-time position for CERT and Ham.	High
<b>Enhanced Cyber Security</b>	Information Services/IS Systems Supervisor	Seeking funding options.	High
<b>Seismically Resilient Water System</b>	Public Works/Utilities & Development Services Mgr	Looking to put into next budget biennium.	Moderate
<b>Reduce Roadway Hazards</b>	Public Works/Capital Division Mgr	Many projects listed in our Capital Facilities Plan. 10 year goal for completion.	Moderate
<b>Road Improvements to Reduce Emergency Response Times</b>	Public Works/Capital Division Mgr	Some projects listed in Capital Facilities Plan. Seeking additional funding sources.	Low



## Hazard Mitigation Strategy

Hazard Mitigation Strategy 1 –Backup Power for Critical City Facilities			
<b>Lead POC</b> Public Works Fleet & Facilities Manager; Water/Sewer Manager	<b>Partner Points of Contact</b>	<b>Hazards Mitigated / Goals Addressed</b> <ul style="list-style-type: none"><li>• All Hazards</li><li>• Goals:<ul style="list-style-type: none"><li>○ Health/Human Services</li><li>○ Community/Public Safety</li><li>○ Economic Development</li><li>○ Government Practices</li></ul></li></ul>	<b>Funding Sources / Estimated Costs</b> \$ 4,000,000 <ul style="list-style-type: none"><li>• General Fund</li><li>• Utility Funds</li><li>• Grants</li></ul>
<b>Strategy Vision/Objective</b> A community that can continue government continuity and operations in the event of an electrical power interruption.			
<b>Mitigation Strategy</b> Ensure back up power for critical city facilities.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>• Identify the needs of each facility and order necessary electrical studies to ensure for proper sizing of equipment and associated needs.</li><li>• Explore funding options to include grants.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>• Continue to explore alternate ways to power critical facilities in the event of an electrical power loss.</li></ul>		<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>• City facilities have backup power supplies.</li></ul>
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>• Provide for generator power to sufficiently operate the Bothell Operations Center and backup Emergency Coordination Center.</li><li>• Provide for generator power to be able to continue critical government functions at City Hall.</li><li>• Maywood Pump Station backup power to ensure continuity of water flow for fire flow.</li><li>• Holly Hills Pump Station backup power to ensure water fire flow.</li><li>• UPS for primary transportation signalized intersections to ensure traffic flow and emergency vehicles and egress.</li></ul>			
<b>Performance Measures</b> <ul style="list-style-type: none"><li>• Bothell Operations Center will have a backup power supply and will be able to function as a backup Emergency Coordination Center and Departmental Operations Center.</li><li>• City Hall will have backup power needed to continue critical continuity of government operations.</li><li>• Uninterrupted fire flow.</li><li>• Reduce traffic congestion to allow emergency response and egress.</li></ul>			



## Hazard Mitigation Strategy 2 – Ensure Community Resiliency

<b>Lead POC</b>  Emergency Manager	<b>Partner Points of Contact</b>	<b>Hazards Mitigated / Goals Addressed</b> <ul style="list-style-type: none"><li>• All Hazards</li><li>• Goals:<ul style="list-style-type: none"><li>○ Health/Human Services</li><li>○ Community/Public Safety</li><li>○ Economic Development</li><li>○ Government Practices</li><li>○ Quality Education</li><li>○ Strong, Vibrant Neighborhoods</li></ul></li></ul>	<b>Funding Sources / Estimated Costs</b>  \$ 5,000 <ul style="list-style-type: none"><li>• General Fund</li><li>• Grants</li><li>• Citizen Corps</li></ul>
<b>Strategy Vision/Objective</b> A community that understands and prepares for the various hazards associated with living in the Pacific Northwest and Bothell, as well as the limitations of government response capabilities and how individuals can support and help one another.			
<b>Mitigation Strategy</b> Provide emergency management training and preparation assistance to the Bothell community both directly and through local private and public partnerships.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>• CERT train 20 community members</li><li>• Engage with 30 businesses</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>• Conduct two joint Ham CERT exercises.</li></ul>		<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>• A prepared, resilient community.</li></ul>
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>• Continue to conduct at least one Community Emergency Response Team (CERT) trainings each year.</li><li>• Create a Citizen Corps program to retain CERT trained volunteers.</li><li>• Develop a sustainable Ham radio program.</li><li>• Train 10 of Ham radio operators to include 2 city staff members.</li><li>• Meet with neighborhood groups to promote emergency preparedness.</li></ul>			
<b>Performance Measures</b> <ul style="list-style-type: none"><li>• Annually increase the number of individuals trained in emergency management preparedness and response.</li></ul>			

### Hazard Mitigation Strategy 3 – Enhanced Cyber Security

<b>Lead POC</b>  IS Systems Supervisor	<b>Partner Points of Contact</b>	<b>Hazards Mitigated / Goals Addressed</b> <ul style="list-style-type: none"> <li>• Cybersecurity</li> <li>• Terrorism</li> <li>• Goals: <ul style="list-style-type: none"> <li>○ Health/Human Services</li> <li>○ Community/Public Safety</li> <li>○ Economic Development</li> <li>○ Government Practices</li> </ul> </li> </ul>	<b>Funding Sources / Estimated Costs</b>  \$ 40,000 <ul style="list-style-type: none"> <li>• General Fund</li> <li>• Grants</li> </ul>
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#### Strategy Vision/Objective

Improve protection of the City’s network and infrastructure against virus or brute force attacks through improved security technologies.

#### Mitigation Strategy

Implement monitoring and filtering program comprised of robust application, network and access monitoring systems and provide Information Services staff with sufficient training to fully utilize the technologies.

#### 2-Year Objectives

- Supplemental email filtering systems in place with staff fully trained and resources assigned

#### 5-Year Objectives

- Network and access monitoring systems in place with staff fully trained and resources assigned

#### Long-Term Objectives

- Protection of the City’s network and infrastructure against cyber incidents.

#### Implementation Plan/Actions

- Work with vendors and resellers to identify systems best suited to Bothell’s size and resources.
- Work with vendors to ensure appropriate and in depth training resources are available for staff.
- Work with vendors to ensure sufficient ongoing support and maintenance contracts.
- Demos
- Purchase and contract process
- Testing and implementation of email filtering system
- Testing and implementation of network and access monitoring systems

#### Performance Measures

- Solution will be the protection of the City’s network and infrastructure against cyber incidents.

## Hazard Mitigation Strategy 4 – Seismically Resilient Water System

<b>Lead POC</b> Utilities and Development Services Manager	<b>Partner Points of Contact</b> <ul style="list-style-type: none"> <li>Alderwood Water and Wastewater District</li> </ul>	<b>Hazards Mitigated / Goals Addressed</b> <ul style="list-style-type: none"> <li>Earthquake</li> <li>Goals: <ul style="list-style-type: none"> <li>Health/Human Services</li> <li>Community/Public Safety</li> </ul> </li> </ul>	<b>Funding Sources / Estimated Costs</b> <p style="text-align: center;">\$ 200,000</p> <ul style="list-style-type: none"> <li>Utility Fund</li> <li>Grants</li> </ul>
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**Strategy Vision/Objective**  
The water supply system owned by the city is seismically resilient.

**Mitigation Strategy**  
Ensure that the City maintains a potable water supply and adequate fire flow in the event of an earthquake.

<b>2-Year Objectives</b> <ul style="list-style-type: none"> <li>Begin conversations with Alderwood Water and Wastewater District.</li> <li>Explore options for a pump for city wells.</li> <li>Explore alternative funding options.</li> </ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"> <li>Enter into agreements/contracts to fix problem.</li> <li>Begin construction to make improvements.</li> </ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"> <li>Water supply is more resilient throughout the city.</li> </ul>
--	--	---

**Implementation Plan/Actions**

- Ensure Penn Park Wells (#1 and #2) have water pumps for firefighting and non-potable needs.
- Intertie with Alderwood Water and Wastewater District to provide emergency and improved fire flow.
- Install seismic valves on Maywood and Bloomberg reservoir tanks.
- Construct additional water main looping at Norway Hill.

**Performance Measures**

- Water supply is more resilient throughout the city.

## Hazard Mitigation Strategy 5 – Reduce Roadway Hazards

<b>Lead POC</b> Capital Division Manager	<b>Partner Points of Contact</b> <ul style="list-style-type: none"><li>Local/State/Federal funding agencies</li><li>Local/State/Federal permitting agencies</li></ul>	<b>Hazards Mitigated / Goals Addressed</b> <ul style="list-style-type: none"><li>Flood</li><li>Goals:<ul style="list-style-type: none"><li>Safe/Efficient Transportation</li><li>Community/Public Safety</li><li>Economic Development</li></ul></li></ul>	<b>Funding Sources / Estimated Costs</b>  \$ 12,200,000 <ul style="list-style-type: none"><li>General Fund</li><li>Capital Funds</li><li>Stormwater Funds</li><li>Grants</li></ul>
<b>Strategy Vision/Objective</b> Reduce or eliminate roadway hazards due to flooding and/or landslide in Bothell.			
<b>Mitigation Strategy</b> Floodwater/drainage areas in the city is a chronic issue during the wet winter months on several roadways resulting in lane closures in heavily trafficked areas. During heavy rain and flooding events road may become inaccessible due to water inundation. Erosion and land movement associated with rains and slopes also impact priority roadways. The lack of accessibility impacts traffic control and the safety and quality of life of the people that live, work or need access to these areas.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Identify all affected roadways.</li><li>Complete pre-designs.</li><li>Include in the CFP.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Begin construction to reduce hazards.</li><li>Seek funding for additional projects.</li></ul>		<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Eliminate the risk of road closures due to heavy rainfall, flooding, and landslide in Bothell.</li></ul>
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>Eliminate flood hazard in northbound right lane of 120<sup>th</sup> Avenue NE</li><li>Eliminate flood hazard along 35<sup>th</sup> Avenue SE between 228<sup>th</sup> and 240<sup>th</sup></li><li>Eliminate flood hazard along 240<sup>th</sup> St SE between Fitzgerald Road and 35<sup>th</sup> Ave SE</li><li>Eliminate landslide hazard along Bothell Everett Highway between 242<sup>nd</sup> St SE and 240<sup>th</sup> St SE</li></ul>			
<b>Performance Measures</b> <ul style="list-style-type: none"><li>Successfully identify options to reduce hazards from chronic flooding and landslide issues on select roadways that are resilient to climate change and will prevent road closures.</li></ul>			

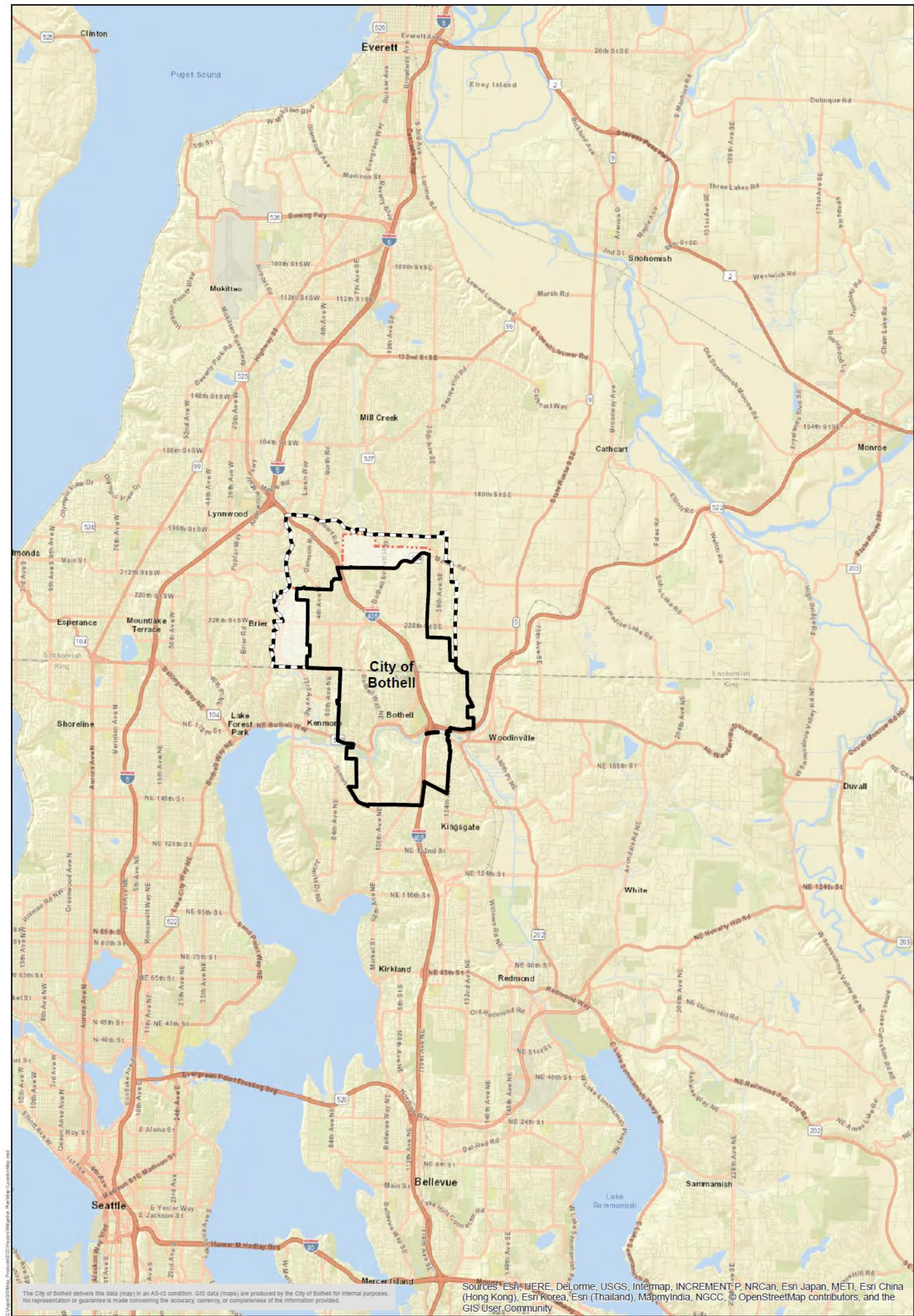
## Hazard Mitigation Strategy 6 – Road Improvements to Reduce Emergency Response Times

<b>Lead POC</b> Capital Division Manager	<b>Partner Points of Contact</b> <ul style="list-style-type: none"><li>Local/State/Federal funding agencies</li><li>Local/State/Federal permitting agencies</li></ul>	<b>Hazards Mitigated / Goals Addressed</b> <ul style="list-style-type: none"><li>All Hazards</li><li>Goals:<ul style="list-style-type: none"><li>Community/Public Safety</li><li>Safe/Efficient Transportation</li><li>Economic Development</li></ul></li></ul>	<b>Funding Sources / Estimated Costs</b>  \$ 64,900,000 <ul style="list-style-type: none"><li>General Fund</li><li>Capital Funds</li><li>Grants</li></ul>
<b>Strategy Vision/Objective</b> Reduce emergency vehicle response times on major life/safety priority transportation corridors.			
<b>Mitigation Strategy</b> Complete roadway improvement to alleviate congestion thereby allowing for reduced emergency response times.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Begin design</li><li>Explore funding options.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Complete design process.</li></ul>		<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Construct all improvements and reduce emergency response times.</li></ul>
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>Widen Beardslee Boulevard from UW-Bothell Campus to I-405.</li><li>Construct a roundabout at the intersection of Meridian Ave S and 240<sup>th</sup> St SE</li><li>Widen Bothell Way NE/Bothell Everett Highway from Reder Way to 240<sup>th</sup> St SE</li></ul>			
<b>Performance Measures</b> <ul style="list-style-type: none"><li>Solution enhances public safety transportation lifelines.</li></ul>			



Attachments

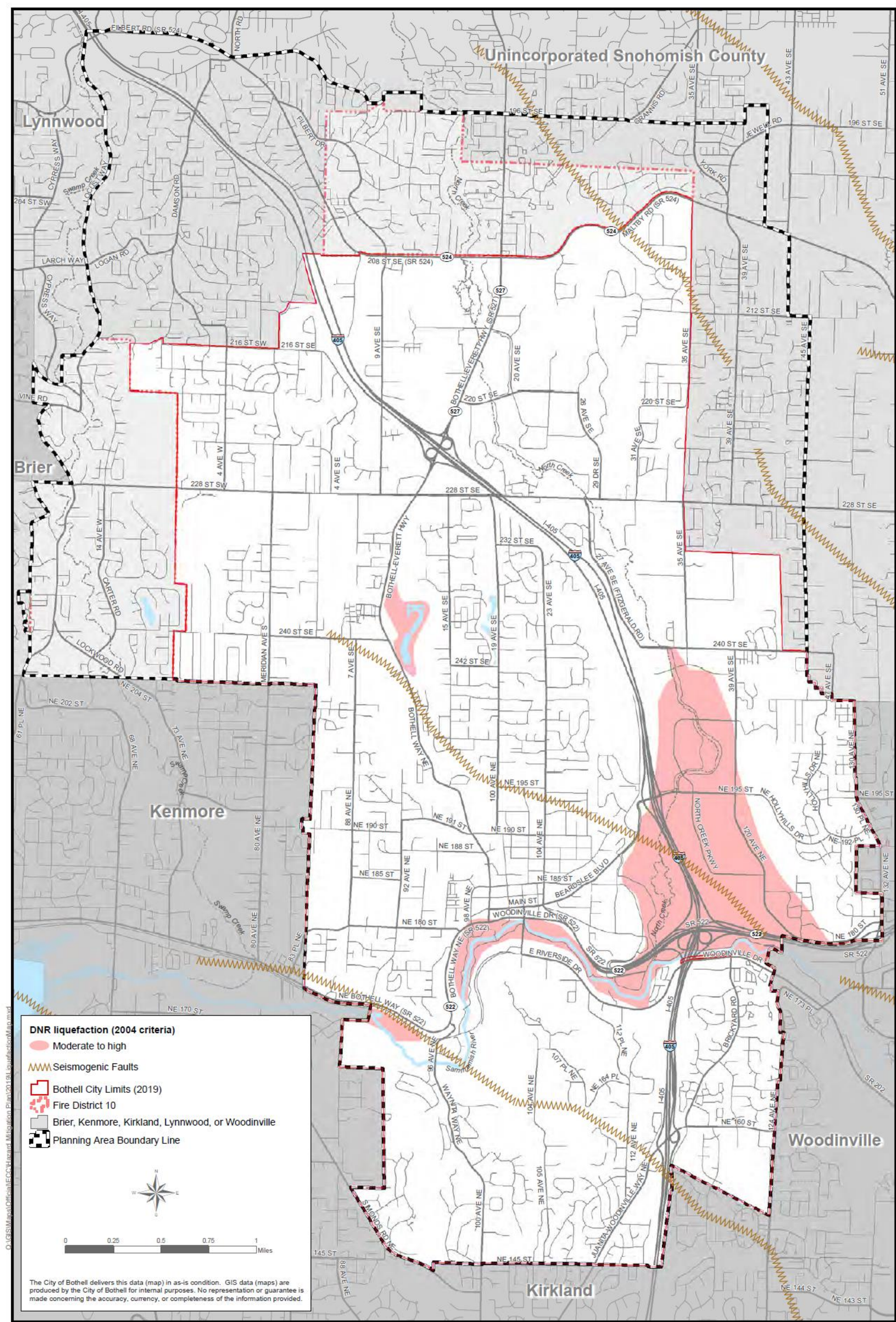
Attachment 1: Regional Street Map



Hazard Mitigation Plan  
Bothell Regional Street Map



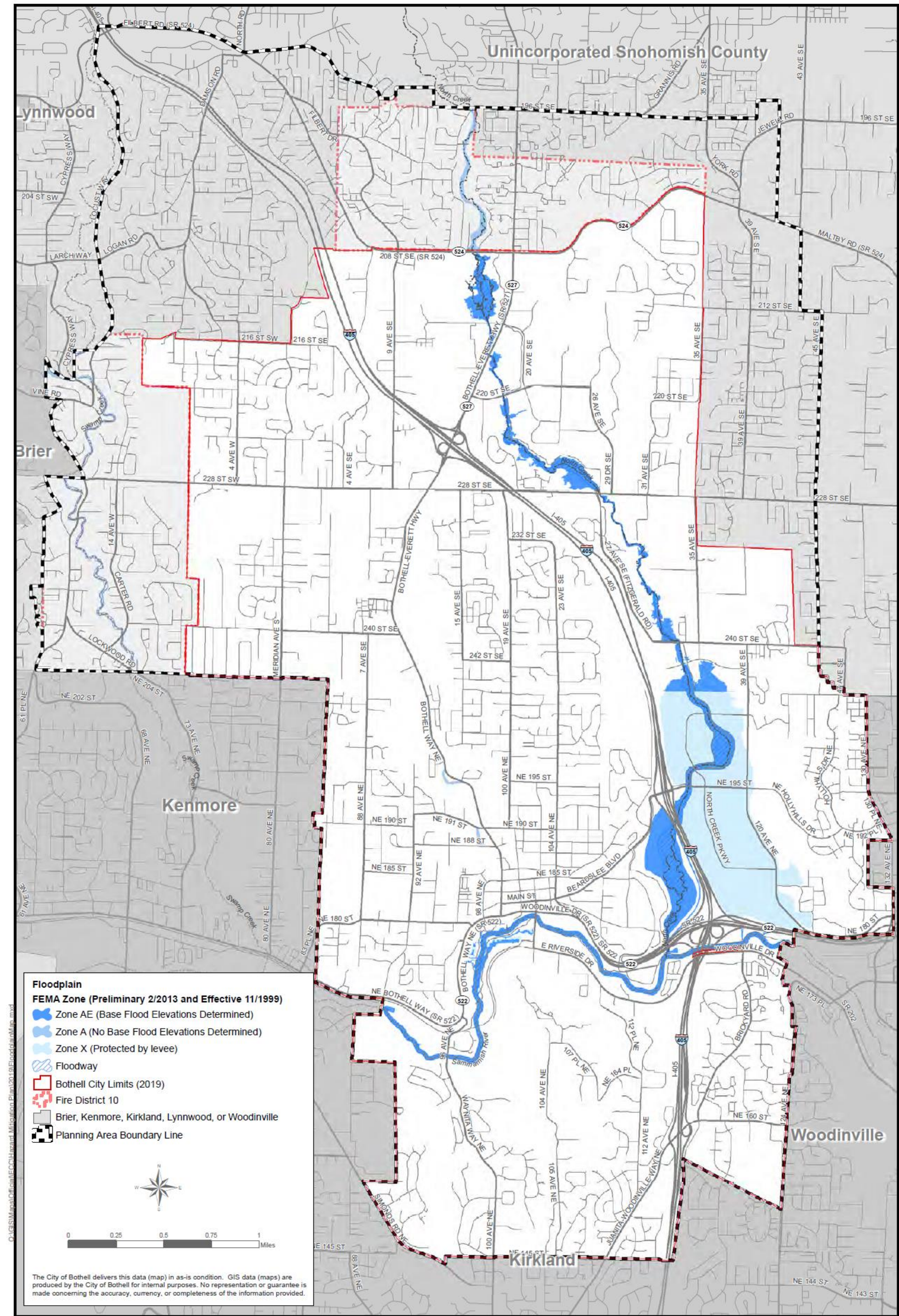
Attachment 2: Liquefaction Map



Hazard Mitigation Plan  
Seismic Liquefaction



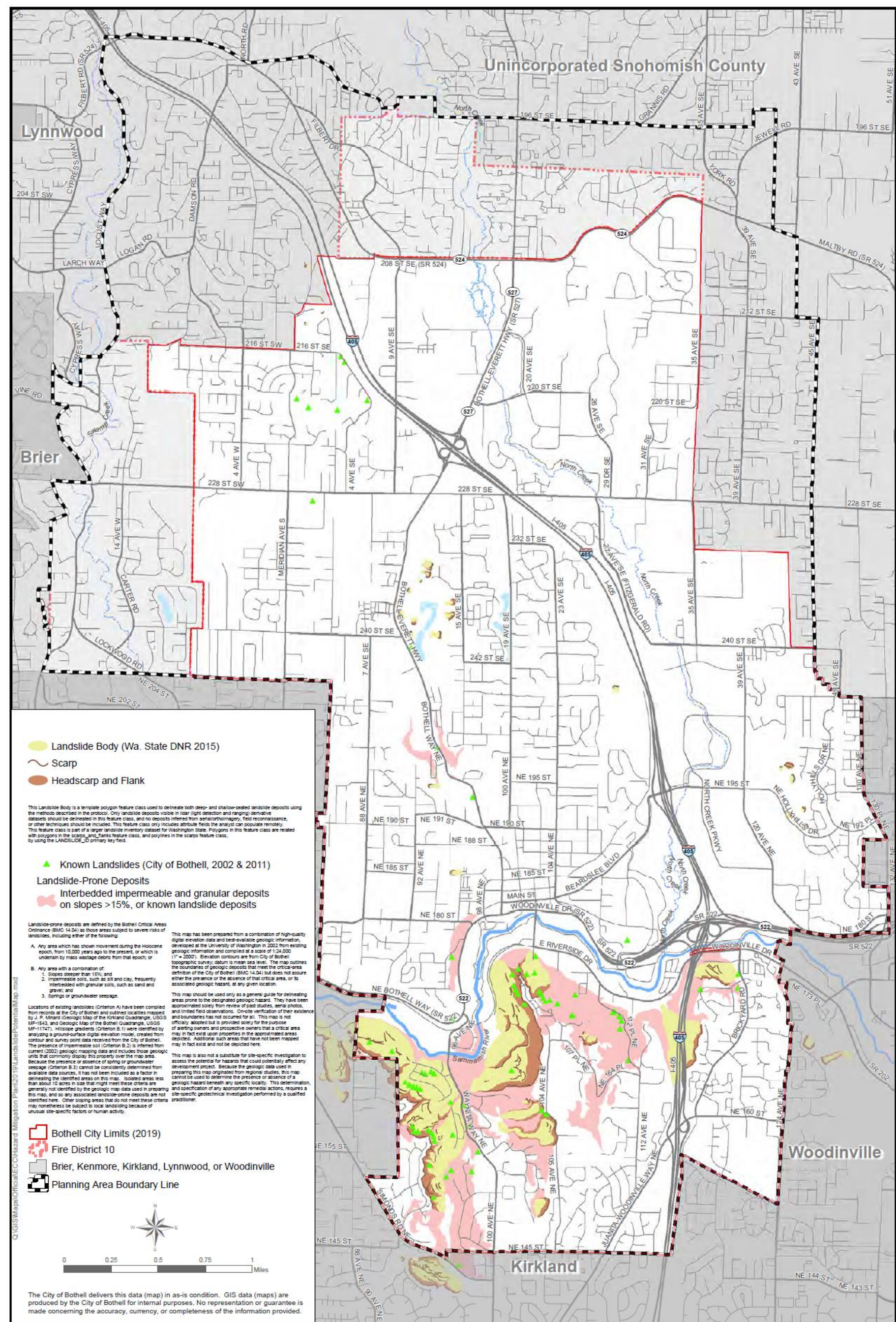




Hazard Mitigation Plan  
Floodplain





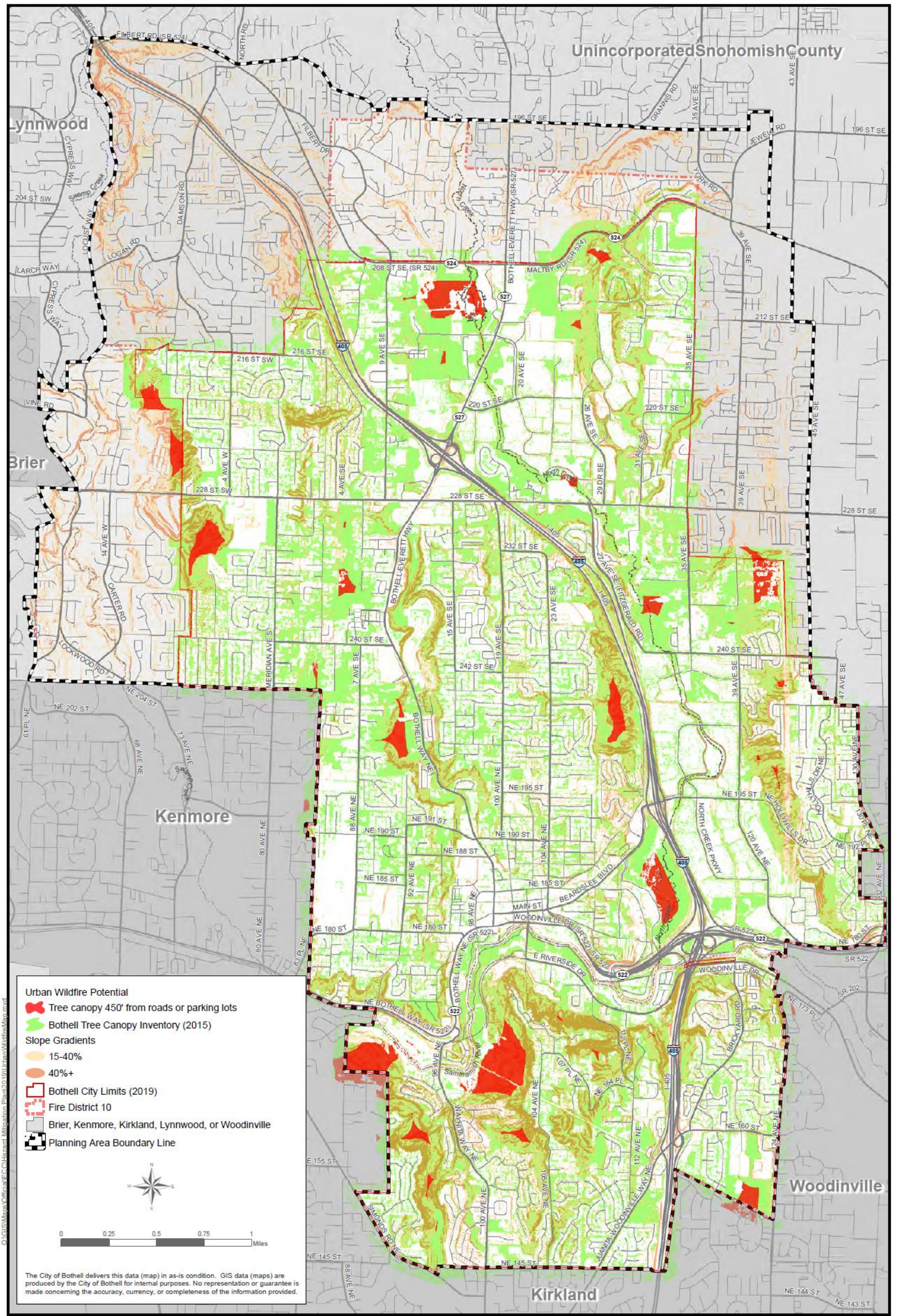


Hazard Mitigation Plan  
Landslide Potential





Attachment 5: Urban Wildfire Map





2020-2025

# King County Regional Hazard Mitigation Plan



Letters of Transmission to the King County Council  
**TBD**

Plan Adoption Ordinance  
**TBD**

Plan Approval Letter

**TBD**

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# Executive Summary

The King County Hazard Regional Hazard Mitigation Plan promotes programs and projects that partner with communities to build a foundation of resilience before, during, and after disasters. Hazard mitigation is the mission area of emergency management that argues *life safety is not good enough*. Disasters are not foregone conclusions. Incidents will always occur, but their impact is within our ability to change if we target investments in areas that will reinforce those areas most critical to our community, thereby making us all more resilient.

For the 2020 Plan, we identify investments and opportunities to strengthen 14 determinants<sup>1</sup> of equity and social justice, areas the whole community has identified as necessary for residents to live healthy, happy, productive, meaningful lives.

1. Access to Affordable, Healthy Food
2. Access to Health and Human Services
3. Access to Parks and Natural Resources
4. Access to Safe and Efficient Transportation
5. Affordable, Safe, Quality Housing
6. Community and Public Safety
7. Early Childhood Development
8. Economic Development
9. Equitable Law and Justice System
10. Equity in Government Practices
11. Family Wage Jobs and Job Training
12. Healthy Built and Natural Environments
13. Quality Education
14. Strong, Vibrant Neighborhoods

We can strengthen and support each of these areas through investments in better land use practices, stronger infrastructure, healthy habitats and systems, improved accessibility, and individual and family resilience. The hazard mitigation strategies contained in this plan will each be reported on biannually to help provide updates on areas where investments would be most critical.

In addition to hazard mitigation strategies, this plan includes risk profiles designed to provide an overview of the key priorities, vulnerabilities, and potential impacts of natural and human-caused hazards. We examine risk in terms of property, the economy, natural systems, infrastructure systems, government operations, and populations, with a focus on populations more likely to suffer losses or long recovery times from a disaster.

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<sup>1</sup> King County Office of Equity and Social Justice. 2016. Equity and Social Justice Strategic Plan. Accessed online on 11/13/19 from <https://kingcounty.gov/elected/executive/equity-social-justice/strategic-plan.aspx>.

Finally, this plan lays out a process to identify and prioritize hazard mitigation projects over the long term and to increase investment in communities that are more vulnerable to disasters. We do this by taking a holistic approach to prioritization.

This plan was developed through the partnership of many county staff and local jurisdictions. The work is a result of their commitment and input throughout the planning process.

# Introduction

The King County Regional Hazard Mitigation Plan promotes programs and projects that partner with communities to build a foundation of resilience before, during, and after disasters. This plan update reassesses risks and vulnerabilities to eight natural and seven human-caused hazards and develops strategies to reduce risk from those hazards. In addition to a base plan covering King County as a whole, each participating jurisdiction developed an annex that independently meets most FEMA planning requirements. Each annex, plus this base plan, meets the planning requirements outlined in *44 CFR 201.6*. In addition to King County, over 60 cities and special purpose districts developed plan annexes.

## Mitigation Plan Priorities:

King County Regional Hazard Mitigation Plan Steering Committee (Steering Committee) set the following priorities for the 2018 plan update process.

Break down planning silos and establish new partnerships	Collaborate with jurisdictions to build integrated hazard mitigation strategies, including around risk management, floodplain management, comprehensive planning, equity and social justice, and climate change.
Provide more education and training to partners to prepare for FEMA DRRRA grants in 2020	In preparation for a tripling of federal grants for natural hazard mitigation through the Disaster Recovery Reform Act, beginning in 2020, work with planning partners and county agencies to identify projects and project champions. Build capacity among planning partners to identify vulnerability, craft a mitigation strategy, communicate project benefits, and successfully pursue hazard mitigation grant funding.
Conduct a robust public outreach process involving all planning partners.	Implement a proactive outreach strategy focused hazard mitigation success stories and hands-on demonstrations of effective mitigation projects, working with the media to follow-up on stories highlighting Washington's need for more hazard preparedness and resilience.
Develop quality hazard mitigation strategies and a method to prioritize and track them.	Work with planning partners to craft comprehensive hazard mitigation strategies that are measurable, actionable, trackable, and identify specific funding sources. Prioritize strategies in accordance with opportunity to reduce risk and further county priorities.
Integrate equity and social justice into our understanding of risk and vulnerability.	Work with King County departments to identify an appropriate way to address population vulnerability. Include this information in the plan in a way that is operationally meaningful and can support mitigation strategies that will reduce risk to these populations.



Integrate mitigation planning and climate preparedness

Fully integrate with the update process for the Strategic Climate Action Plan. Integration includes participation in workgroups and shared strategies that increase climate and hazard resilience.

## Timeline

February-May 2019:  
Begin planning process

Meet with each of the 60+ jurisdictions participating in this plan update. Convene the steering committee. Draft plan format and begin GIS analysis. Begin outreach strategy. Develop first drafts of the risk assessment.

June-September: Conduct public outreach

Work with partners on community outreach; conduct media outreach; conduct mitigation strategy development workshops with planning partners.

October-December

Review the plan and submit to FEMA.

January-April, 2020

Complete revisions and adopt the plan prior to expiration on April 30, 2020.

## Revisions from 2015 Edition

The 2020 plan was fully rewritten and reformatted to reflect updated priorities and a greater emphasis on hazard mitigation strategies. The most substantive change is to those strategies, which are formatted in an action-plan style, consistent with the Washington State Enhanced Hazard Mitigation Plan. With the change to mitigation strategies, the method of reporting has also been updated.

The risk assessments in this edition have been shortened and refocused to better support the intended audience - emergency managers who are called upon to plan for and respond to these hazards. The information is largely taken from the 2016 Hazard Inventory and Risk Assessment and the 2018 FEMA RiskMAP Risk Report.

The capabilities assessment in this edition has been modified to focus on the relationship between programs, plans, and policies that could support mitigation and the hazard mitigation plan and program. This change will help the plan better reflect how each capability supports mitigation instead of just listing potential capabilities. A similar process was used to document potential sources of funding.

This plan is written to meet or exceed the relevant elements of the Emergency Management Standard (ANSI standard) by the Emergency Management Accreditation Program (EMAP).

The number of participating jurisdictions increased from the 2015 update. In 2015, 53 jurisdictions participated in the plan. For this update, over 60 jurisdictions participated in the planning process and at least 50 are expected to submit complete annexes for FEMA approval.

## Regional Hazard Mitigation Plan Chapters

The base plan satisfies all requirements for King County plus many of the planning requirements for local planning partners. The plan is organized as follows.

**Planning Process:** The planning process section corresponds roughly to Element A in the FEMA Mitigation Plan Review Guide and includes information on the planning process, including public outreach, meetings, and the planning timeline.

**Capabilities Assessment and King County Hazard Mitigation Program:** The capabilities chapter meets requirements associated with coordinating the hazard mitigation program with other entities as well as information on available funding.

**Risk Assessment:** The risk assessment chapters include profiles of each profiled natural and human-caused hazard. These profiles are brief and are designed to provide an overview to emergency managers and other users of this plan. This section meets the requirements of Element B in the FEMA Mitigation Plan Review Guide.

**Hazard Mitigation Strategies:** Hazard mitigation strategies are the key deliverable of this plan and include information on how strategies are identified, developed, and prioritized. This section meets most of the requirements in Element C of the FEMA Mitigation Plan Review Guide.

# Hazard Mitigation Planning Process

King County's 2019 Regional Hazard Mitigation Plan (RHMP) was developed with input of a multi-agency, multi-jurisdictional steering committee. The Steering Committee supervised the writing of the plan and was consulted for final decisions made by the King County Emergency Management Planning Team. The process was led by King County Emergency Management, which facilitated both the internal county process and supported individual city planning efforts. Individual departments developed their own strategies internally and then socialized the strategies with the other county participants.

## *Steering Committee Members*

Name	Email	Organization	Focus Area
Lara Whitely-Binder	<a href="mailto:lwbinders@kingcounty.gov">lwbinders@kingcounty.gov</a>	King County Department of Natural Resources and Parks	Climate Preparedness Specialist
Mitch Paine	<a href="mailto:mpaine@kingcounty.gov">mpaine@kingcounty.gov</a>	King County Department of Natural Resources and Parks	Floodplain Management Program Manager
Cecelia Hayes	<a href="mailto:Cecelia.Hayes@kingcounty.gov">Cecelia.Hayes@kingcounty.gov</a>	King County Department of Executive Services	Equity and Social Justice Program Manager
Karen Wolf	<a href="mailto:karen.wolf@kingcounty.gov">karen.wolf@kingcounty.gov</a>	King County Executive Office	Comprehensive/Land Use Planning Policy Analyst
Cynthia Hernandez	<a href="mailto:cynthia.hernandez@kingcounty.gov">cynthia.hernandez@kingcounty.gov</a>	King County Department of Natural Resources and Parks	Emergency Management Program Manager
Sean Catanese	<a href="mailto:sean.catanese@kingcounty.gov">sean.catanese@kingcounty.gov</a>	King County Risk Management	Risk Management
Andrew Stevens	<a href="mailto:astevens@sammamish.us">astevens@sammamish.us</a>	City of Sammamish	Emergency Manager
Ellen Montanana	<a href="mailto:emontanana@bellevuewa.gov">emontanana@bellevuewa.gov</a>	City of Bellevue	Emergency Manager
Jennifer Franklin	<a href="mailto:jennifer.franklin@mercergov.org">jennifer.franklin@mercergov.org</a>	City of Mercer Island	Emergency Manager

Janet Sailer	<a href="mailto:janet.sailer@spwsd.org">janet.sailer@spwsd.org</a>	Sammamish Plateau Water District	Emergency Manager
Steve Moyer	<a href="mailto:smoyer@ccud.org">smoyer@ccud.org</a>	Coal Creek Utility District	Manager
Janice Rahman	<a href="mailto:janice.rahman@kingcounty.gov">janice.rahman@kingcounty.gov</a>	King County Emergency Management	Recovery Program Manager
Mike Ryan	<a href="mailto:mryan@bellevuewa.gov">mryan@bellevuewa.gov</a>	King County Emergency Management	N/E Zone Coordinator
Sarah Miller	<a href="mailto:sarah.miller@kingcounty.gov">sarah.miller@kingcounty.gov</a>	King County Emergency Management	S Zone Coordinator
Jeffrey Linn	<a href="mailto:jlinn@kingcounty.gov">jlinn@kingcounty.gov</a>	King County GIS	GIS
Derrick Hiebert	<a href="mailto:dhiebert@kingcounty.gov">dhiebert@kingcounty.gov</a>	King County Emergency Management	Planning Process Facilitator, Plan Author

The team met monthly to review progress and make key decisions about the direction of the planning effort. These meetings were hosted by King County Emergency Management.

#### *Steering Committee Meeting Topics*

Month	Topic
February 2019	Outline proposed planning process and timeline and approve plan and plan annex templates.
March	Identify public outreach sites and strategy
April	Integrating equity and social justice into the mitigation plan.
May	Integrating equity and social justice into the mitigation plan.
June	Establish plan goals, priorities, and strategy prioritization method
July	Workshop 2 – hazard mitigation strategies.
August	Review capabilities assessment
September	Review risk assessment

October	Long-term mitigation plan monitoring and implementation strategy
November	Review draft base plan and King County hazard mitigation strategies
January 2020	Planning after action review
March 2020	Final plan adoption celebration

In addition to the multi-jurisdictional steering committee, the King County Emergency Management Coordinating Committee (EMCC) contributed to the plan update as the steering committee for the King County-specific hazard mitigation strategies. This committee consists of every King County department as well as representatives from the King County Executive's Office and the King County Council. A list of all EMCC members is available in the Capabilities chapter. The EMCC meets monthly.

Individual jurisdiction annexes were developed in partnership with King County, but with separate internal steering committees. The members of each jurisdiction's steering committee are documented in each annex.

### Mitigation Planning Partner Engagement

The King County portion of this plan focuses on unincorporated areas of the county. These areas border, or are served by, cities, tribes, and special purpose districts, all of whom were invited to participate in this plan update. For the purpose of interjurisdictional coordination, King County defined 'neighboring jurisdictions' as these partners since they are the entities most critical to effective implementation of multi-jurisdictional mitigation projects and since many city residents receive county services and visa-versa. In addition to coordination with these jurisdictions, King County maintains a high level of engagement with neighboring counties, especially Pierce and Snohomish. The planning team invited counterparts in Pierce and Snohomish to attend each of the planning workshops described below. There are also multiple other concurrent planning efforts involving these counties, including the Close Coordinated Terrorist Attack (CCTA) program and the Regional Catastrophic Planning (RCPG) effort.

The planning process kicked off in November 2018 with a meeting and workshop to which all planning partners were invited. At this workshop, participants learned about the process, expectations, and were asked to provide commitment letters with billing rates to meet federal grant match requirements.

To support the more-than-60 planning partners, the planning team met individually or in small groups with each jurisdiction to discuss the planning process and go over the planning requirements. These meetings took place between February and May.

To supplement these meetings, King County hosted a webinar and two in-person planning workshops in June 2019 (June 3, 10, and 27). During these workshops, the planning team presented updated information on public outreach, plan integration, risk assessments, and strategy prioritization.

In addition to planning assistance workshops, King County partnered with FEMA RiskMAP and Washington State to offer three workshops on the identification of threats and hazards, the development of mitigation strategies, and the process to successfully fund those strategies. The workshops were held

on December 13, 2018, July 25, 2019, and August 22, 2019. Approximately 70 attendees were recorded at each. Invitees included representatives from all King County departments, all cities, most special purpose districts, and other agencies and organizations such as the Port of Seattle and the Northwest Healthcare Response Network.

Following the submission of the base plan in December 2019, King County will begin a second stage of outreach targeting those jurisdictions who missed the original submission deadline and those who were not previously involved. Among the second group, school districts will be proactively engaged and offered assistance in developing annexes to the hazard mitigation plan.

Sign-in sheets for all outreach events are available upon request.

### Jurisdiction Plan Annex Process

Jurisdictions may join the regional hazard mitigation plan at any time by submitting a letter of intent to King County Emergency Management and completing the planning process and plan template. Each plan can be unique, and jurisdictions may do more than what is required in the template; however, this template is designed to help walk communities through the planning process in an accessible way. Further details on how to conduct the process are available in the King County Regional Hazard Mitigation Plan. King County staff will provide technical assistance to planning partners, whenever possible.

### Review and Incorporation of Reports and Studies

In addition to the data sources outlined in the Risk Assessment section of this plan, the planning team leveraged a number of existing and ongoing planning processes and other documents. More information can be found in the Program Capabilities chapter of this plan.

- The Strategic Climate Action Plan (SCAP) is a plan designed to assess the impacts of climate change on King County and develop strategies to both reduce risk from climate impacts and reduce King County's contribution to climate change. The planning team for the RHMP included the lead for the SCAP and participated in the SCAP.
- The State Enhanced Hazard Mitigation Plan was used for data on hazards and for identifying capabilities. Another contribution from that plan is the hazard mitigation strategy format, which was copied and modified for use in the King County plan.
- The Equity and Social Justice Strategic Plan was integral to establishing the hazard mitigation plan goals and the process by which mitigation projects are prioritized.
- Puget Sound Regional Council's Vision 2050 lays out planning policies and guidelines for the King-Pierce-Kitsap-Snohomish county area and is undergoing an update in 2019 and 2020. The mitigation planning team reviewed and contributed to the planning process for Vision 2050.
- The King County Floodplain Management Plan is being updated and data from that planning effort is included in sections of this plan referring to the NFIP, flood risk, and flood mitigation strategies.
- The Washington, DC Hazard Mitigation Plan (draft) was a source for inspiration for the method of prioritizing mitigation strategies and conducting the risk assessment for vulnerable populations.

- The 2018-2019 FEMA RiskMAP Risk Report for King County was reviewed for data and mapping purposes as well as for information on historic disasters and potential mitigation strategies.
- The 2019 King County Dam Inventory from the Washington State Department of Ecology and guidance from the King County Dam Safety Program.
- The Clean Water and Health Habitat Initiative, uniting departments involved in health and environmental resilience, was convened by the King County Executive and includes the hazard mitigation program.
- The draft Regional Resiliency Assessment Program report for transportation for Western Washington.

## King County Plan Update Timeline

The following is a timeline of significant events and milestones for King County in the Regional Hazard Mitigation Plan Update.

### *Plan Update Timeline*

PLANNING ACTIVITY	DATE	SUMMARY	ATTENDEES
Plan Kickoff	11/28/18	Conducted a kickoff meeting for the planning process, including discussions of expectations and the project timeline.	Designated county, city, and special district staff who are leading local plan updates
Risk Assessment Workshop	12/13/18	First workshop with FEMA RiskMAP staff to socialize hazard data and develop problem statements.	Approximately 80 attendees including GIS staff, county departments, city emergency managers, and other program managers with interest in mitigation
Steering Committee Meeting Kickoff	2/19/19	Outline proposed planning process and timeline and approve plan and plan annex templates.	Steering committee
Outreach Strategy Meeting	2/22/19	Meet with staff to identify outreach strategy	OEM Director, Outreach Team, Coordination Team
Steering Committee Meeting	3/12/19	Identify public outreach sites and strategy	Steering committee
Steering Committee Meeting	4/30/19	Integrating equity and social justice into the mitigation plan.	Steering committee

EMCC Meeting	5/1/19	Discuss planning process, DRRRA funding, and mitigation strategies	County departments
Steering Committee Meeting	5/14/19	Integrating equity and social justice into the mitigation plan.	Steering committee
Mitigation Technical Webinar	6/3/19	Reviewed planning process and helped local partners on mitigation planning questions	local jurisdiction partners
EMCC Meeting	6/5/19	Mitigation strategy meeting discussions and identify points of contact in each agency	County departments
Mitigation Technical Workshop	6/10/19	Reviewed planning process and helped local partners on mitigation planning questions	local jurisdiction partners
Steering Committee Meeting	6/11/19	Establish plan goals, priorities, and strategy prioritization method	Steering committee
CSA Town Hall Outreach Event	6/18/19	Comments received included concerns about mitigation of solid waste facilities, whether or not earthquake insurance makes sense, and need for snow mitigation following February snowstorm.	Residents from central King County and the Issaquah/Hobart/Maple Valley areas. Approximately 100 attendees.
CSA Town Hall Outreach Event	6/25/19	Discussed concerns about impacts to Enumclaw area from a lahar/Mt. Rainier	Residents from southeast King County, predominately from Enumclaw and nearby unincorporated areas. Approximately 100 attendees.
Mitigation Technical Workshop	6/27/19	Reviewed planning process and helped local partners on mitigation planning questions	local jurisdiction partners
Mitigation Strategy Meetings	7/9/19	Met with internal planning partners (county departments) to develop mitigation strategies.	DES, FMD and KC International Airport
Mitigation Strategy Meetings	7/11/19	Met with internal planning partners (county departments) to develop mitigation strategies.	DNRP



Mitigation Strategy Meetings	7/11/19	Met with internal planning partners (county departments) to develop mitigation strategies.	Local Services (Roads)
Mitigation Strategy Meetings	7/15/19	Met with internal planning partners (county departments) to develop mitigation strategies.	Local Services (Permitting)
Hazard Mitigation Workshop	7/25/19	Worked through the entire strategy development process from risk identification to mitigation projects.	County and local partners, approximately 75 attendees
Steering Committee Meeting	8/20/19	Review mitigation capabilities	Steering committee
Mitigation Funding Workshop	8/22/19	Worked through process of developing a successful hazard mitigation grant application	County and local partners. Approximately 60 attendees.
Clean Water Healthy Habitat Initiative Workshop	9/4/19	Participated in a process to coordinate mitigation planning efforts with other environmental quality, climate change, and hazard reduction programs in the county.	60-100 attendees from multiple county departments, especially DNRP.
Steering Committee Meeting	9/16/19	Review risk and vulnerability assessments	Steering committee
CSA Town Hall Outreach Event	9/10/19	Residents looked at the hazard information and discussed strategies for protecting their community from an earthquake. A major concern is the likelihood that the area will be isolated by an earthquake due to liquefaction.	Dozens of residents from the areas of White Center, Highline, Skyway, and Burien.
Critical Transportation Workgroup	9/17/19	Discussed the establishment and mitigation of lifeline transportation routes for a post-Cascadia scenario.	County departments, local jurisdictions, and state agencies participated in the workshop.
Steering Committee Meeting	10/8/19	Review base plan and King County mitigation strategies	Steering committee
CSA Town Hall Outreach Event	10/17/19	Discussed flooding in the Snoqualmie-Carnation-Duvall areas.	Residents from the northeastern portion of the county, especially in

			Snoqualmie, Carnation, and Duvall
County Departments Strategy Coordination	11/14/19	Meet with King County departments to go over all the mitigation strategies, eliminate gaps, and ensure consistent priorities.	County departments, including OEM, FMD, DNRP, PHSKC, KCIT, DES.
Steering Committee Meeting	11/12/19	Review draft base plan	Steering committee
Submit to WA EMD and FEMA	12/15/19	Submit full mitigation plan to FEMA for review	Planning Team

### Support for Community Rating System (CRS) Communities

The hazard mitigation plan update process was also closely linked to the update for King County's Flood Hazard Management Plan. To receive credit, participating jurisdictions must follow the CRS process outlined in the current version of the CRS Coordinators Manual, element 510. At a minimum, jurisdictions wanting to receive CRS planning credit must have at least two participants in one of the planning teams.

As such, a separate, parallel process was led by the King County River and Floodplain Management Section. This process was integrated into the planning effort for the overall hazard mitigation plan. Three meetings were held in addition to the regular mitigation planning meetings. The flood portion steering committee consisted of the following members:

Committee Member	Organization	Key Role
Gwyn Berry	City of Snoqualmie	Floodplain Manager/Planner
Bob Freitag	UW Institute for Hazard Mitigation Planning & Research	Director
Elissa Ostergaard	Snoqualmie Watershed Forum	Salmon Recovery Manager
Scott Smith	King County Permitting Division	Senior Engineer
Monica Walker	King County River & Floodplain Management Section	Program Manager, White-Cedar-Sammamish Basin
Ken Zweig	King County River & Floodplain Management Section	Program Manager, Countywide Policy and Planning Unit

### Plan Update Timeline

PLANNING ACTIVITY	DATE	SUMMARY	ATTENDEES
Planning Meeting 1	10/10/19	Discussed the flood hazard assessment.	Representatives from cities, county departments, academia, and the public.
Planning Meeting 2	10/30/19	Developed flood hazard mitigation strategies.	Representatives from cities, county departments, academia, and the public.
Planning Meeting 3	11/6/19	Prioritize hazard mitigation strategies and review draft risk assessment.	Representatives from cities, county departments, academia, and the public.

### Public Outreach Process

Public outreach during the plan update process is considered to be a critical part of hazard mitigation planning. For this update, participating jurisdictions are asked to conduct two outreach events. One of these events should be a meeting-style event and the other could be any event desired by the jurisdiction, including workshops, fairs, neighborhood meetings, etc. Jurisdictions were encouraged to make the meetings valuable to the community. Holding a separate, stand-alone meeting for the sole purpose of this plan update *was NOT required*, especially if using an existing event, like a commissioner's meeting, could help expand public engagement and engage elected officials simultaneously. Jurisdictions were also encouraged to partner with neighbors or special purpose districts serving their area for more effective public outreach events.

To count as outreach for the hazard mitigation plan, meetings had to meet the following requirements.

1. Be advertised to the general public. You do NOT have to publish an ad in the paper. You can use your newsletters, social media, press releases, and other mechanisms to conduct outreach.
2. Promote two-way communication between the public and the planning team.
3. Focus on hazard mitigation, resilience, risk-reduction, etc., for some significant part of the event. The focus does not have to be solely on mitigation, and you do not have to refer to the event as related to "mitigation planning;" however, the concepts of resilience, risk-reduction, etc., should be discussed.
4. Be documented. This is very important. Please summarize both who attends and what they contribute and make sure to include it in the plan.

County public outreach partnered with the Department of Local Services and other local jurisdictions to ensure that events occurred throughout unincorporated areas as well as in incorporated areas served by some county services. The unincorporated area events were part of Community Service Area (CSA) Town Halls. These events are well-attended and well-advertised, with 60-100 attendees per meeting. This

outreach model, partnering with existing meetings and services, is designed to help put emergency management and hazard mitigation in context. The work done in hazard mitigation is almost exclusively carried out by non-emergency management entities. By partnering with other departments and using outreach mechanisms where they would all be present, it may be possible to help demonstrate the role of emergency management in the community and the partnerships that good hazard mitigation requires. The following is an excerpt from the King County Department of Local Services newsletter that goes out to nearly 8000 residents.

## King County holds first four 2019 town halls

King County Councilmember Reagan Dunn and the King County Department of Local Services co-hosted the county's first four 2019 Community Service Areas Program Town Hall events in June.

The evening events—in the Greater Maple Valley/Cedar River, Four Creeks/Tiger Mountain, Southeast King County, and Fairwood areas—gave participants an opportunity to meet county officials, learn about services, and talk about issues that affect them and their communities.

Each meeting was attended by 60-100 people. Residents heard from Dunn, their elected representative (*shown at right*), as well as leaders of the Department of Local Services, which aims to serve as a "virtual city hall" for residents of unincorporated King County. These included Local Services Director John Taylor, Road Services Division Director Rick Brater, and Permitting Division Director Jim Chan.



Staff members Ty Peterson and Kim Layman from the King County Permitting Division greet community members at the Southeast King County town hall in Enumclaw.

Other county departments that serve the unincorporated areas were also represented, including the Sheriff's Office (Major Troy Olmsted), Natural Resources and Parks (Director Christie True), Water and Land Resources (Division Director Josh Baldi), and Elections (Director Julie Wise).

Each event started with an open house where participants connected with both county and non-county service providers, including the Assessor's Office, Public Health – Seattle and King County, Metro Transit, Elections, Emergency Management, and Animal Services.

**Local Services will host another round of town halls for the remaining Community Service Areas in the fall.** Learn more on [King County's Community Service Areas website](#).



*King County Public Meetings*

Date	Location	Summary	Attendees
6/18/19	Greater Maple Valley CSA	Comments received included concerns about mitigation of solid waste facilities, whether or not earthquake insurance makes sense, and need for snow mitigation following February snowstorm.	Residents from central King County and the Issaquah/Hobart/Maple Valley areas. Approximately 100 attendees.
6/25/19	Enumclaw/Southeast King County CSA	Discussed concerns about impacts to Enumclaw area from a lahar/Mt. Rainier	Residents from southeast King County, predominately from Enumclaw and nearby unincorporated areas. Approximately 100 attendees.
9/12/19	White Center CSA	Residents looked at the hazard information and discussed strategies for protecting their community from an earthquake. A major concern is the likelihood that the area will be isolated by an earthquake due to liquefaction.	Dozens of residents from the areas of White Center, Highline, Skyway, and Burien.
10/17/19	Snoqualmie/Carnation/Duvall CSA	Discussed flooding in the Snoqualmie-Carnation-Duvall areas.	Residents from the northeastern portion of the county, especially in Snoqualmie, Carnation, and Duvall



*The Des Moines Farmers Market public outreach event hosted by the City of Des Moines and including King County Emergency Management and Valley regional Fire Authority.*

### Help Identify Good Risk-Reduction Projects

The key deliverable of a successful planning process is a prioritized list of risk reduction strategies. These strategies are identified by each participating jurisdiction through an asset-based process. We would love to hear from you! Please consider these questions and either fill out the form below or email me at [dliebent@kingcounty.gov](mailto:dliebent@kingcounty.gov).

1. What makes your community great? What are the assets, features, and value, that you cannot live without? These can be both physical assets like fire stations, community assets like the business district, and intangible assets like the peace and tranquility of the community.
2. What hazards potentially threaten those assets and values?
3. How susceptible or vulnerable are those assets to hazards?
4. What happens if you lose those assets? What is the impact on your community? What is the impact from the asset's failure or loss?
5. Are these assets redundant? Can I afford to live without it? Does another asset serve a similar purpose?
6. What can I do to reduce or eliminate the risk to this asset from hazards?

The following is a questionnaire handed out at these events. Major topics of discussion, and any comments or feedback on the plan and planning process, are included in the summary table for the public meetings.

King County Emergency Management also joined several locally-led events. For this, the planning team developed a table-sized 3D-printed topographic map of the county with an aerial image printed on it. The interactive, 3D physical map was used to talk about the county's history of hazards, flooding, climate change, landslides, lahar zones, liquefaction areas, and more.

The model was available for use by local jurisdictions both with and without county staff so that it

could be used to support a wider range of outreach activities.

Finally, in addition to in-person outreach, King County Emergency Management developed a website, <https://www.kingcounty.gov/hazardplan>. The website explains the purpose of mitigation and provides an overview of key hazards and examples of effective hazard mitigation. This website will be kept up for at least the duration of the plan review.

### Joint Public Meetings

Date	Location	Summary	Attendees
7/16/19	City of Medina	Presented to the City of Medina Emergency Management Committee and other local residents and led a discussion afterward. The primary interest was on how residents could contribute to mitigation and resilience goals for their city. Residents in Medina will serve as the steering committee for the mitigation plan update and will help identify and prioritize mitigation strategies based on at-risk, high-priority community assets.	Community members, elected officials, and members of Medina EMC. Approximately 20 people attended.
7/24/19	City of North Bend	World Café workshop at the North Bend Public Library	No attendees were recorded at this event.

8/21/19	City of Kenmore	Presentation and hazard mitigation booth with 3D map at a Kenmore Town Square movie night. Spoke with approximately 25 people. The main focus of questions were around which areas of the community were at higher risk. Also collected feedback from community members on their ranking of Kenmore's mitigation strategies.	Lots of children plus community members attended. Over 100 attendees estimated.
8/27/19	Cities of Tukwila, Kent, Covington and SeaTac	Presented on county hazard mitigation efforts and discussed countywide risks at a joint public meeting at Fire Station 74 in Kent. Major comments included questions about how cities and the county are prioritizing mitigation investments, comments on the risk of fire from homes built very close together, and questions about the restoration of water in areas with unstable soils.	10-12 attendees, mostly from Kent, spoke with staff from their cities and King County Emergency Management
	City of Des Moines	Hosted a booth at Des Moines Farmers Market. Discussed the possibility of Des Moines becoming an island after a major earthquake. Discussed the vulnerability of the waterfront relative to the lower-vulnerability of the rest of the city. The City of Des Moines and Valley Regional Fire Authority were also present and completed surveys for their mitigation plan annexes.	The booth was occupied continuously by residents from 10AM until 2PM.
9/28/19	Cities of Maple Valley, Covington, and Black Diamond	Annual preparedness fair 3D map booth and presentation. Spoke with dozens of residents and several elected officials and shared information on hazard risk and ways to address hazard risk. Major comments were related to length of time needed to reach residents in far-flung areas following an earthquake, especially given the response times during the February 2019 winter storms.	Hundreds of residents from the area and cities around Maple Valley. Dozens stopped by the booth.



*Residents examining the 3D hazard map at a North City Water public outreach event (Source: Diane Pottinger, North City Water)*

## Continued Public Participation

King County and its partner cities already maintains substantial public outreach capabilities, focusing on personal preparedness and education. Information on ongoing progress in implementing the hazard mitigation plan will be integrated into public outreach efforts. The Community Service Area Town Hall events led by the Department of Local Services are scheduled annually and provide a unique opportunity to highlight mitigation successes. This will provide King County residents, already engaged in personal preparedness efforts, with context and the opportunity to provide feedback on the county's progress and priorities in large-scale mitigation. In the vertical integration of risk-reduction activities from personal to local to state and federal, it is important that the public understand how its activities support, and are supported by, larger-scale efforts.

The outreach and mitigation teams will also continue to work with media and other agency partners to publicize mitigation success stories and help explain how vulnerabilities are being fixed. When possible, public tours of successfully-completed mitigation projects will be organized to allow community members to see successful mitigation in action.



# King County Regional Hazard Mitigation Program Capabilities

King County includes 39 cities, over 129 special purpose districts, and large unincorporated areas. While each city and special purpose district is responsible for its own hazard mitigation efforts, King County supports these jurisdictions through region-wide services and planning coordination, including efforts associated with land use, emergency management, and floodplain management. County departments involved in hazard mitigation efforts include Executive Services (facilities management, emergency management), local services (permitting, roads), Natural Resources and Parks (wastewater, landslides, floodplain management, climate change), and the Office of the Executive (planning).

As the lead agency for hazard mitigation, King County Emergency Management (KC EM) engages partners to promote and/or support mitigation activities. KC EM also publicizes Hazard Mitigation Assistance grant opportunities and provides technical support to develop applications and administer awards. KC EM also serves on interagency workgroups such as comprehensive planning, climate adaptation, and transportation as a way of promoting consistency in risk assessment and reduction priorities.

The focus of King County Emergency Management's hazard mitigation program is integration, including plan integration, program integration, and departmental/jurisdictional integration. Plan integration helps ensure partners use the best available data and that plan outcomes are supportive of a resilient future. Program integration helps partners find fund sources and support outside of their departments or programs. Department and jurisdiction integration builds on the role the county EOC serves for response, engaging resources to promote and implement the most effective, highest-priority hazard mitigation opportunities. In a large county with dozens of partners, a jurisdiction-by-jurisdiction approach is less effective at building resilience. KC EM's approach is to unify partners behind the vision of resilience laid out in this plan.

## Plan Integration

When plans and planning processes are more integrated, it is possible to achieve greater impact through clearer definition, smarter investment, partnerships, and innovation. Successful integration requires

### Hazard Mitigation Program

Hazard mitigation is most effective when implemented through a systematic program that establishes priorities and understands that resilience requires system-wide investments in mitigation.

Cohesive, comprehensive strategies and the establishment of partnerships are the core elements of a program. Individual projects matter, but are made more effective by systematic, strategic implementation.

In order to support this program, King County Emergency Management convenes multi-agency committees, offers technical assistance on federal mitigation grants, supports partners in planning and mitigation projects, and maintains and updates the King County Regional Hazard Mitigation Plan.

coordination between planning efforts and, especially, cross-participation in planning processes. The goals of plan integration are to:

- Ensure consistency with jurisdiction priorities across all planning processes
- Leverage opportunities to further multi-benefit initiatives that are supported by multiple planning processes
- Achieve common measures of success for outcomes

The hazard mitigation plan can benefit from integration with planning processes that:

- Prioritize and invest in infrastructure
- Regulate development
- Set strategic direction for programs

To other planning processes, the hazard mitigation plan brings risk and vulnerability information to help prioritize projects and set development standards or regulations. The mitigation plan also comes with potential funding for investments in cost-effective risk-reduction projects. On the other hand, the mitigation plan depends on other plans and processes to implement many strategies. Since the mitigation plan is not itself a regulatory or budgetary document, strategies identified in the mitigation plan are often best implemented through those processes or programs.

There are many plans and planning processes within King County that impact hazard risk. These include strategic plans, long-range plans, resource plans, and capital plans.

TITLE	DESCRIPTION	LEAD	INTEGRATION STRATEGY
Capital Facilities Plans	Capital facilities plans identify and prioritize large-scale projects. Entities involved in this include the King County Facilities Management Division and the King County Flood Control District.	Various	<ul style="list-style-type: none"> <li>• Integrate mitigation strategies from capital plans</li> <li>• Encourage the use of hazard information to prioritize capital improvements</li> <li>• Support county departments with funding gaps in accessing Hazard Mitigation Assistance to complete or expand projects that are identified as important but are unfunded or partially funded.</li> </ul>

Clean Water and Health Habitat Strategic Plan	The CWHH Strategic Plan seeks to establish a strategic alignment across all plans that impact clean water and healthy habitat in order to achieve “greater impact through clearer definition, smarter investment, partnerships, and innovation.” This process is just starting, and it includes over 20 separate plans and programs.	Department of Natural Resources and Parks	<ul style="list-style-type: none"> <li>• Participate in plan development.</li> <li>• Align outcome measures and program prioritization methods</li> <li>• Work through this process to help align mitigation planning with other planning in the natural resource sector, such as forest health, solid waste, and salmon recovery.</li> </ul>
Comprehensive Plan	The King County Comprehensive Plan is the long-range guiding policy document for all land use and development regulations in unincorporated King County, and for regional services throughout the County including transit, sewers, parks, trails and open space.	Executive’s Office	<ul style="list-style-type: none"> <li>• Encourage updates to the critical areas ordinance</li> <li>• Provide feedback and comments on the plan</li> </ul>
Comprehensive Emergency Management Plan (CEMP)	<p>The CEMP is for use by elected and appointed County officials, and King County government department directors, managers and staff in mitigating, preparing for, responding to, and recovering from disasters.</p> <p>This plan is a product of coordinated planning efforts between King County Emergency Management, County departments, emergency management representatives from various political jurisdictions, and selected private and nonprofit sector interests. It meets the requirements of WAC 118-30 and the Federal Emergency Management Agency's (FEMA) planning guidance for the National Response Framework and</p>	Emergency Management	<ul style="list-style-type: none"> <li>• The Hazard Mitigation Plan provides the risk profiles that support the development of the CEMP.</li> <li>• The Hazard Mitigation Plan is also a component (the mitigation component) of the CEMP.</li> </ul>

	the National Incident Management System (NIMS) compliance.		
Equity and Social Justice Strategic Plan	The Equity and Social Justice Strategic Plan is a blueprint for action and change that will guide the county's pro-equity policy direction, decision-making, planning, operations and services, and workplace practices in order to advance equity and social justice within County government and in partnership with communities.	Executive's Office	<ul style="list-style-type: none"> <li>Follow guidance in the ESJ plan for the prioritization of strategies</li> <li>Develop information on populations vulnerable to hazards and share with ESJ planning teams</li> </ul>
Flood Hazard Management Plan	The current (2013) King County Flood Hazard Management Plan is a functional annex of the comprehensive plan. It outlines the County's approach to comprehensive floodplain management including land use planning, flood mitigation efforts, and flood protection facilities management.	Department of Natural Resources and Parks	<ul style="list-style-type: none"> <li>Work with department responsible for floodplain management to write the flood risk assessment.</li> <li>Work with local CRS coordinators to ensure the mitigation plan is worth the maximum number of points.</li> </ul>
Strategic Climate Action Plan	King County's Strategic Climate Action Plan (SCAP) is a five-year blueprint for County action to confront climate change, integrating climate change into all areas of County operations and its work in the community. The SCAP is King County's blueprint for climate action and provides a "one-stop-shop" for county decision-makers, employees, and the general public to learn about the County's climate change goals, priorities and commitments.	Department of Natural Resources and Parks	<ul style="list-style-type: none"> <li>Inter-workgroup participation</li> <li>Integrated mitigation strategies</li> <li>Consistent risk assessments</li> </ul>
Strategic Plan for Road Services	The Road Services Strategic Plan lays out system needs and anticipated service levels and an asset management approach to road maintenance and improvement.	Department of Local Services	<ul style="list-style-type: none"> <li>Integrate mitigation strategies</li> </ul>

## Program and Policy Capabilities

With over 15,000 employees and dozens of departments and offices, King County has a tremendous capability to implement mitigation projects. Mitigation efforts are underway throughout the county, including such organizations as the Rivers and Floodplain Management Section of DNRP and the Wastewater Treatment Division of DNRP.

The hazard mitigation planning process has engaged participants from across these program and policy areas in order to establish a common assessment of hazards, identify potential mitigation strategies, partnerships for future projects, and to assess county capabilities to implement mitigation projects. The list below identifies King County policies and programs that support and implement hazard mitigation and assesses the effectiveness of each. For state-level policies and programs that support hazard mitigation, such as the Growth Management Act, please see the Washington State Enhanced Hazard Mitigation Plan.<sup>2</sup>

The following table identifies the programs and organizations contributing regularly to hazard mitigation.

PROGRAM/POLICY	MITIGATION ACTIVITIES	LEAD
Building and Development Codes	Building and development codes are adopted and modified from the 2015 IBC by Washington State Building Code Council and King County. These codes help ensure that new construction and substantial improvements meet international standards, accounting for our hazard risk.	Department of Local Services, Permitting
Building and Development Code Enforcement	The Department of Local Services, Permitting Division is the agency that provides land use, building and fire regulatory and operating permits, code enforcement and a limited number of business licenses for unincorporated areas of King County. Other local jurisdictions provide similar services within incorporated areas. The Code Enforcement Section investigates complaints regarding violations of King County Codes (KCC) related to zoning, building, property maintenance, shorelines and critical areas in unincorporated King County.	Department of Local Services, Permitting
Community Rating System	The CRS program rewards communities that have established exceptional floodplain management programs and undertaken certain activities to reduce flood risk. King County is one of the highest rated communities in the country. The program provides NFIP policyholders in floodplains with a discount of up to 40% on their insurance.	DNRP DLS KCEM

<sup>2</sup> Washington State Enhanced Hazard Mitigation Plan. 2018. "Potential Sources of Funding and Mitigation Capability." Accessed online on 7/12/19 from <https://mil.wa.gov/enhanced-hazard-mitigation-plan>.

Critical Areas Ordinance	The critical areas ordinance requires the identification of geologically-hazardous and frequently-flooded areas. These areas must either be protected from development or any development in these areas must be designed to account for hazard risk.	Department of Local Services
Equity and Social Justice	King County has deep and persistent inequities – especially by race and place—that in many cases are getting worse and threaten our collective prosperity. Launched by King County Executive Ron Sims in 2008 and formalized by Executive Dow Constantine and the Metropolitan King County Council via ordinance in 2010, Equity and Social Justice (ESJ) is an integrated part of the County’s work and is supported by the Office of Equity and Social Justice since it was established in early 2015.	King County Executive’s Office, Office of Equity and Social Justice
Facilities Management Division	The Facilities Management Division (FMD) oversees and maintains King County’s real estate assets. The Major Projects and Capital Planning section is tasked with efficiently and effectively delivering large-scale projects in alignment with the policy directives of King County government, the facility needs of employees and the public, and for overall service to the community. Part of this includes the development of hazard-resilient facilities.	Department of Executive Services, FMD
GIS	King County GIS provides analysis support, mapping, and other data to all King County departments. This data is valuable for hazard mitigation planning activities.	KCIT
Hazard Mitigation	<p>The hazard mitigation program works with partners across county departments and local jurisdictions to coordinate and promote hazard mitigation projects.</p> <p>The program also coordinates applications to federal Hazard Mitigation Assistance grant programs and conducts hazard mitigation planning for the county in partnership with local jurisdictions and special-purpose districts.</p>	KC Emergency Management
King County Conservation District	The King County Conservation District is an independent special purpose district with separately-elected commissioners. It promotes water, land, soil, and forest conservation and preservation and conducts wildfire risk reduction activities.	King County Conservation District
King County IT	KCIT leads the county’s response to, and preparedness for, cyber incidents. KCIT has helped local cities recover from ransomware and other attacks.	King County Information Technology (KCIT)



King County Flood Control District	<p>In 2007, the King County Flood Control District was established to provide a proactive, regional approach to flooding as well as funding to improve the county's nearly 500 aging and inadequate flood protection facilities.</p> <p>Funding for the Flood Control District comes from a county-wide property levy of 12.9 cents per \$1,000 assessed value. This amounts to \$54 per year on a \$416,000 home. The levy raises roughly \$54.5 million a year. This funding dramatically increases the number of projects that can be completed each year. The additional local funding also enhances the District's ability to receive federal and state matching funds.</p> <p>The King County Flood Control District is a separate special purpose district.</p>	King County Flood Control District
Landslide Hazards	The Landslide Hazards program conducts mapping and outreach associated with landslide risk.	DNRP Water and Land Resources Division
Land Use Planning and Zoning	Land use planning and zoning establishes growth and land use patterns that are consistent with long-range plans and supported by infrastructure.	King County Executive's Office
National Flood Insurance Program	Communities that participate in the National Flood Insurance Program adopt a floodplain management code in exchange for FEMA making flood insurance available to residents and businesses.	DNRP, DLS – Permitting Division
Office of Risk Management Services	<p>Risk Management investigates and resolves claims against King County in a fair and expeditious manner, and also provides internal services to King County agencies, including:</p> <ul style="list-style-type: none"> <li>• Insurance: King County administers a self-insurance program and purchases a variety of other insurance policies and related services consistent with good risk management practices and the needs of the County.</li> <li>• Contracts: Risk Management advises King County agencies on insurance requirements, indemnification, release, and hold harmless provisions in all types of contracts. Risk Management actively negotiates these provisions and, together with the Prosecuting Attorney's Office, assists agencies in pursuing and tendering claims arising out of contractual relations.</li> <li>• Recovery Services: The recovery section of Risk Management is charged with seeking compensation for</li> </ul>	Department of Executive Services

	<p>damages caused to King County property or injury to King County employees by negligent third parties.</p> <ul style="list-style-type: none"> <li>• Loss Control Program: The Loss Control Manager works with King County agencies to identify areas of potential loss and recommend strategies to reduce exposure to liability. The Loss Control Program also administers continuing workplace training and education for King County employees.</li> </ul> <p>Part of this work includes the development and maintenance of a risk register of events and information on how those events can impact King County.</p>	
Public Health	<p>Public Health — Seattle &amp; King County (Public Health) works to protect and improve the health and well-being of all people in King County as measured by increasing the number of healthy years that people live and eliminating health disparities.</p> <p>Public Health is the one of the largest metropolitan health departments in the United States with 1,400 employees, 40 sites, and a biennial budget of \$686 million. The department serves a resident population of nearly 2.2 million people in an environment of great complexity and scale, with 19 acute care hospitals and over 7,000 medical professionals. Over 100 languages are spoken here, and King County is an international destination welcoming nearly 40 million visitors annually.</p> <p>Public Health protects the public from threats to their health, promotes better health, and helps to assure that people are provided with accessible, quality health care.</p> <p>Health protection functions include disease control, such as tuberculosis, HIV, communicable disease epidemiology and immunizations, and ensuring that the air is safe to breathe, and water and food are safe to consume.</p> <p>Health promotion functions include preventing behaviors that lead to disease, averting injuries and managing chronic health conditions.</p> <p>Health provision functions include convening and leading system-wide efforts to improve access and quality, advocating for access to quality health care for all, forming partnerships with service providers and directly providing individual health services when there is a public health need.</p>	Public Health Seattle-King County

Road Services Division	Road services builds and maintains over 2000 miles of road and 200 bridges. They are responsible for many mitigation activities, including those related to culvert replacement, pavement preservation, and bridge retrofits.	Department of Local Services
Shoreline Master Program	King County has nearly 2,000 miles of shoreline along major lakes and rivers and Vashon-Maury Island. These shorelines provide habitat for fish and wildlife, places for public enjoyment and space for wide-ranging waterfront land uses. The Shoreline Master Program helps preserve these spaces and uses, thereby reducing risk to hazards including sea-level rise.	DLS – Permitting Division
Wastewater Treatment Division	Invest in upgrades to pipe and water treatment facilities to make them more resilient to earthquakes, severe weather, flooding, and climate-change.	DNRP

### Integration with Departments and other Jurisdictions

Beyond departmental integration, King County works with local jurisdictions, special purpose districts, and tribes to support effective risk reduction. King County coordinates activities related to emergency management and hazard mitigation through two bodies, the Emergency Management Coordinating Committee (EMCC) and the Emergency Management Advisory Committee (EMAC), which are each described in greater detail in the table below.

#### *King County Stakeholder Integration Capabilities*

ORGANIZATION	DESCRIPTION	MEMBERSHIP
Clean Water / Healthy Habitat Initiative	An initiative convened by the county executive to help streamline projects, increase collaboration, and improve results for the work accomplished through the spending of \$6 Billion over the next decade on clean water and habitat protection in King County.	All county agencies
King County Community Rating System Users Group	King County and the cities who are part of CRS meet to coordinate efforts and provide technical assistance to each other on maintaining and improving CRS ratings.	<ul style="list-style-type: none"> <li>• Auburn</li> <li>• Bellevue</li> <li>• Issaquah</li> <li>• Kent</li> <li>• North Bend</li> <li>• Renton</li> <li>• Snoqualmie</li> <li>• Carnation</li> </ul>

		<ul style="list-style-type: none"> <li>• Redmond</li> <li>• King County</li> </ul>
Emergency Management Coordinating Committee (EMCC)	<p>EMCC is charged by the King County Council with coordinating interdepartmental emergency preparedness matters. EMCC works to support departments in developing continuity of operations plans, preparedness plans, and hazard mitigation plans. It also contributes to after action reports. EMCC has played an important role in the mitigation plan update process for the county by identifying and dedicating key staff to participate in planning and by reviewing and providing feedback on planning team activities.</p>	<p>All county departments are included in the EMCC. The following are those who attend meetings more regularly.</p> <ul style="list-style-type: none"> <li>• King County Emergency Management</li> <li>• Department of Human Resources</li> <li>• Metro Transit Department</li> <li>• Department of Local Services</li> <li>• Public Health - Seattle and King County</li> <li>• Department of Natural Resources and Parks (DNRP)</li> <li>• Department of Community and Human Services</li> <li>• Department of Adult and Juvenile Detention</li> <li>• Facilities Management Division of the Department of Executive Services</li> <li>• Director's Office of the Department of Executive Services</li> <li>• King County Information Technology</li> <li>• Office of Labor Relations</li> <li>• King County Sheriff's Office</li> <li>• Office of the King County Executive</li> <li>• Department of Assessments</li> <li>• King County District Court</li> <li>• King County Elections</li> <li>• DNRP Solid Waste Division</li> <li>• DNRP Waste Treatment Division</li> </ul>
Emergency Management Advisory Committee (EMAC)	<p>EMAC advises, assists, reviews, and comments on emergency management and homeland security issues, regional planning, and policies. They measure and prioritize core capabilities and recommend homeland security allocations and work products to sustain and enhance preparedness and operational levels. Members, as set forth in code, provide regional and multi-disciplinary perspective, and represent cities, fire service, law enforcement,</p>	<p>The membership for EMAC is established by the King County Council and includes the following entities/interests:</p> <ul style="list-style-type: none"> <li>• Central region EMS and Trauma Care Council</li> <li>• City of Bellevue</li> <li>• City of Kent</li> <li>• City of Renton</li> <li>• City of Seattle</li> <li>• 1 Utility</li> <li>• 1 Faith-Based Organization</li> <li>• 1 Financial Community Organization</li> <li>• American Red Cross</li> <li>• KC DNRP</li> </ul>

	hospitals, the Port of Seattle, government, special purpose districts, tribes, utilities, non-profit agencies, and the private sector.	<ul style="list-style-type: none"> <li>• KC Metro</li> <li>• KC Roads</li> <li>• KC Executive Office</li> <li>• King County Fire Chief's Association</li> <li>• King County Fire Commissioner's Association</li> <li>• King County Police Chief's Association</li> <li>• King County Sheriff's Office</li> <li>• KC Local Emergency Management Planning Committee</li> <li>• Muckleshoot Tribal Nation</li> <li>• Northwest Healthcare Response Network</li> <li>• Port of Seattle</li> <li>• 1 Private Industry Representative</li> <li>• Public Health Seattle and King County</li> <li>• Puget Sound Educational Services District</li> <li>• Snoqualmie Tribal Nation</li> <li>• Sound Cities Association</li> <li>• Washington Association of Building Officials</li> <li>• 1 Water and Sewer District Representative</li> </ul>
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## Potential Sources of Hazard Mitigation Funding

Hazard mitigation projects are most often completed with funding from capital budgets as part of the normal building and maintenance processes that occur in any jurisdiction. There is also source and use-specific funding, such as that provided by the King County Flood Control District that is part of regular program funding and is highlighted in the program section above. Beyond regular capital funding, there are dedicated mitigation programs operated by state, county, and federal agencies.

### *Potential Sources of Hazard Mitigation Funding*

PROGRAM	LEAD AGENCY	DESCRIPTION	PROJECT TYPES
BUILD Grants	US Department of Transportation (USDOT)	Grants support investments in surface transportation infrastructure and are to be awarded on a competitive basis for projects that will have a significant local/regional impact.	Transportation and related infrastructure retrofits, including stormwater projects
Building Blocks for Sustainable Communities	U.S. Environmental	This EPA program provides targeted, technical assistance to communities to	Planning and feasibility studies

	Protection Agency (EPA)	develop resilience plans, development plans, sustainability strategies, etc.	
Building Resilient Infrastructure in Communities (BRIC)	Federal Emergency Management Agency (FEMA)	New annual mitigation grant program that is expected to replace PDM. Will focus more on large-scale infrastructure projects that reduce risk to natural hazards.	Most long-term risk-reduction projects that protect against fire, flood, earthquake, and other natural hazards.
Community Development Block Grants	U.S. Department of Housing and Urban Development (HUD)	CDBG funds comprehensive plans, limited infrastructure planning/construction, feasibility studies, community action plans. Income and population restrictions apply.	Housing and infrastructure retrofits, feasibility studies, planning
Community Economic Revitalization Board	WA Department of Commerce	CERB provides loan funding to local jurisdictions for public infrastructure to support private business growth and expansion.	Infrastructure retrofits, public-private partnerships
Combined Water Quality Funding Program	WA Department of Ecology	Fund sources for projects associated with publicly-owned wastewater and stormwater facilities. The integrated program also funds nonpoint source pollution control activities.	Drinking-water system improvements, feasibility studies, source-water protection, infrastructure retrofits
Cooperating Technical Partnership Program	FEMA	The program creates partnerships between FEMA and qualified local and state partners to create, maintain, and publicize up-to-date flood and other hazard maps and data.	Planning, outreach, feasibility studies
Drinking Water State Revolving Fund	WA Department of Health	The Drinking Water State Revolving Fund (DWSRF) provides loans to drinking water systems to pay for infrastructure improvements. In some cases, partial loan forgiveness is offered.	Infrastructure retrofits, source-water protection, planning, drinking-water system improvements
Emergency Watershed Protection Program	Natural Resource Conservation Service (NRCS)	Emergency recovery measures for runoff retardation and erosion prevention to relieve imminent hazards created by a natural disaster.	Infrastructure retrofits, slope stabilization, source-water protection, flood risk reduction, erosion prevention
Estuary and Salmon	Department of Fish and	ESRP provides funding restoration and protection efforts in Puget Sound,	Acquisitions, slope stabilization, flood risk



Restoration Program	Wildlife (DFW)	including projects such as flood storage, erosion control, and climate resilience measures.	reduction projects, ecosystem restoration
FireWise Fuel Mitigation Grant Program	WA Department of Natural Resources	The Fuel Mitigation Grant provides a cost share for communities engaged in defensible space and fuels reduction projects.	Wildfire fuels reduction, defensible space
Floodplains by Design	WA Department of Ecology	Floodplains by Design is the primary grant program for projects that reduce flood hazards while restoring the natural functions that Washington rivers and floodplains provide.	Slope stabilization, ecosystem recovery, flood-risk recovery
Flood Mitigation Assistance Grant Program	FEMA	FMA provides funding to local jurisdictions and states for projects and planning that reduces or eliminates long-term risk of flood damage to structures insured under the NFIP.	Flood risk reduction projects that benefit the NFIP, including acquisitions, elevations, and some structural mitigation such as local risk reduction structures and dry floodproofing.
Hazard Mitigation Grant Program	FEMA	HMGP is authorized statewide after a disaster declaration and is the most flexible of FEMA's three mitigation programs. Jurisdictions must have an approved hazard mitigation plan and projects must be cost effective.	Most long-term risk-reduction projects that protect against fire, flood, earthquake, and other natural hazards.
King County Flood Control District Flood Reduction Grants	King County Flood Control District	The Flood Reduction Grants target medium and small local flood reduction projects including projects where the control of stormwater will have a direct benefit in reducing flooding. Eligible applicants include homeowners, special districts, tribes, cities, and county agencies.	Projects can address either existing or potential flooding and proposals should show that the flooding has current or potential economic impacts.
King County Budget	King County	The two-year King County budget for 2019-2020 was approximately \$11.6 billion dollars. Approximately 15% of this money makes up the general fund. Major Expenditures are: Metro Transit (21%), Wastewater (14%), Health & Human Services (13%), and Law, Safety, & Justice (12%). There are ~15,000 full-time-equivalent (FTE)	Various

		county employees with most employed in Transit (35%), Criminal Justice (25%), and Public Health (9%).	
King County Loss Control Fund	Office of Risk Management	The Loss Control Fund is for internal county projects and is limited to emergent risks where advance planning and budgeting were unavailable. \$2M has been appropriated for the 2019-2020 biennium.	Emergent risks, to include likely infrastructure failure
King County Parks Levy	King County	Revenue generated by the parks levy goes to fund open space protection, new parks, trails, and other assets. This funding could theoretically be used for the acquisition of threatened properties for preservation as open space.	Acquisition of high-hazard properties for preservation as open space
Post-Fire Hazard Mitigation Grant Program	U.S. EPA	Program authorized following a Fire Management Assistance Grant (FMAG) declaration. Program focuses on wildfire risk and post-fire risk mitigation, including fuels reduction and post-fire flood control projects. Program prioritizes the county receiving the FMAG declaration.	Fire-related mitigation, including defensible space, generators, and post-fire flood risk reduction, planning, feasibility studies
Pre-Disaster Mitigation Grant Program	FEMA	Annual program for cost-effective mitigation projects and plans. Jurisdiction must have a current mitigation plan to be eligible. Following the 2019 grant round, this program will be replaced by BRIC.	Most long-term risk-reduction projects that protect against fire, flood, earthquake, and other natural hazards.
Public Works Board	WA Department of Commerce	Low-interest loans for pre-construction or new construction for replacement/repair of infrastructure for stormwater, solid waste, road, or bridge projects. Emergency loans are available for public projects made necessary by a disaster or imminent threat to public health and safety.	Utility and infrastructure retrofits
Rural Community Assistance Corporation	Rural Community Assistance Corporation	Water, wastewater, stormwater, and solid waste planning; environmental work; to assist in developing an application for infrastructure	Planning, feasibility studies

		improvements for small, rural communities.	
Rural Water Revolving Loan Fund	National Rural Water Association	The RWLF provides low-cost loans for short-term repair costs, small capital projects, or pre-development costs associated with larger projects to small, rural communities.	Source-water protection, drinking water system improvements, other retrofits
Source Water Protection Grant Program	WA Department of Health	Projects and studies to identify solutions to source water protection problems, implement protection plans, or update data that directly benefits source water protection.	Source-water protection, drinking water system improvements, other retrofits, feasibility studies
Washington Transportation Improvement Board	Transportation Improvement Board	TIB makes and manages street construction and maintenance grants to 320 cities and urban counties.	Infrastructure retrofits, flood risk reduction
Urban and Community Forest Program	U.S. Department of Agriculture	Program provides technical, financial, research and educational services to local jurisdictions and organizations for the preservation, protection, and restoration of forestlands.	Natural resource protection, public information, planning

### King County Hazard Mitigation Grant Assistance Program

A major initiative launching as part of this plan update is the King County Hazard Mitigation Grant Assistance Program. Led by KC EM, this program seeks to lower the barriers to applying for FEMA grants, especially given the new opportunities associated with the Disaster Recovery Reform Act of 2018.

King County will support jurisdictions by ensuring the mitigation projects are identified in the regional plan, offering technical assistance in developing applications, and, when requested, by administering grants on behalf of communities that lack internal grant management capabilities. This program reflects KC EM's focus on end-to-end emergency management, supporting partners across all mission areas from mitigation to recovery.

### Participation in the National Flood Insurance Program

The National Flood Insurance Program (NFIP) provides federally backed flood insurance in exchange for communities enacting floodplain regulations. Participation and good standing under NFIP are prerequisites to grant funding eligibility under the Robert T. Stafford Act. The County and most of the partner cities for this plan participate in the NFIP and have adopted regulations that meet the NFIP requirements.

King County and 34 of the 39 incorporated areas in the County are participants in NFIP; all are currently in good standing with the provisions of the NFIP. The five jurisdictions that do not currently participate in NFIP are Beaux Arts Village, Hunts Point, Maple Valley, Newcastle and Yarrow Point. Except for Newcastle, these communities have no special flood hazard areas.

Participants in the NFIP must, at a minimum, regulate development in floodplain areas in accordance with NFIP criteria. Communities participating in the NFIP may adopt regulations that are more stringent than those contained in 44 CFR 60.3, but not less stringent. The Washington State Building Code Act requires new construction to be elevated to 1 foot above the base flood elevation or to the design flood elevation, whichever is higher. Some communities in King County have adopted more stringent standards. For example, a 3-foot freeboard (height above the 100-year flood elevation) is standard for most structures in unincorporated King County.

Additionally, in the Puget Sound watershed, communities are required to regulate development in floodplains in a way that doesn't cause habitat loss or negative impacts to Chinook, coho, and steelhead salmon species. This is part of the FEMA/NOAA Biological Opinion related to communities' participation in the National Flood Insurance Program.

New Flood Insurance Rate Maps (FIRMs) are currently in a preliminary stage and are scheduled to be published in mid-2020.

In Washington State, the Department of Ecology is the coordinating agency for floodplain management. Ecology works with FEMA and local governments by providing grants and technical assistance, evaluating community floodplain management programs, reviewing local floodplain ordinances, and participating in statewide flood hazard mitigation planning. Compliance is monitored by FEMA regional staff and by Ecology. Maintaining compliance under the NFIP is an important component of flood risk reduction. All planning partners that participate in the NFIP have identified initiatives to maintain their compliance and good standing. Planning partners who do not currently participate have identified initiatives to consider enrollment in the program.

## Participation in CRS

The CRS is a voluntary program within the NFIP that encourages floodplain management activities that exceed the minimum NFIP requirements. Flood insurance premiums are discounted to reflect the reduced flood risk resulting from community actions meeting the following three goals of the CRS:

- Reduce flood losses.
- Facilitate accurate insurance rating.
- Promote awareness of flood insurance.

For participating communities, flood insurance premium rates are discounted in increments of 5 percent. For example, a Class 1 community receives a 45-percent premium discount, and a Class 9 community receives a 5-percent discount. (Class 10 communities are those that do not participate in the CRS; they receive no discount.) The CRS classes are based on 18 creditable activities in the following categories:

- Public information
- Mapping and regulations
- Flood damage reduction

- Flood preparedness

As of this writing, there are 10 CRS-rated communities in King County.

Community Name	Class	% Discount in SFHA	% Discount in non-SFHA
Auburn	5	25	10
Bellevue	5	25	10
Issaquah	5	25	10
Kent	5	25	10
North Bend	5	25	10
Renton	5	25	10
Snoqualmie	5	25	10
Carnation	7	15	5
Redmond	5	25	10
King County	2	40	10

## Regional Risk and Probability Summaries

While most of the risk and probability of future occurrence for hazards is similar for all jurisdictions in King County, some are at greater risk due to specific geographic features including proximity to floodplain (increases flood probability and risk from earthquakes due to liquefaction). For natural hazards, the relative probability of occurrence within 25-50 years (**High**, **Medium**, or **Low**) and relative risk as described in each jurisdiction's annex are identified in the table below.

The table below does not include Avalanche risk (high annual probability of occurrence, but only in unincorporated areas) nor tsunami (low probability of occurrence for all areas, exposure is currently only mapped for the cities of Des Moines and Seattle. Acronyms: WSD = Water and Sewer District, WD = Water District, SD = School District, RFA = Regional Fire Authority, UD = Utility District.

Community Name	Earthquake		Flood		Landslide		Weather		Volcano		Wildfire	
	Prob	Risk	Prob	Risk	Prob	Risk	Prob	Risk	Prob	Risk	Prob	Risk
Auburn												
Beaux Arts Village												
Bellevue												
Bothell												
Burien												
Clyde Hill												
Covington												
Des Moines												
Duvall												
Hunts Point												
Issaquah												
Kenmore												
Kent												



Community Name	Earthquake		Flood		Landslide		Weather		Volcano		Wildfire	
Kirkland												
Lake Forest Park												
Maple Valley												
Mercer Island												
Medina												
Newcastle												
North Bend												
Redmond												
Renton												
Sammamish												
SeaTac												
Shoreline												
Snoqualmie												
Tukwila												
Woodinville												
Cedar River WSD												
Covington WD												
Coal Creek UD												
Highline WD												
King County WD 20												
King County WD 90												
King County WD 125												
Lake Meridian WD												
North City WD												
NE Sammamish WSD												
Northshore UD												
Renton SD												
Sammamish Plateau WSD												
Skyway WSD												
Soos Creek WSD												
South King Fire												
Valley RFA												
Valley View Sewer												
Vashon Island Fire												
Woodinville WD												
Muckleshoot Indian Tribe												

# Risk Assessment Overview

The King County Regional Hazard Mitigation Plan Risk Assessment covers 8 natural and 6 human-caused hazards.

- Avalanche
- Earthquake
- Tsunami
- Volcano
- Landslide
- Wildfire
- Flood
- Severe Weather
- Hazardous Materials
- Health Incident
- Terrorism
- Civil Disturbance
- Cyber Incident
- Dam Failure

These assessments were developed using the best available data from sources including:

- Washington State Fusion Center (Terrorism, Civil Disturbance)
- King County Dam Safety Program (Dam Failure)
- King County IT (Cyber Incident)
- Public Health Seattle-King County (Health Incident)
- Washington State Emergency Management LEPC Program (Hazardous Materials)
- King County Flood Control District (Flood)
- Washington State Emergency Management Geologic Hazards Program (Tsunami, Earthquake, Volcano)
- King County Strategic Climate Action Plan (Wildfire, Severe Weather)
- Washington State Department of Transportation (Avalanche)
- King County Department of Natural Resources and Parks (Landslide)
- King County Department of Permitting (Structure Fire)
- Washington State Enhanced Hazard Mitigation Plan
- Washington State Department of Natural Resources (Landslide, Earthquake, Tsunami, Volcano, Wildfire)
- King County Facilities Management Division
- King County Hazard Inventory and Risk Assessment, 2016
- FEMA RiskMAP Program, King County Risk Report (Earthquake, Landslide, Volcano, Flood)

Data sources are cited with footnotes throughout the plan. In addition to using data and report information from the above sources, many also contributed time and expertise to the review and development of the individual risk assessment chapters.

## Methodology

This risk assessment is intended to provide a robust overview containing key details, vulnerabilities, and considerations to enable emergency managers to plan for disasters. The profiles are designed to be brief, and yet also comprehensive enough, to be useful during a disaster response to help provide information on potential impacts and priority vulnerabilities.

This assessment focuses on examining impacts (consequences) from hazards on 10 different topic areas. These areas reflect best practices as identified by the Emergency Management Accreditation Program (EMAP) plus priority areas identified by King County.

- King County residents – all residents in King County
- Vulnerable populations – populations more likely to experience losses and recover more slowly from an incident. Different vulnerable populations may be highlighted depending on the incident type. For example, wildfire in King County is overwhelmingly a problem of smoke and smoke impact people with respiratory vulnerabilities most severely.
- Property – private property
- The economy – economic functions and assets
- The environment – natural resources, wildfire, fish, plants, and natural systems
- Health systems – hospitals, pharmacies, and the ability for people to find and receive care
- Government operations (continuity of operations) – King County government operations
- Responders – fire, police, EMS, and related services
- Lifeline infrastructure – power, water/wastewater, transportation, communications
- Public confidence in jurisdiction’s governance and capabilities

Each profile also looks at priority vulnerabilities in order to identify those areas requiring immediate focus before, during, and after an incident.

## Data

GIS data was taken from a variety of King County, Washington State, and federal sources. The data was sourced via King County GIS, including layers owned by both GIS and by other entities. Some of the GIS data analyzed in completing this risk assessment include:

TITLE	DESCRIPTION	SOURCE
Active Faults	Known active faults in the Puget Sound region	WA State Department of Natural Resources (DNR)

Wastewater Systems	King County wastewater treatment and conveyance systems	King County Department of Natural Resources and Parks Water Treatment Division (DNRP)
Water Supply Facilities	Seattle water supply facilities and conveyance systems. These are used to supply Seattle as well as many cities.	City of Seattle Public Utilities
Bridges	King County-maintained bridges	King County Roads
Rail Routes	All rail routes, including BNSF and Sound Transit	King County GIS
Transit Routes	Metro transit routes	King County Metro
Arterials	Arterial streets	King County Roads
Levees and Revetments	County-maintained flood protection structures.	DNRP, King County Flood Control District
BPA Transmission Lines	Bonneville Power Administration power transmission systems	Bonneville Power Administration
Historic Buildings	Designated historic buildings	King County GIS
Schools	School facilities	King County GIS
Government Buildings	King County government buildings	King County GIS, Facilities Management Division
Hospitals and Medic Units	Hospitals and medic unit locations	King County GIS
Pharmacies	Pharmacy locations	King County GIS
First Responder Facilities	Locations of fire, police, and EMS	King County GIS
City Boundaries	City jurisdictional boundaries	King County GIS
Rivers and Lakes	Waterbodies	King County GIS
Building Address Points	Building address points and age	King County Assessor
Building Age	Building address points and age	King County Assessor

Volcanic Hazard Areas	Lahar, lava flow, and lahar sediment areas	WA DNR, U.S. Geological Survey
Landslide Hazard Areas	Historic, deep landslide risk areas	WA DNR
Preliminary 100-year Floodplain	1% annual chance, special flood hazard area as mapped by FEMA. Will take effect as the regulatory floodplain in 2020.	FEMA, King County Flood Control District
Floodways	The regulatory areas including the channel and adjacent land areas that must be preserved in order to discharge the base flood without increasing the water surface elevation by more than a designated height.	FEMA, King County Flood Control District
Liquefaction Potential	Areas of NEHRP soil classes D, E, and F.	WA DNR
Landslide Buffer Areas	Buffers of 50 feet around known landslide areas.	King County GIS
Statewide Roads	State and federal highways	King County GIS
Health Insurance Coverage	Individuals with health insurance, by Census Tract	US Census, American Community Survey (ACS)
Travel Time to Work	Travel time to work on average by Census Tract	US Census, ACS
Means of Transportation to Work	Means of transportation to work, by percent, by Census Tract	US Census, ACS
Race	Self-identified race	US Census, ACS
Ethnicity	Self-identified ethnicity	US Census, ACS
Income	Income (range)	US Census, ACS
Languages	Languages other than English spoken at home	US Census, ACS
Disability Status	Counts of disabled persons	King County GIS
Education	Educational attainment by years, by Census Tract	US Census, ACS



Tenure	Housing tenure (ownership) status	King County GIS
HAZUS for earthquake (Seattle Fault, Cascadia Subduction Zone)	HAZUS runs for Seattle Fault 7.1 and Cascadia Subduction Zone 9.0 scenarios	FEMA RiskMAP

This and any additional data can be viewed on the ArcGIS online hazard map. This map will be available at least during the plan review and adoption phase and may be made available permanently:

<http://kingcounty.maps.arcgis.com/apps/View/index.html?appid=41abdeae1bf44907a9c14b98a2e5fb92>.

## Vulnerable Populations and Population-Based Vulnerability

Population vulnerability (or social vulnerability) measures factors that theoretically increase the likelihood of a population to suffer more losses during disasters or recover more slowly after being impacted. There is a growing body of work on this kind of vulnerability; however, how the data is reported can obscure the root causes of vulnerability when converted into an index or score. Knowing the root causes of vulnerability and how those vulnerabilities contribute to losses during disasters is critical for hazard mitigation professionals since each cause may require a unique strategy to address. For example, if the vulnerability results from language differences, then this can be addressed with robust translation and outreach services.

Communities that consider population-based vulnerability and social justice, often do it as an overlay – examining the impacts of a proposed project on vulnerable populations, for example, after the project has already been prioritized or mapping the location of vulnerable populations in accordance with some composite score and institutionally-defined definition of vulnerability. It is unclear if mapping alone, if awareness alone, has had much impact on where the bulk of resources are directed.

For this analysis, we examine the best available data of factors that have been found to lead to increased losses or recovery times following hazard events. This is to establish areas with different kinds of heightened vulnerability. We then overlay data on race, ethnicity, and income. This is to establish where equity may be a concern, where causes of vulnerability overlap with historically underrepresented minority populations.

### Determinants of Population Vulnerability

Good data at the appropriate scale was not available for all the below factors. However, these are factors that were identified through research and by the planning team as critical determinants of vulnerability. Maps of a selection of these factors, along with priority hazard areas, follow the list of variables.

#### *Population factors (population-based measures)*

1. Home Ownership Status (Renter)
2. Age (old or young)

3. Unemployment
4. Income
5. Wealth
6. Access and Functional Needs/Disability
7. Dependence on public transportation
8. Language other than English spoken at home
9. No health insurance
10. Hazard insurance coverage
11. Minimum wage employment/service sector employment
12. Families with dependents
13. Living in poverty
14. Crime rate
15. Years of schooling completed (HS, BA, MA, etc.)

*Accessibility and capital factors (access/infrastructure measures/social capital)*

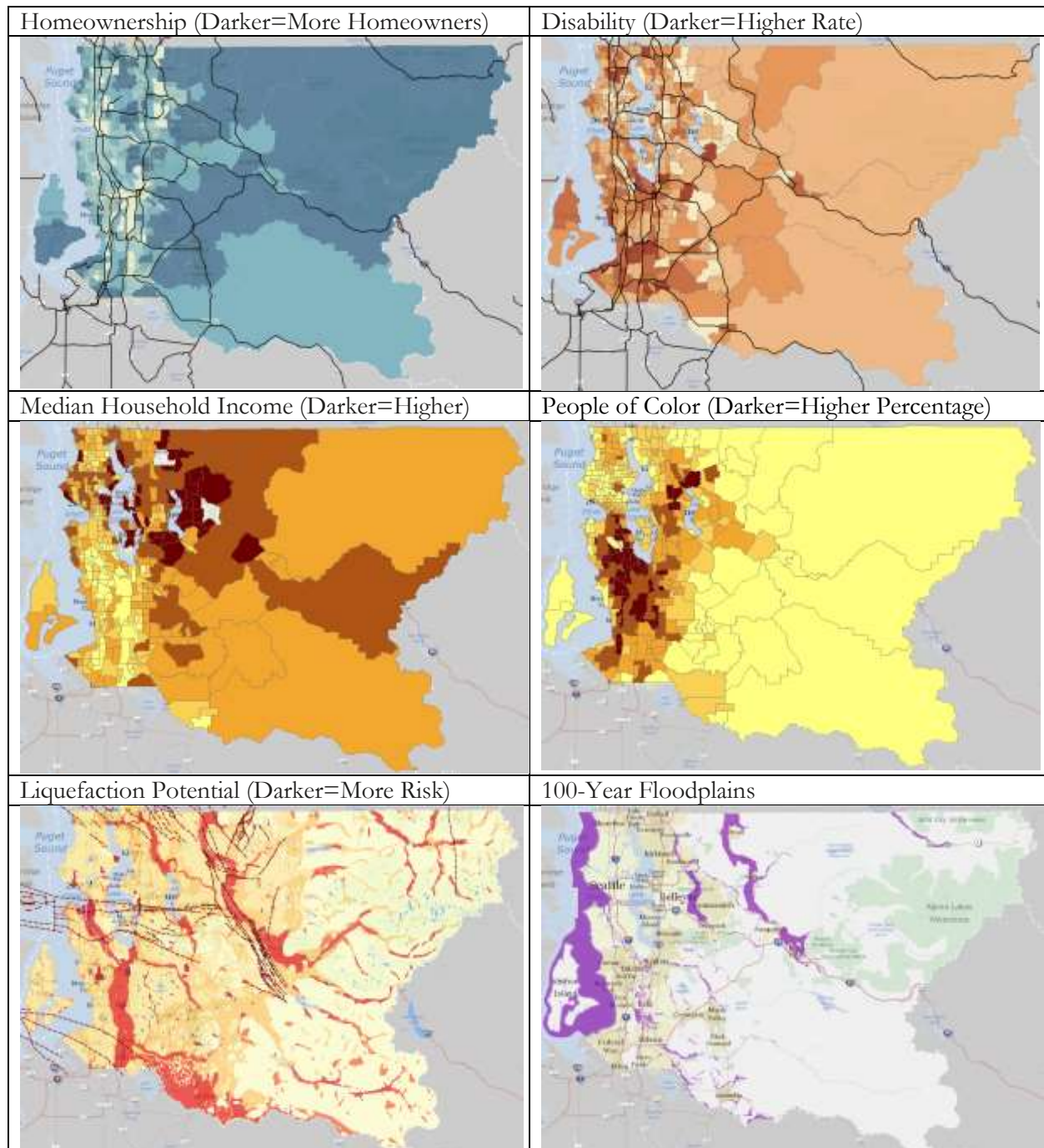
- Access to services (schools, libraries, community centers, county/city facilities)
- Quality of public facilities (public facility effective age)
- Quality of schools
- Access to hospitals or health clinics
- Quality of hospitals/health clinics
- Access to phone and internet
- Average age of housing
- Average commute time/distance to work
- Per capita government spending
- Neighborhood engagement (civic engagement, neighborhood association, something else?)

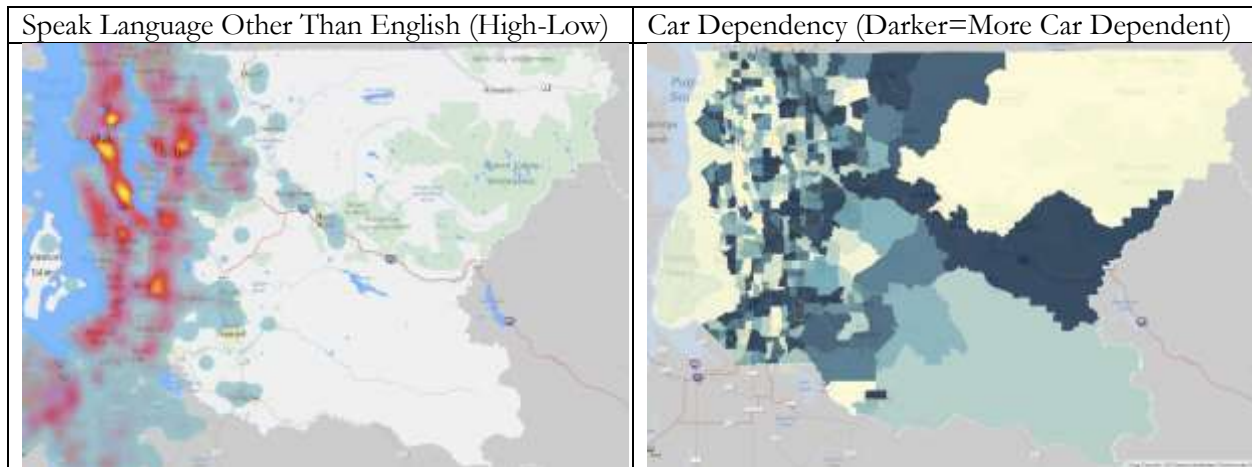
*Meta-factors (determinants of equity)*

- Race/ethnicity
- Age
- Income
- Immigrant/refugee status

The results from this analysis will be used to promote more effective, equitable disaster mitigation, response, and recovery by identifying key vulnerabilities and areas that may require additional investment. Also, this analysis will help identify areas where public infrastructure is older or less resilient, or where hazard risk is greater, so that additional investments can be targeted in those areas.

The following maps illustrate several of the above variables associated with greater hazard risk along with high hazard areas and non-white populations. This is just a selection of potential variables and illustrates how high-hazard areas, factors associated with hazard risk, and communities of color or with higher rates of disability may overlap. The highest population-risk areas in King County tend to be areas south of Seattle in the Green River Valley. These areas also are areas with the highest hazard risk. Investments that target critical public infrastructure and support structures in these communities would likely have the best cost-benefit ratio. Investments in these areas would have the added benefit of also promoting more equitable access to high-quality infrastructure and services for populations historically underserved by public investment.





### Jurisdiction-Specific Risk Assessments

In addition to this countywide risk assessment, each planning partner completed a risk assessment focusing on the priority hazards, vulnerabilities, and consequences. These assessments are contained in each planning partner annex. These assessments will have much more detail about individual jurisdiction risks and should supplement the wider lens of the risk profiles contained in the core plan.

To complete their assessments, jurisdictions were provided with GIS data and an ArcGIS online map containing relevant data on hazards and impacts. The data is the same as that used in the base plan risk assessments, but jurisdictions were asked to focus on impacts specific to their assets and boundaries. Jurisdictions assessed risk in two ways.

First, jurisdictions looked at hazards that could impact them, how susceptible/vulnerable they are to those hazards, and the consequences/impacts of a hazard event. The task was to develop “risk elevator pitches” that summarize the key elements of hazard risk in a way accessible to elected officials and the public.

Second, jurisdictions were asked to consider an asset-based approach, looking at their priority assets, the hazards that threaten those assets, and the consequences of losing the asset. All jurisdictions were encouraged to complete this process, but only special purpose districts were required to complete it. The goal of this approach was to identify assets that needed mitigation.

In addition to these risk summaries, a map showing the spatially discrete hazards (flood, liquefaction potential, steep slopes) was developed for cities.

In developing their risk assessments, jurisdictions held internal meetings to select the list of hazards that would be included and to assess the relative risk of each hazard. Most used a high-medium-low approach for impact, where high impact is a debilitating event and moderate impacts are serious events that disrupt operations for multiple days. For those that also considered probability separately from the base plan, a high probability event is likely to occur on an annual basis. These jurisdiction-specific risk assessments are not designed to be exhaustive but should give a much clearer picture of risk and vulnerability than is normally available from countywide assessments.

## King County Development Trends and Risk Trajectory

From 2010 to 2018 King County has grown at a rate of 13.4% per year.<sup>3</sup> This population growth has coincided with a near doubling of total assessed property values in the county from \$340 billion in 2014 to \$606 billion in 2019.<sup>4</sup> Over \$44 billion worth of new construction was assessed from 2014-2018. Property values stabilized in most of the county in 2018, although many unincorporated areas, especially in the northeast of the county around Carnation and Duvall, continued to grow at double-digit rates.

The huge growth in property values and development of new lands has also coincided with a growth in diversity. In 2018, the total population identifying as white declined by nearly 5000 persons while the non-white population grew dramatically. While this is a small change, it indicates that the future of King County will be more diverse and more populous.

Also, since 2015 the available science on risk has improved markedly. King County has new landslide hazard data from Washington State Department of Natural Resources (WA DNR). There is also updated tsunami data indicating far greater risk than previously recognized in the coastal areas. New climate change data is available in the Puget Sound State of Knowledge Report.<sup>5</sup> Finally, WA DNR is expected to publish a draft wildland-urban interface fire risk map by the end of 2019, helping to show the extent of fire risk, much of it spurred by the growth indicated above.

As development has occurred, jurisdictions have invested in risk reduction measures such as the installation of ductile iron pipe to replace cast iron pipe in water systems. While this work is critical, in most jurisdictions it is unlikely to be complete for 20-30 years. Other work has included bridge retrofits, wastewater system improvements, flood risk reduction projects, and risk assessments and planning. Nevertheless, there are dozens to hundreds of bridges in need of upgrades to keep the transportation system functioning in the event of a major earthquake.

New science showing more risk and a dramatic increase in population, especially in areas not previously developed, indicates that the county trajectory is toward more exposure and vulnerability. While there is ongoing work to reduce risk, it is not keeping up with existing needs, much less the needs of a larger, more diverse population living across a larger area.







ESTIMATED CHANGES IN RISK 2015-2020		
SECTOR	RISK CHANGE (Increased -, Decreased +, No Change =)	EXPLANATION




<sup>3</sup> King County Office of the Executive. 2018. 2018 King County Quick Facts. Accessed online on 8/28/19 from <https://kingcounty.gov/depts/executive/performance-strategy-budget/regional-planning/Demographics.aspx>.

<sup>4</sup> King County Office of Economic and Financial Analysis. July 19, 2019. July 2019 King County Economic and Revenue Forecast. Accessed online on 8/28/19 from [https://www.kingcounty.gov/~media/business/Forecasting/documents/July2019\\_Forecast.ashx?la=en](https://www.kingcounty.gov/~media/business/Forecasting/documents/July2019_Forecast.ashx?la=en).

<sup>5</sup> Climate Impacts Group. 2015. Puget Sound State of Knowledge Report. Accessed online on 8/28/19 from [http://cses.washington.edu/picea/mauger/ps-sok/ps-sok\\_cover\\_and\\_execsumm\\_2015.pdf](http://cses.washington.edu/picea/mauger/ps-sok/ps-sok_cover_and_execsumm_2015.pdf).



King County Residents		With a larger population that is likely no more prepared, risk to King County residents is estimated to have increased.
Vulnerable Populations		While there has been a large increase in median income, there is more income inequality and housing insecurity due to housing costs and other issues. There are also many new immigrants who may not be reached by disaster messaging or be familiar with the region's hazards. Overall risk to vulnerable populations has increased as these populations have grown.
Property		While the construction boom is reducing risk in some areas, some construction patterns, such as building homes close together, is increasing risk from fire. Also, the new development, some of it in marginal areas is increasing risk. This is especially acute in areas in the wildland-urban interface, near floodplains, or on unstable soils.
The Economy		The economy has grown but is also susceptible to a shock caused by a disaster that could permanently displace the major companies that make this region so competitive. Many of these companies are highly mobile and a disaster that destroys the region's infrastructure could devastate the economy.
The Environment		With heightened climate change and more development, the environment is more threatened by hazards including wildfire and flooding.
Health Systems		Health systems have seen modest improvement in overall risk as hospitals are upgraded to higher seismic standards.

Government Operations		No increase or decrease in risk to government operations is identified. While there continues to be some modest investment in the resilience of public facilities, there is still significant risk of disruption of services during a major incident, as demonstrated during the 2019 snow event. A seismic event would still threaten the ability of King County government to provide services and many buildings may not be useable.
Responders		No change in the risk to responders is identified.
Infrastructure Systems		Although not sufficient to meet the need, investments in infrastructure have modestly reduced risk.
Public Confidence	Mixed	Public confidence in the jurisdictions' capabilities is estimated to be mixed. On one hand, emergency management and county government are delivering services on a huge scale and received relatively positive feedback from the February 2019 storms. On the other, there has been little movement to systematically improve earthquake resilience, something frequently reported by the media.

# Regional Risk Profile: Avalanche

## Hazard Description

Avalanche hazards in the Northwest are associated with winter storms in the Cascade and Olympic Mountain ranges. Avalanches occur when a snow pack loses its grip on a slope and slides downhill. Typically, slopes of between 20 to 30 degrees and snow packs of 34 inches or more may produce avalanches. Most natural avalanches occur in back country little used by humans during such weather conditions. This tends to minimize exposure to avalanche impacts. Most vulnerable are travelers and



*Stevens Pass WSDOT avalanche control areas*

winter recreation enthusiasts using Stevens Pass in northeastern King County, Snoqualmie Pass in central-eastern King County, and Crystal Mountain Ski Area near Chinook and Cayuse passes in just outside of southeastern King County.<sup>6</sup>

Regionally, severe winter weather in the form of snowfall in the Cascade Mountains results in a snowpack that – when conditions are right – can lead to a natural or man-made/induced avalanche.

Avalanches can result in impacts to transportation through mountain passes and injuries or death to people using the mountain backcountry recreationally. Avalanche danger in King County is highest during severe winter weather from October through March annually. When moist air from the Pacific rises to climb the Cascade Mountains and meets the colder air of the U.S. interior, precipitation often falls as snow from late October through March or April each year.

The most frequent impact from avalanche is from pass closures, especially along Snoqualmie Pass on I-90. In particularly severe events, both Snoqualmie and Stevens pass may close for days at a time, effectively cutting the state in half. The other routes that cross the cascades, US 12, US 20, SR 410, and SR 14, are not suitable for large traffic volumes and large trucks and are often closed when I-90 and US 2 are closed. This occurred most recently during the February 2019 snowstorm. In that event, all the east-west highways were closed, limiting King County's road salt supply from the east side of the state. The snowfall totals at the pass exceeded normal, with 118 total inches in February alone (average accumulation in February is 73.9 inches). February 12, 2019 broke the 24-hour snowfall record, with 31.5 inches recorded



*Snoqualmie Pass WSDOT avalanche control areas.*

<sup>6</sup> Washington State Department of Transportation, Prediction of Snow and Avalanches in Maritime Climates: Final Report, WA-RD 203.1, December 1989, p.3.

by Washington State Department of Transportation (WSDOT) crews recorded at the summit. During this event, I-90 was closed beginning Monday afternoon, February 11, reopening on Thursday morning due to avalanche danger.

Avalanche impact areas are mapped for Snoqualmie and Stevens passes, which are maintained throughout the winter by WSDOT crews. Chinook and Cayuse passes are closed during the winter due to avalanche danger and difficulty of maintaining a clear roadway.

In addition to the roadway risk, two of the state's three cross-state railways pass through the Cascades. These railroads travel along a route similar to the major highways and are similarly susceptible to avalanche. Major snowfall and avalanche danger can disrupt rail freight traffic across the state, with significant economic impacts.

### Vulnerability Characteristics and Previous Occurrences

Recreational areas that support snowshoeing, alpine and cross-country skiing, snowmobile areas, and winter hikers and campers are most at risk from avalanche incidents. Typically, injuries to recreational hikers, skiers, snow boarders, and climbers occur outside managed areas. Several stretches of Interstate 90 and Highway 2 in King County are vulnerable to avalanches between October and April each year, depending on snow packs and weather conditions. Both Snoqualmie and Stevens Pass are significant commercial routes. Cargos are carried between the Ports of Tacoma and Seattle, and eastern Washington. When Stevens and Snoqualmie Passes are closed, I-84 in Oregon or air travel are the only practical ways to travel between Spokane and Seattle.

The popular backcountry skiing areas around Stevens and Snoqualmie passes are high-hazard zones where avalanche fatalities are relatively common. WSDOT posts signs, though these warnings are frequently ignored. People engaged in snow sports in these areas are often among the most experienced enthusiasts; however, even with safety equipment, they may trigger or fall victim to avalanches. There are, on average, one to three fatalities in avalanches statewide each year. Hundreds of avalanches are thought to occur around the Cascades each winter, though most without any human cause or impact.

There are twelve common factors that contribute to avalanche danger, including old snow depth, old snow surface, new snow depth, new snow type, snow density, snow fall intensity, precipitation intensity, settlement, wind direction and wind speed, temperature, subsurface snow crystal structure, and tidal effect.<sup>7</sup> Research done at Snoqualmie Pass indicates that most natural avalanches occur within one hour after the onset of rain over a weakened snow pack.<sup>8</sup> Large amounts of new snow accumulation also increases avalanche risk, especially when coupled with wide temperature swings.

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<sup>7</sup> Kruse, Scott M. "Avalanche Evaluation Check List," Avalanche Review vol. 8, No 4, February 1990

<sup>8</sup> Washington State Department of Transportation, Washington State Department of Transportation – Avalanche Control <http://www.wsdot.wa.gov/maintenance/avalanche4>

*Significant Historic Avalanches 2001-2019 – Stevens and Snoqualmie Passes<sup>9</sup>*

YEAR	PASS	FATALITIES AND INJURIES
1910 (Historic Maximum)	Stevens Pass (railway)	96 Fatalities
2001	Stevens Pass, Snoqualmie Pass	1 Fatality, 2 Injuries
2002	Stevens Pass, Snoqualmie Pass	10 Injuries
2003	Snoqualmie Pass	1 Fatality, 1 Injury
2004	None	None
2005	Snoqualmie Pass	1 Injury, 1 Fatality
2006	None	None
2007	Snoqualmie Pass	1 Injury, 2 Fatalities
2008	None	None
2009	None	None
2010	Snoqualmie Pass	3 Injuries
2011	Stevens Pass, Snoqualmie Pass	6 Injuries, 2 Fatalities
2012	Stevens Pass, Snoqualmie Pass	12+ Injuries, 6 Fatalities
2013	Stevens Pass, Snoqualmie Pass	4+ Injuries, 2 Fatalities
2014	Stevens Pass, Snoqualmie Pass	7+ Injuries, 1 Fatality
2015	Stevens Pass, Snoqualmie Pass	2 Injuries, 2 Fatalities
2016	None	None
2017	Stevens Pass, Snoqualmie Pass	2 Injuries, 1 Fatality
2018	Stevens Pass, Snoqualmie Pass	1 Injury, 3 Fatalities
2019	None	None

<sup>9</sup> Northwest Avalanche Center, Accident Reports. Accessed online on 5/13/19 from <https://www.nwac.us/accidents/accident-reports/>



## Scenario Drivers

There are two kinds of avalanches, loose and slab. Loose avalanches occur when light-grained snow exceeds its “angle of repose”, collapses a snow drift or bank and fans out as it slides downhill. A slab avalanche occurs when heavy or melting snow resting on top of looser snow breaks away from the slope and moves in a mass. The latter often occurs when rains soak the top layer of snow on moderately sloped terrain.

## Priority Vulnerabilities

Back-country recreationists	Snowmobilers, hikers, and skiers in back-country and off-trail environments are at the highest risk from avalanche.
Transportation networks	I-90 and US-2 are the most vulnerable routes to avalanche. Disruptions to both are common during the winter, though most are for a short duration. A long-duration disruption could have significant economic consequences.
Public safety officers and volunteers	Search and Rescue regularly travel on search missions for missing recreationists, putting them at risk from avalanche as well.

## Priority Impact Areas

King County residents	<p>Avalanche conditions can cause closure of ski areas like: Alpental, Hyak (Summit East), Ski Acres (Summit Central), Stevens Pass, and/or Crystal Mountain. The recreational skiers and the people who are seasonally employed can be impacted when these conditions close ski areas. People who ski “out of bounds” take exceptional risks in locations where avalanche control does not maintain safe conditions and search and rescue operations may be hampered.</p> <p>Pass closures may inconvenience people by causing them to either take commercial flights between eastern and western Washington or cause them to take wide routes around the mountain area through the Columbia Gorge between Washington and Oregon.</p> <p>There are no major populations in King County that are exposed to avalanche terrain. The King County community closest to avalanche country is Skykomish. It has not experienced an avalanche in recent memory.</p>
Vulnerable populations	No specific impacts are expected to vulnerable populations for this hazard.
Property	Property exposed to avalanches include ski area lifts and equipment, small clusters of seasonal vacation homes and utilities supporting ski areas, ski lodges, ski area support operations, and those vacation properties.

The economy	<p>Closure of ski areas from avalanche danger usually lasts only a short time. While revenue to one or more ski areas may be reduced, no long-term economic impacts can be expected from avalanche issues.</p> <p>Heavy snows and avalanche danger may close Stevens and/or Snoqualmie Pass for extended periods. These pass closures can impede transportation of goods between eastern/western Washington, impact the Port of Seattle and port/countries around the/Pacific Rim.</p> <p>Avalanche closure of King County passes may cause motorists and truckers to reroute through Interstate 84 in Portland.</p> <p>The most significant avalanche event in Washington State, and the deadliest in US history, occurred in 1910 near Stevens Pass. Two trains carrying passengers were hit by an avalanche killing 96 people. Economic impacts are also substantial. A WSDOT study claimed that a four-day closure at Snoqualmie Pass in the winter of 2007/2008 cost the state \$27.9M in economic output, 170 jobs, and \$1.42M in state revenue (2008 dollars).<sup>10</sup></p>
The environment	Avalanches are natural events; however, they kill wildlife and trees and can reshape the landscape.
Health systems	There are no known healthcare facilities or systems exposed to avalanches.
Government operations (continuity of operations)	<p>Avalanche areas are remote to most King County operations. Where avalanches may occur, King County Sheriff's Office Search and Rescue, Ski patrols, and volunteers may be involved. This may include BARK, a group that provides K-9 search capability for avalanche victims. Support may also be required from the aviation unit of the King County Sheriff's Office and from Emergency Medical Service units.</p> <p>Support personnel for avalanche control are provided by Washington State Department of Transportation.</p>
Responders	When avalanches bury or injury skiers and backcountry hikers, the King County Sheriff's Office Search and Rescue team(s) may be deployed along with trained volunteers and specially trained volunteer K-9 units like BARK (Backcountry Avalanche Rescue K-9). Most search missions occur in or around the off-trail perimeter of ski areas like Snoqualmie Acres, Hyak,

<sup>10</sup> Ripley, Richard, "Four-day Snoqualmie Pass closure cost \$27.9 million," Spokane Journal, 11/20/2008. Accessed online: <https://www.spokanejournal.com/local-news/four-day-snoqualmie-pass-closure-cost-279-million/>

	Alpental, Crystal Mountain, and Steven's Pass. Buried skiers are often severely injured or may be killed from their injuries or suffocation under large amounts of snow in areas difficult to reach.
Infrastructure systems	There are no critical facilities located in areas of the county subject to avalanches. Critical infrastructure that may be impacted includes the BNSF railway (also used by Amtrak) and the east west highways, US 2 (Stevens Pass) and I-90 (Snoqualmie Pass). Chinook Pass usually closes from October through May.
Public confidence in jurisdiction's governance and capabilities	The public at risk has a good understanding of the risks from avalanche. Warnings are regularly posted and announced to skiers and back country hikers during the winter months.

# Regional Risk Profile: Civil Disorder

## Hazard Description

Civil Disorder and civil disturbances can range from minor to significant events that can disrupt the functioning of a community for a few days, weeks or months. A worst case-scenario for a King County civil disorder would be an incident that takes place in a large urban environment and lasts for an extended period of time. An example of a worst-case scenario was the 1999 Seattle World Trade Organization rioting which significantly impacted the City and led to numerous injuries and arrests. The rioting raised Seattle's cost of handling the conference to \$9 million from an earlier estimated city cost of \$6 million surpassing worst-case projections<sup>11</sup>. In addition, downtown Seattle businesses lost an estimated \$20 million in property damage and lost sales during the WTO conference.

Title 18 of the United States Code defines civil disorder and lists the crimes associated with civil disorder. In Section 231 of Chapter 12, defines civil disorder as: “any public disturbance involving acts of violence by assemblages of three or more persons, which causes an immediate danger of or results in damage or injury to the property or person of any other individual...(a)(1)...use, application or making of any firearm, or explosive or incendiary device, or technique capable of causing injury or death to persons...or...(a)(2)...transports or manufactures for transportation in commerce any firearm, or explosive or incendiary device, knowing or having reason to know or intending that the same will be used unlawfully in furtherance of a civil disorder...or...(a)(3)...commit any act to obstruct, impede, or interfere with any fireman or law enforcement officer lawfully engaged in the lawful performance of official duties incident to and during the commission of a civil disorder...”.<sup>12</sup>

The term civil disobedience in contrast is a non-violent form of protest or resistance to obeying certain laws, demands and commands of a government or of an occupying power. Civil disobedience has been promoted by nationalist movements in Africa and India, the civil rights movement of the U.S., and labor and anti-war movements in many countries. Civil disobedience is sometimes equated with protests or non-violent resistance. Acts of civil disobedience can start peacefully but can lead to violence. In this context, civil disorder arising from civil disobedience in which participants turn violent and antagonistic toward public safety and civil authority is illegal. Washington state law defines civil disorder as “any public disturbance involving acts of violence that is intended to cause an immediate danger of, or to result in, significant injury to property or the person of any other individual.” Under Revised Code of Washington 9A.48.120, civil disorder training “as (1)...a person is guilty of civil disorder training if he or she teaches or demonstrates to any other person the use, application, or making of any device or technique capable of causing significant bodily injury or death to persons, knowing, or having reason to

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<sup>11</sup> CBC News. January 6, 2000. WTO protests hit Seattle in the pocketbook. Accessed online on 8/26/19 from <https://www.cbc.ca/news/world/wto-protests-hit-seattle-in-the-pocketbook-1.245428>.

<sup>12</sup> Office of the Law Revision Council. 18 USC Ch. 12: Civil Disorders. Accessed online on 8/26/19 from <https://uscode.house.gov/view.xhtml?path=/prelim@title18/part1/chapter12&edition=prelim>.

know or intending that same will be unlawfully employed for use in, or in furtherance of, a civil disorder"...and (2) classifies it as a "class B felony."

### Vulnerability Characteristics and Previous Occurrences

Civil disorder may result from many situations and encompass a broad spectrum of civil action that ranges from peaceful events to other forms of disturbance caused by a group of people. The severity of such disturbances often reflects the degree of public displeasure or expression of discontent. Examples of civil disorder include, but are not necessarily limited to: violent demonstrations and other forms of obstructions, riots, sabotage, and other forms of crime. Civil disorder can be a dangerous condition that can become increasingly chaotic and volatile.

Laws have evolved that govern civil disorder and peacefully resolve conflict. In the United States, gathering in a crowd is constitutionally protected under "the right of the people to peacefully assemble." However, assemblies that are not peaceable are generally not protected. The laws that deal with disruptive conduct are generally grouped into offenses that disturb the public peace. They range from misdemeanors, such as blocking sidewalks or challenging another to fight, to felonies, such as looting and rioting.<sup>13</sup>

The circumstances surrounding civil disorder may be spontaneous or may result from escalating tensions as was demonstrated during 1999 Seattle World Trade Organization protests. Civil disorder can erupt anywhere but the most likely locations are those areas with large population groupings or gatherings.<sup>14</sup> Sites that are attractive for political rallies should be viewed as potential locations for the epicenter of civil disorder events. Disruption of critical infrastructure may occur during very severe civil disorder events. Public services such as water, power, communication, and transportation may be temporarily unavailable.

Civil disorder can also occur in proximity to locations where a 'trigger event' occurred as was the case in January 2017 at University of Washington when demonstrators and counter-demonstrators gathered as a politically conservative commentator was scheduled to speak. Violent protests took place on campus and a person was shot.

The Seattle Mardi Gras riot occurred on February 27, 2001, when disturbances broke out in the Pioneer Square neighborhood during Mardi Gras celebrations. There were numerous random attacks on revelers over a period of about three and a half hours. There were reports of widespread brawling, vandalism, and weapons being brandished. Damage to local businesses exceeded \$100,000. About 70 people were

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<sup>13</sup> Revised Code of Washington Title 9A.

<sup>14</sup> Mid-America Regional Council. 2015. Regional Multi-Hazard Mitigation Plan. Accessed online on 8/26/19 from [https://www.marc.org/Emergency-Services-9-1-1/pdf/2015HMPdocs/HMP2015\\_Sec4-HAZ-CivilDisorder.aspx](https://www.marc.org/Emergency-Services-9-1-1/pdf/2015HMPdocs/HMP2015_Sec4-HAZ-CivilDisorder.aspx).



reported injured. Several women were sexually assaulted. One man, Kris Kime, died of injuries sustained during an attempt to assist a woman being brutalized.<sup>15</sup>

Civil disorder can also occur as a collective outburst from a causal factor or driver. For example, past May Day protests in Seattle have routinely exhibited violence or vandalism. A 2013 May Day protest in downtown Seattle turned violent with police responding to demonstrators throwing rocks, bottles, metal pipes, fireworks -- and even a skateboard. The clashes left eight officers with injuries, and police reporting the arrests of 17 people on various offenses including property destruction and assault. During the clashes, police deployed flash-bang grenades and tackled unruly protesters to the ground.<sup>16</sup> In 2016 May Day protest in Seattle a peaceful march turned violent when protesters lit fireworks and threw rocks and Molotov cocktails at police. Nine people were arrested and five officers were injured in the clashes.

While May Day is not recognized as an official holiday, many treat it as a nationwide day of strike with thousands turning out for peaceable protests and marches in Seattle.<sup>17</sup> Other groups, such as anti-capitalists, anti-fascists, radical environmentalists and anarchists plan May Day events too with chaos and violence often resulting in arrests, infrastructure damage and interruption to transportation services. These aren't the only groups to demonstrate on May Day. In the 1970s, anti-war protesters took to the streets of Seattle. Anti-police brutality activists joined anarchists in 2015.<sup>18</sup>

The ultimate severity of any civil disorder event will depend on the magnitude of the event and its location. The more widespread an event is, the greater the likelihood of excessive injury, loss of life and property damage. Additional factors, such as the ability of law enforcement to contain the event, are also critical in minimizing damages.

Against this backdrop and historical precedence, King County will continue to experience civil disorder stemming from civil disturbance in which participants turn violent and antagonistic toward civil authority in Seattle and other communities. However, based on King County's experience with such disturbances, the probability that such incidents will develop into mass violence of civil disorder remains low.

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<sup>15</sup> Burton, Lynsi. February 16, 2015. Looking back: Mardi Gras riots of 2001. *The Seattle Times*. Accessed online on 8/26/19 from <https://www.seattlepi.com/seattlenews/article/Looking-back-Mardi-Gras-riots-of-2001-6084162.php>.

<sup>16</sup> Watts, Amanda and Lindy Royce-Bartlett. May 2, 2013. 17 arrested as Seattle May Day protests turn violent. *CNN*. Accessed online on 8/26/19 from <https://www.cnn.com/2013/05/01/us/seattle-may-day-protests/index.html>.

<sup>17</sup> Mirfendereski, Taylor. April 30, 2017. What is May Day? *King 5 News*. Accessed online on 8/26/19 from <https://www.king5.com/article/news/local/what-is-may-day/281-435393398>.

<sup>18</sup> Guevara, Natalie. May 1, 2019. May Day: A primer on the labor, immigrant rights rally and its history in Seattle. *The Seattle Post-Intelligencer*. Accessed online on 8/26/19 from <https://www.seattlepi.com/seattlenews/article/May-Day-Seattle-protest-immigration-labor-anarchy-13808200.php>.

## Scenario Drivers

Civil Disorder can arise from many situations and be triggered by a specific issue or by combination of causes. Instances of police violence have often been a scenario trigger for civil disorder (e.g. 2009 Oakland police shooting of Oscar Grant).<sup>19</sup> In King County, the 2008 video of a King County deputy assaulting a teen girl in a holding cell was referenced in a Seattle 2010 'March Against Police Brutality' flyer.<sup>20</sup> During the Capital Hill demonstration Seattle police arrested five individuals for investigation of crimes ranging from trespassing to inciting a riot.

While demonstrations and protests can occur throughout King County, these civil actions often involve free speech rights in public places and do not evolve into chaos and violence. Civil disorder within King County remains centered in the Seattle area. For planning purposes, civil disorder occurs in areas of government buildings, military bases, schools/universities, city council meetings, state/city parks and within a downtown core.

The lines between civil disorder, civil disobedience, civil unrest and protest/demonstrations are often times blurred and encompass a wide range of actions from peaceful to violent, from legal to illegal and from spontaneous to highly planned. Further, while a group of people may organize and bring attention to a specific cause through peaceful protest/demonstrations, a smaller, separate group may engage in illegal tactics. This group of anarchists are seen as purveyors of violence and destruction.<sup>21</sup> Typically, criminal anarchists employ a common mode of dress which is part of a tactic frequently called "Black Bloc." In the "Black Bloc" stratagem, throngs of criminal anarchists all dress in black clothing in an effort to appear as a unified assemblage, giving the appearance of solidarity for the particular cause at hand. This tactic is particularly troubling for law enforcement security forces, as no anarchist rioter can be distinguished from another, allowing virtual anonymity while conducting criminal acts as a group.

Black Bloc gained attention in the United States in 1999 after violent protests at a meeting of the World Trade Organization in Seattle, according to a 2001 history of the tactic on the anarchist news website, A-Infos. Hundreds of people were arrested in the Seattle riots, which involved anarchists vandalizing businesses.<sup>22</sup>

Not every public protest or demonstration will attract an element of criminal anarchists. The types of demonstrations unlawful anarchists most commonly attend include those against environmentally harmful practices, those against gentrification, and anti-police rallies.

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<sup>19</sup> Associated Press. June 13, 2011. Ex-BART Officer Johannes Mehserle Released From Jail. *KPIX CBS SF Bay Area*. Accessed online on 8/26/19 from <https://sanfrancisco.cbslocal.com/2011/06/13/ex-bart-officer-johannes-mehserle-released-from-prison/>.

<sup>20</sup> JSeattle. April 9, 2010. Protest against police brutality starts at Seattle Central. *Capitol Hill Seattle Blog*. Accessed online on 8/26/19 from <https://www.capitolhillseattle.com/2010/04/protest-against-police-brutality-starts-at-seattle-central/>.

<sup>21</sup> Flowers, Kory. January 30, 2015. Understanding the Black Block. *Police: The Law Enforcement Magazine*. Accessed online on 8/26/19 from <https://www.policemag.com/341767/understanding-the-black-bloc>.

<sup>22</sup> Rossman, Sean. February 2, 2017. G-20 summit protests: What is a Black Bloc? *USA Today*. Accessed online on 8/26/19 from <https://www.usatoday.com/story/news/nation-now/2017/02/02/what-black-bloc/97393870/>.

## Priority Vulnerabilities

Government facilities	Civil disorder incidents often target government organizations or visible images of the government such as police vehicles, city halls, or court facilities.
Businesses	Businesses such as banks, businesses in downtown areas or along transportation routes, and other commercial establishments are often targeted during looting or may be targeted for political or racist reasons such as ownership by an immigrant group in the case of anti-immigration riots or because they are associated with an industry being targeted by the manifestation (banks, abortion clinics, oil company offices, etc.).
Minority and immigrant communities	There have been multiple incidents in recent years of white-supremacist organizations holding events that turn violent, including the Charlottesville, VA marches that resulted in the death of a woman at the hands of a white supremacist terrorist who drove his vehicle into a crowd.

## Priority Impact Areas

King County residents	All King County residents can be impacted, though those who live or work in downtown areas tend to be more exposed and impacted by civil disorder incidents.
Vulnerable populations	Ethnic minority and immigrant communities are historically targeted by civil disorder events. While rare in our region, the United States has a long history of racially-motivated riots that burn and destroy minority-owned businesses and homes.
Property	Much of the impact from civil disorder is to property, secondary only to economic impacts. During the World Trade Organization protests in 2000, over \$20 million in damage was recorded by businesses and \$9 million in costs to the city.
The economy	Economic impacts caused by loss of business, destruction of businesses, and business interruption can exceed the property damage dollar figures by a factor of two or more. Lost sales and uninsured losses can permanently destroy many businesses. Areas can also become perceived as unsafe or unwelcoming for business, further hurting the economy.
The environment	Civil Disorder will have a minimum impact on the environment; unless, hazard material facilities such as petroleum, chemical, and recycling are targeted in arson fires or vandalism. The impact on the environment in such cases could be significant.
Health systems	Health systems can be overwhelmed by civil disorder incidents, such as when large numbers of demonstrators are brought to the hospital due to exposure to tear gas or due to clashes with counter-demonstrators or with police.

Government operations (continuity of operations)	Major incidents can bring government services to a standstill. In King County, with both City of Seattle and King County offices are in the same area, along with court facilities. A major incident in this area would prevent employees from getting to work or home. Furthermore, government buildings are often targeted and can be damaged or destroyed.
Responders	Responders are often on the front line of events. Responders can be targeted, causing injury to personnel, damage to facilities, and the loss of equipment. Responders are often injured during major incidents and, even when events are brought under control, may be seen as an enemy of the community causing long-term trust issues.
Infrastructure systems	<ul style="list-style-type: none"> <li>• Energy: Pipelines carrying oil are a potential target for demonstrators. Oil trains have been targeted frequently in Washington; however, these protests do not tend to turn violent.</li> <li>• Water/Wastewater: Water systems are rarely the primary target of a demonstration and may only be peripherally impacted.</li> <li>• Transportation: One of the largest impacts from a major incident is disruption to transportation. Transit facilities and assets like busses may be destroyed. Roads can be closed for hours or days.</li> <li>• Communications: Communication systems are redundant and are unlikely to be severely impacted by a civil disorder incident.</li> </ul>
Public confidence in jurisdiction's governance and capabilities	Major incidents can cause long-term damage to public confidence in the jurisdiction or, especially, public safety elements of jurisdiction governance. This can cause either alienation or, when response is proactive, help rebuild confidence and trust. To best preserve and grow confidence, a jurisdiction must respond quickly and effectively but without excessive force. The general public expects a quick restoration of order and protection of property while activists may demand accountability from officials and safety for peaceful demonstrators.

# Regional Risk Profile: Cyber Incident

## Hazard Description

Information technology has become embedded in the ways we conduct business, work and live. In a government context technology is fundamental to public services such as providing healthcare, public transportation, law enforcement, citizen engagement, public utilities, and supporting tax and rate payers.

A cyber-incident can have a severe impact on technology and therefore local government's capability to deliver services and conduct daily operations.

A cyber incident is defined by the Department of Homeland Security (DHS) in the 2016 National Cyber Incident Response Plan as “an event occurring on or conducted through a computer network that actually or imminently jeopardizes the confidentiality, integrity or availability of computers, information on communication systems or networks, physical or virtual infrastructure controlled by computers or information systems, or information resident thereon<sup>23</sup>.

- Confidentiality refers to the ability to preserve authorized restrictions on information access and disclosure, including means for protecting personal privacy and proprietary information.
- Integrity speaks to guarding against improper information modification or destruction and ensuring information non-repudiation and authenticity.
  - Data Integrity – The property that data has not been altered in an unauthorized manner. Data integrity covers data in storage, during processing, and while in transit.
  - System Integrity – The quality that a system has when it performs its intended function in an unimpaired manner, free from unauthorized manipulation of the system, whether intentional or accidental.
- Availability refers to the ability to ensure timely and reliable access to and use of information<sup>24</sup>

The nature of a cyber-incident differs from other hazards such as a landslide or an earthquake because it often lacks physical presence or evidence. The Ponemon Institute estimates the average time to identify a data breach is 206 days. When the breach is discovered it has already occurred or is still ongoing.<sup>25</sup> The average time it takes to fully contain a breach, after it has been identified, is 73 days. Organizations have seen an increase in the identification and containment mean time over the last few years, which has been attributed to the increasing severity of criminal and malicious attacks.<sup>26</sup>

Wherever information technologies exist and are used, cyber incidents can occur. As the County becomes more and more dependent on its IT infrastructure it also becomes more vulnerable to IT related disruptions. Most cyber incidents can be categorized as malicious attacks, human errors or as

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<sup>23</sup> National Cyber Incident Response Plan, Department of Homeland Security, December 2016 p. 8

<sup>24</sup> <https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-12r1.pdf> 10/14/19

<sup>25</sup> IBM 2019 Cost of a Data Breach Report: Global Overview. p 50

<sup>26</sup> IBM 2019 Cost of a Data Breach Report: Global Overview. p 50



system glitches. More than 50% of the incidents are estimated to be caused by malicious or criminal attackers.<sup>27</sup>

Cyber incidents based on actors with malicious intent can be driven by criminal motives for profit, extortion, and theft or to damage, destroy or interfere with infrastructure systems. Organizations worldwide experience malicious attacks on a daily basis. Most of the attacks are unstructured with little to no organization behind them such as a phishing attack or malware hidden in a downloaded file. Attacks are carried out with tools aiming to take advantage of well-known flaws and are often detected by security tools such as antivirus programs before they cause harm. However, an undetected attack can cause significant harm to an organization before it's detected and fully contained. More sophisticated attacks with a specific target are less common, harder to detect and take longer to contain. These attacks are more likely to have a catastrophic impact on an organization causing disruptions over some or all of the network. Over the last few years attackers have been targeting organizations using sophisticated ransomware, which encrypts the organizations' data and demands a ransom to decrypt it. Other attacks include cyber terrorism, aiming to cause sufficient destruction or disruption, to generate fear or undermine entities such as an organization, a region, a sector or a country.

Cyber incidents due to human errors or system glitches can occur because of negligence, lack of implemented policies and/or process, unclear roles and responsibilities, insufficient training, misconfigurations etc. Such incidents are often identified and contained faster than disruptions caused by malicious actors<sup>28</sup>. Human errors and system glitches can expose confidential data, decrease availability and put data integrity at risk.

Data centers, physical IT infrastructure and hardware are vulnerable to other hazards such as long lasting power outages, flooding, earthquakes and fires. In the event of such hazards it is likely that the disruption to information technology will slow down the recovery time of critical communication systems, essential services and hardware.

Unshielded electronic and electrical equipment is sensitive to electromagnetic pulses (EMP). An EMP is an intense burst of electromagnetic energy resulting from natural (e.g. solar storms or space weather) or man-made (e.g. nuclear or pulse-power device). An EMP can temporarily affect or permanently damage electronic equipment. Solar storms which affects electronic equipment are rare but have occurred in the past impacting GPS satellite systems and signals sent to ground-based receivers<sup>29</sup>.

The impact of a cyber-incident ranges from minimal to catastrophic depending on factors such as; magnitude of internal and external impact, affected systems, length of the incident, the nature of the data and so on. A small earthquake, a misconfiguration which was discovered early without any implications or a stolen encrypted laptop without sensitive data could have a minimal impact on the County. Whereas a ransomware attack which encrypts all or most of the County's data could have a

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<sup>27</sup> IBM 2018 Cost of a Data Breach Report: Global Overview. p 6

<sup>28</sup> IBM 2018 Cost of a Data Breach Report: Global Overview. p 9

<sup>29</sup> NASA Solar Flares, [https://www.nasa.gov/mission\\_pages/sunearth/news/X-class-flares.html](https://www.nasa.gov/mission_pages/sunearth/news/X-class-flares.html) 2019-10-14

catastrophic impact on the organization leading to loss of County operational capability, economic and reputational loss as well as life, health and safety risks and financial loss for individuals who live, work or visit the region.

### Vulnerability Characteristics and Previous Occurrences

Regardless of the nature of the cyber incident, any area where an IT system supports the County services can be vulnerable. In order to reduce the risk of cyber incidents it is important to manage threats and vulnerabilities, have established backup systems, incident response plans and exercises, disaster recovery and continuity of operations. The magnitude of a cyber-incident varies greatly based on the extent and duration of the impact. The extent varies based on which specific system or data is affected, possible warning time, the ability to preempt the incident and activate a well-known and effective incident response plan.

Minor cyber incidents which are identified early and are recoverable may have some impact on daily operations before fully contained but won't have any significant effect on the County. A significant incident can have a major impact not only to the County but the region. Such incidents may result in safety and health risks, financial losses for the County and the region, reputational damage and inability to comply with regulatory requirements including penalties and fines. It may also affect the County's ability to achieve critical strategic objectives and fulfill Executive priorities.

The County's business essential services are critical to support life, health and safety in the region. Cyber incidents affecting those systems and services can have catastrophic impact on people who live, work or visit the region if they're not available within 0-72 hours after the initial disruption. The business essential services also include functions with legal requirements.

The County manages public, sensitive and confidential data on behalf of people who live, work and visit the region. Some of the data is regulated by federal law, Revised Code of Washington and national or global compliance regulations. Unauthorized, unanticipated, or unintentional disclosure of confidential data could result in loss of reputational damage, or legal action against the County and can, amongst other things result in identity theft or financial loss for impacted individuals. Personal Health Information (PHI) is more valuable on the black market than regular Personally Identifiable Information (PII). Therefore, there is a higher incentive for malicious attackers to target PHI than sensitive data such as PII. Loss of critical system or data availability, functionality and operational effectiveness, for example, may result in loss of productivity, thus impeding the end users' performance of their functions in supporting the County's operations. If hardware, computer systems, networks, servers and backups are damaged due to other hazards or accidental or deliberate damage, it can cause additional delays. System and data integrity is lost if unauthorized changes are made to the data or IT system by either intentional or accidental acts. If the loss of system or data integrity is not corrected, continued use of the contaminated system or corrupted data could result in inaccuracy, fraud, or erroneous decisions.

King County has services relying on SCADA (Supervisory Control And Data Acquisition) systems. SCADA systems are industry control systems which are used to control infrastructure and facility based

processes such as wastewater treatment and airports. Cyber incidents affecting those type of services can have severe impact on areas such as the environment, health, safety and financial consequences for the region.

Not all IT systems utilized by the County are owned or managed by the County. The County relies on numerous third party vendors and partners who are also exposed to cyber incidents and can therefore be vulnerable to cyber disruptions in other organizations.

Cyber incidents occur daily across the globe. The quantity of information being stolen by malicious attackers, destroyed or exposed as a result of a human error or made unavailable due to a system glitch is growing each year. King County is the recipient of a constant variety of attacks ranging from scans for weaknesses in our defenses, malware, phishing, and internet based attacks, as well as insider threats. The timeline below comprises state, national and international events and exemplifies consequences of a cyber-incidents.

Year	Location	Description
2006	United States	Geomagnetic storms and solar flares disabled the Global Positioning System (GPS) signal acquisition over the United States.
2007	Estonia	Dispute regarding movement of a Russian statue led to a cyber-attack that crippled websites for government services, banks, media outlets etc.
2008	Turkey	Hackers disabled communications, alarms, and caused a crude oil refinery the Turkish pipeline to explode, destroying operations and facilities.
2013	United States	Hackers stole credit card information from over 40 million Target customers.
2014	Washington State	Washington State experienced a six hour long 911 system outage due to human error.
2014	United States	280 000 AT&T accounts were breached by insiders who accessed user information with malicious intent.
2015	United States	The Office of Personnel Management experienced a malicious attack resulting in over 20 million compromised personnel records.
2016	Global	Over 1 billion Yahoo user accounts were compromised in 2013 and were discovered and communicated in 2016.
2017	Global	Geomagnetic storm affected power grids and radios.
2017	Sweden	Due to human error the National Transport Agency exposed its entire database including military secrets and personal identifiable information of individuals in the witness protection program, military personnel, and police officers.

2017	Global	WannaCry, a ransomware virus affected over 200 000 computers across 150 countries.
2017	Washington State	The University of Washington suffered a HIPAA data breach exposing information of nearly 1 million patients due to human error.
2018	United States	The City of Atlanta, Georgia and the Colorado Department of transportation suffered a ransomware attack named SamSam.
2018	United states	The City of Valdez in Alaska was targeted by a ransomware attack that remained dormant for weeks before doing any damage.
2019	Washington State	The City of Sammamish was targeted by a ransomware attack that shut down many city online services, requiring the city manager to declare an emergency and request support from law enforcement and King County IT and hire a tech company to help resolve the crisis.

### Scenario Drivers

<p>Cyber incidents can occur at any time, with or without previous warnings. Cyber incidents based on an actors malicious intent can be driven by criminal motives for profit, extortion, and theft or to damage, destroy or interfere with infrastructure systems. Cyber incidents due to human errors or system glitches can occur because of negligence, lack of policy and/or process, unclear roles and responsibilities, insufficient training, misconfigurations etc.</p>	
Advanced Persistent Threat (APT)	An attack in which the attacker gains access to a network and remains undetected. APT attacks are designed to steal data instead of cause damage.
Adware	A form of software that displays advertising content in a manner that is potentially unexpected and unwanted by users, which may also include various user-tracking functions (similar to spyware).
Denial-of-Service Attack (DoS)	Attacks that focus on disrupting service to a network in which attackers send high volumes of data until the network becomes overloaded and can no longer function.
Drive-by Downloads	Malware is downloaded unknowingly by the victims when they visit an infected site.
Electro Magnetic Pulse (EMP)	Intense burst of electromagnetic energy resulting from natural (e.g. solar storms or space weather) or man-made (e.g. nuclear or pulse-power device) which can temporarily affect or permanently damage electronic equipment.

Hazards	Earthquakes, flooding and extreme weather can cause a verity of cyber incidents including loss of data and system availability and communications.
Malvertising	Malware downloaded when the victim clicks on an affected ad.
Malware	Software that can destroy data, affect computer performance, cause a crash, or even allow spammers to send email through an account.
Man-in-the-Middle	MITM attacks mirror victims and endpoints for online information exchange. In this type of attack, the MITM communicates with the victim who believes is interacting with the legitimate endpoint website. The MITM is also communicating with the actual endpoint website by impersonating the victim. As the process goes through, the MITM obtains entered and received information from both the victim and endpoint
Password Attacks	Third party attempts to crack a user's password and subsequently gain access to a system. Password attacks do not typically require malware, but rather stem from software applications on the attacker's system. These applications may use a variety of methods to gain access, including generating large numbers of generated guesses, or dictionary attacks, in which passwords are systematically tested against all of the words in a dictionary. Due to users reusing the same password for different systems a password attack targeting an unrelated system can give the attacker access to a more sought after system.
Pharming	Arranging for a web's site traffic to be redirected to a different, fraudulent site, either through a vulnerability in an agency's server software or through the use of malware on a user's computer system.
Phishing	Malicious email messages that ask users to click a link or download a program. Phishing attacks may appear as legitimate emails from trusted third parties.
Physical damage	Intentional or unintentional damage to physical infrastructure such as data center, hardware, power grids etc.
Ransomware	Malware that locks a person's keyboard or computer to prevent them from accessing data until you pay a ransom, usually in Bitcoin. A



	popular variation of this is ransom crypto ware, which corrupts files using a private key that only the attacker possesses
Social Engineering	In the context of cyber-security, this refers to an effort to psychologically manipulate a person, especially through misrepresentation or deception, to gain access to information. The manipulation often relies on the trusting nature of most individuals, or makes use of many persons' natural reluctance to offend others or appear too mistrustful. The ruse may involve creating impressions that make things appear more benevolent, trustworthy, and reliable than they actually are. Some schemes are very complex, and involve several stages of manipulation over a substantial period of time.
Social Engineered Trojans	Programs designed to mimic legitimate processes (e.g. updating software, running fake antivirus software) with the end goal of human-interaction caused infection. When the victim runs the fake process, the Trojan is installed on the system.
Spear Phishing	A form of phishing that targets a specific individual, company, or agency, usually relying on an accumulation of information to make subsequent ruses more effective when further probing the target, until a successful security breach finally becomes possible.
Spoofing	Attempting to gain access to a system by posing as an authorized user, synonymous with impersonating, masquerading, or mimicking. Attempting to fool a network user into believing that a particular site was reached, when actually the user has been led to access a false site that has been designed to appear authentic, usually for the purpose of gaining valuable information, tricking the user into downloading harmful software, or providing funds to the fraudsters.
Spyware	Software that allows others to gain private information about a user, without that person's knowledge or consent, such as passwords, credit card numbers, social security numbers, or account information.
Structured Query Language injection (SQLi)	Attackers use malicious SQL code for backend database manipulation to access information that was not intended to be displayed.
Virus	A program or code that attaches itself to a legitimate, executable program, and then reproduces itself when that program is run.

Worm	A self-contained program (or set of programs) that is able to spread copies of itself to other computer systems, usually through network connections of email attachments
Zero-day exploit	An attack which occurs the same day a vulnerability is discovered in the software. The vulnerability is exploited by the attacker before it can be fixed by a patch or a permanent solution.

### Priority Vulnerabilities

Essential Services	The County has identified a number of essential services which are critical to support life, health, safety and legal requirements in the region.
Critical SCADA Systems	Industrial control systems which are used to control infrastructure and facility based processes such as wastewater treatment and airports.
Critical facilities	Facilities such as data centers and incident response facilities.
Critical devices	Smart devices paired to essential services such as medical devices.
Communication system	Although separate communication systems can be utilized in the event of a severe incident the County still relies on its communications systems for daily operations.

### Priority Impact Areas

King County residents	Anyone who is present in King County during a cyber-incident can be impacted. Impact on residents may include: delayed services such as transportation, impaired or cancelled healthcare services, decreased or no availability of public services, information, and financial loss and exposed or lost information.
Vulnerable populations	Individuals who have a direct dependency on King County for health and safety reasons are vulnerable to cyber incidents impacting their needed services. Other vulnerable populations include individuals and organizations who depend on an income from the County if payments can't be processed, who are dependent on critical public services or County provided transportation.
Property	Cyber incidents can cause physical damage if property such as facilities, devices, infrastructure, or end consumers are affected by the disruption. An incident including utilities, life support devices, transportation or telecommunications may lead to extensive property damages.

The economy	<p>The financial impact of a cyber-incident ranges from little or minimal to significant depending upon duration, scale, affected systems, devices and users. A significant, extended cyber incident affecting most or all of the County's operations would likely impact the local and possibly regional economy for some time. An incident of that magnitude would likely creates significant, potentially long-term or ongoing challenges to the County's ability to fund essential services and activities related to Executive priorities.</p> <p>Organizations who experiences cyber incidents which leads to data breaches of sensitive or confidential information can be subjects to legal fines and financial penalties if, for example, Personal Healthcare Information (PHI) is lost or exposed or personal identifiable information including social security numbers, credit card information or driver's license information is breached. Organizations who fail to meet regulatory and contractual obligations due to a cyber-incident may have significant cost for legal fees, settlements and fines.</p>
The environment	<p>The loss of control or availability of the County's SCADA systems could potentially impact the environment in the region if, for example, it causes the release of hazardous materials or improper disposal of waste water.</p>
Health systems	<p>Last years' cyber incidents including ransomware attacks, distributed denial of service attacks, system glitches and human error in healthcare systems all demonstrate that cyber incidents, are capable of triggering emergencies that impact patient care and public health. If an agency cannot access its own EHR, patient care could be delayed or hindered. Furthermore if other critical healthcare related systems and devices can't be accessed or data integrity guaranteed patient safety will be at risk.</p>
Government operations (continuity of operations)	<p>Minor cyber incidents which are identified early and are recoverable may have some impact on daily operations before fully contained but won't lead to significant loss of operations. A significant incident impacting one or more functions and businesses can severely affect the County's capability to perform critical operations. However, not all daily operations are critical. The County has defined its essential services, which need to become operational within 0-72 hours after disruption to ensure the organizations capability to maintain critical healthcare, safety and legal and regulatory needs.</p>

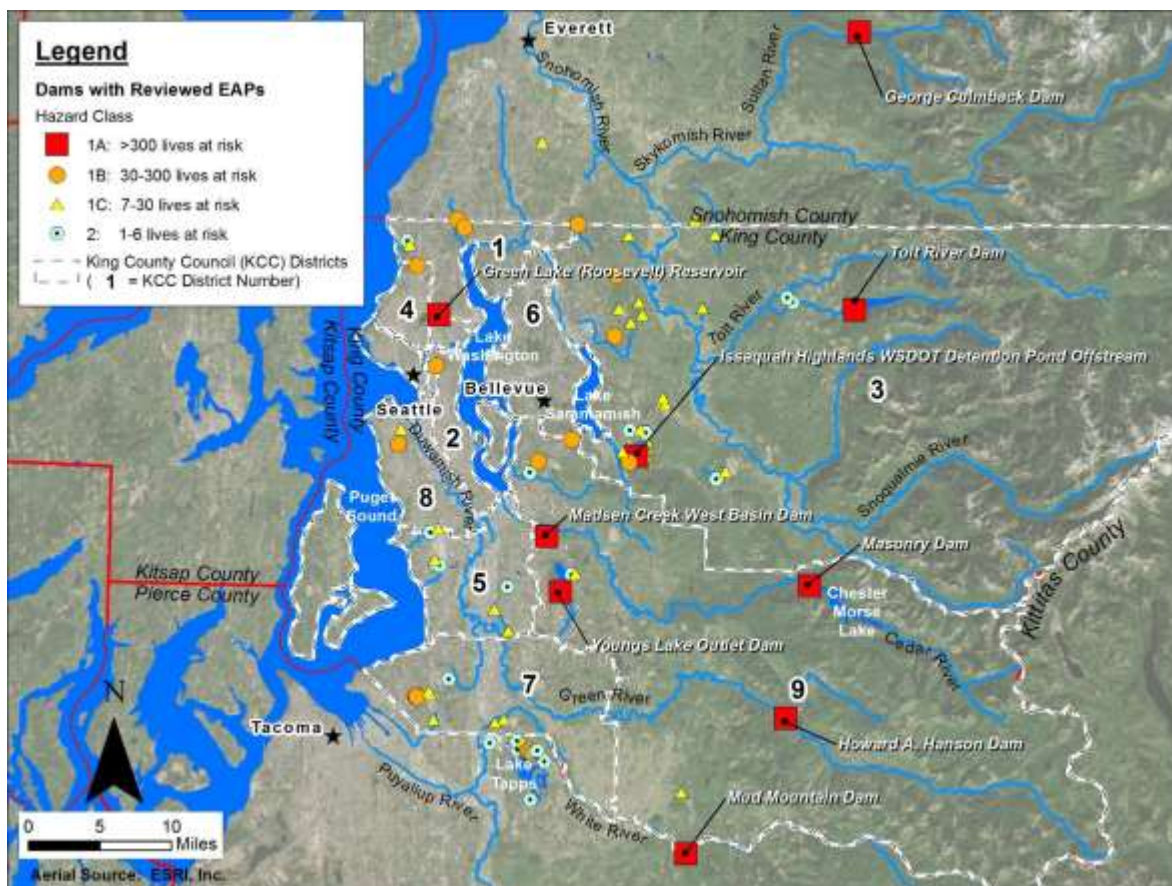
	In the event of a cyber-incident which render a non-critical service unavailable the County may lose revenue, experience loss of productivity and risks losing data over time.
Responders	Emergency responders may not be able to access their mission critical system, experience delays or performance issues. If data confidentiality is lost the public may lose their trust in organization and system. If data integrity is lost it may put patients and first responders at risk. King County may experience a prolonged incident response if the disruption is long lasting, complexed and exhausting internal resources.
Infrastructure systems	<ul style="list-style-type: none"> <li>• Energy – Information technology has a direct dependency to energy. A hazard impacting the power system can therefore have a secondary effect on the County and lead to a cyber-incident due to loss of power to devices rendering systems and data unavailable, loss of power to cooling systems which can cause overheating and fires in server rooms and data centers. Critical infrastructure have backup generators. Ensuring fuel delivery during long lasting power outages for the generators is critical. A cyber incident impacting King County and no other organization should not have an effect on the energy system.</li> <li>• Water/Wastewater – Both water and wastewater facilities and infrastructure are vulnerable to cyber incidents on their SCADA systems, which can result in the release of hazardous material and malfunctioning systems. Such scenarios can result in environmental impact and create health and safety risks in the region.</li> <li>• Transportation – Transportation systems are vulnerable to attacks on their SCADA systems, which may result in trains and vehicles not operating as planned, airport functionality issues, delays, cancellations which can result in a secondary economic impact in the region due to loss of productive if people can't access public transportation to and from work.</li> <li>• Communications – The County relies on different types of technology based communications methods such as its website, VOIP and email to conduct its daily operations. A cyber incident impacting the VOIP or email system would quickly result in a loss of productivity, a negative consumer experience and could potentially halt or delay some of the County's operations.</li> </ul>
Public confidence in jurisdiction's governance and capabilities	Recent cyber-incidents involving government agencies such as the ransomware attack on the City of Atlanta shows that such large scale disruption generate National media interest; third party actions; jeopardizes perceptions of effective operations, Executive priorities, and public confidence.

# Regional Risk Profile: Dam Failure

## Hazard Description

Dam failure is an uncontrolled, oftentimes, rapid release of water from an impoundment.<sup>30</sup> The impact of failure varies on factors such as impoundment size, steepness, land use downstream of the dam, and speed of failure. For larger dams, failure is characterized by a flood wave with high velocities. Smaller dams may only raise water levels slightly and slowly. The result of a dam failure can result in loss of life, property, infrastructure damage, public health impacts, safe drinking water, and environmental degradation within the inundation zone, but may have secondary effects on populations outside of the flooded area.

The Washington State Department of Ecology Dam Safety Office is the regulating body over non-federal dams that impound at least 10-acre feet of water in the State of Washington. The DSO permits all new dam construction, inspects all high and significant hazard dams every 5 years, and requires that all deficiencies be remedied.



<sup>30</sup> Tetra Tech. 2017. King County Dam Safety Emergency Planning Gap Analysis Report. Page 10.



Dams serve the County in a variety of ways, agriculture, hydroelectric power generation, flood control, and recreation. King County has 127 dams located in the County. All but eleven of these dams are embankment-type dams. Contrary to the popular images of dams like Hoover, these dams are smaller and are typically made of a mixture of compacted materials such as soil, clay, and rock. A semi-pervious outer covering with a dense impervious core gives embankment dams their ability to resist seepage and water pressure. The other dams are made of concrete.

While there are 127 dams in King County, there are 21 other dams situated in neighboring counties that impact the County if they were to fail. Out of the 147 total dams, 94 threaten human life. A full list of dams that impact King County can be found at the end of this section.

Hazard Class	Number
1A = High – Greater than 300 lives at risk	10
1B = High – 31 to 300 lives at risk	18
1C = High – 7 to 30 lives at risk	42
2* = Significant – 1 to 6 lives at risk	17
2D = Significant – 1 to 6 lives at risk	7
2E = Significant – Environmental or economic impact	3
3 = Low – No lives at risk	50

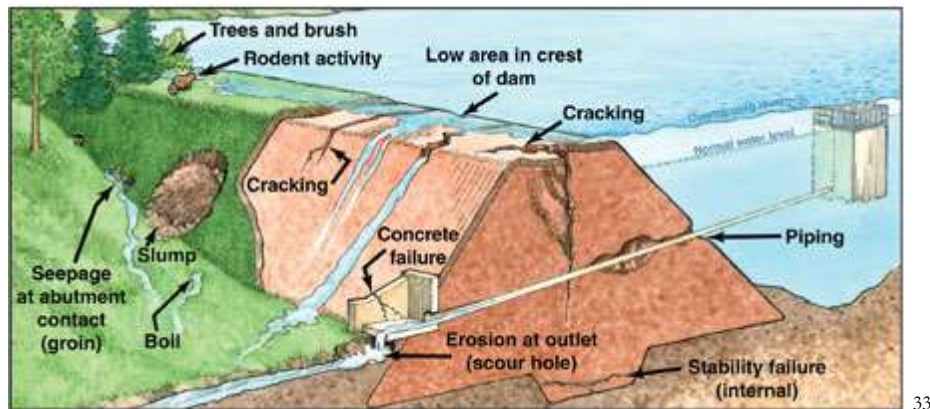
\* Legacy classification, parsing all 2's into 2D's and 2E's <sup>31</sup>

Dams fail for a variety of reasons, but the four most common are:<sup>32</sup>

- Overtopping, 34% - caused by the reservoir reaching capacity and water spilling over the top of a dam
- Foundation defects, 30% - caused by settlement and slope instability
- Piping and seepage, 20% - when water travels through the dam and causes internal erosion
- Conduits and valves, 10% - Piping of embankment material into the conduit through joints or cracks

<sup>31</sup> Washington State Department of Ecology - Water Resources Program - Dam Safety Office. 2019. Inventory of Dams Report.

<sup>32</sup> Washington State Department of Ecology – Water Resource Program – Dam Safety Office. Accessed 8/28/2019. <https://ecology.wa.gov/Water-Shorelines/Water-supply/Dams/Emergency-planning-response/Incidents-failures>.



33

Dam failure events are infrequent and may coincide with other events, such as earthquakes, landslides, excessive rainfall, wildfires, lahars and snowmelt. The average age of dams in King County is 47. As infrastructure ages, increased spending is needed to maintain its integrity.

Following are a selection of events that may cause a dam to fail.

#### Earthquake<sup>34</sup>

Earthquakes can result in damage or failure of a dam. Earthquake effects on dams mainly depend on dam types. For example, the 2011 Tohoku Earthquake damaged 48 dams, causing one embankment type dam to fail<sup>35</sup>. Safety concerns for embankment dams subjected to earthquakes involve either the loss of stability due to a loss of strength of the embankment and foundation materials or deformations such as slumping, settlement, cracking and planer or rotational slope failures. Dams are engineered to withstand the Maximum Considered Earthquake, but older dams may have been engineered before we fully understood the earthquake risk in the region.

#### Climate Change<sup>36</sup>

While dam failure probabilities are low. The chance of flooding associated with changes of dam operation in response to weather patterns is higher. Dam designs and operations are developed in part from hydrographs and historical records. If weather patterns experience significant changes over time due to the impacts of climate change, the dam design and operations may no longer be valid for the changed condition. Release rates and impound thresholds may have

<sup>33</sup> Washington State Department of Ecology – Water Resource Program – Dam Safety Office. 2018. Status of High and Significant Hazard Dams. Page 6.

<sup>34</sup> KUOW. Seattle's Faults: Maps that Highlight Our Shaky Ground. Accessed 8/29/19.

<http://archive.kuow.org/post/seattles-faults-maps-highlight-our-shaky-ground>

<sup>35</sup> International Commission on Large Dams. 2013. The 2011 Tohoku Earthquake and Dams. Page 9.

<sup>36</sup> Climate Impacts Group - University of Washington. 2018. New Projections of Changing Heavy Precipitation in King County. Page 40.

to be changed. This would result in increased discharges downstream, thus increasing the probability and severity of flooding.

#### Landslides<sup>37</sup>

The integrity of a dam or reservoir can be affected by a landslide if they fail or move. Landslides can be triggered by heavy rainfall, snowmelt, reservoir drawdown, or earthquakes. Landslides can occur upstream in the reservoir, in a canyon downstream of a dam, or within the abutment of a dam. A landslide into the reservoir can generate a wave large enough to overtop a dam. Sloshing back and forth in the reservoir can result in multiple waves overtopping the dam. If the waves are large enough, there could be downstream consequences can just from a wave overtopping the dam even if it doesn't fail. If enough large waves overtop an embankment dam or a concrete dam with erodible abutments, a failure could potentially result<sup>38</sup>. Some dams in the County have been built abutting a landslide. Often, these are ancient landslides that have stopped moving or are moving very slowly. However, if a landslide moves far enough, it can crack the core of an embankment dam, resulting in pathways for internal erosion to initiate, or disrupting the abutment support of a dam, resulting in failure.<sup>39</sup>

Many of the County's highest hazard dams lie within wildfire-prone areas. Wildfires can damage dams, such as Eightmile dam near Leavenworth, directly by burning the surface of the dam or spillway and damaging other facilities at the dam. But the main threat from wildfires is how the surrounding watershed behaves. Heavy rains in a burned area can create:

#### Wildfires<sup>40</sup>

- More and faster runoff from rainfall events, especially high-intensity storms.
- Large amounts of sediment, which may reduce storage capacity in a reservoir.
- Debris flows (mudslides) or downed timber, which may obstruct access to the dam.
- Debris flows from hill slopes near spillways, which may obstruct spillways.
- More floating debris (dead trees, branches, sticks) in a reservoir, which may obstruct spillways<sup>41</sup>

<sup>37</sup> Washington State Department of Natural Resources. Geological Portal Information. Accessed 8/28/2019. [https://geologyportal.dnr.wa.gov/#natural\\_hazards](https://geologyportal.dnr.wa.gov/#natural_hazards)

<sup>38</sup> U.S Department of the Interior: Bureau of Reclamation. 2015. Risk Management: H-2 Landslide Risks. Page 1.

<sup>39</sup> Quartz. 2015. The World's Biggest Hydro Power Project May Be Causing Giant Landslides in China. <https://qz.com/436880/the-worlds-biggest-hydropower-project-may-be-causing-giant-landslides-in-china/>

<sup>40</sup> NW News Network. 2019. Eightmile Dam Near Leavenworth Has New Spillway, Is Being Monitored. <https://www.nwnewsnetwork.org/post/eightmile-dam-near-leavenworth-has-new-spillway-being-monitored>

<sup>41</sup> Washington State Department of Ecology - Water Resources Program - Dam Safety Office. 2015. Focus on Dams and Wildfires. Page 1.

 <p>Green River 2009</p>	 <p>Green River 2012</p>	 <p>100-Year Floodplain</p>
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Additionally, new development, outside of the 100 year flood plain, continues in dam inundation zones, meaning the population-at-risk from dam failure will continue to rise. Below shows development outside of the floodplain, but within a dam failure inundation area.

### Vulnerability Characteristics and Previous Occurrences

King County has high hazard 1A dams that sit on the Green, White, Cedar, and Tolt Rivers. Additionally, Culmbach dam in Snohomish County would flood parts of the Lower Snoqualmie Valley. The Green, White and Lower Snoqualmie Valleys are the areas of greatest concern for dam failure. Smaller privately owned and government dams are also a concern, as they may not have access to funding streams that other larger municipal governments do.

Four dam failure incidents have occurred in King County; they account for all lives lost due to dam failure in Washington State:<sup>42</sup>

- December 1918 - Masonry Dam near North Bend had excessive seepage, which caused a mudflow, destroyed a railroad line and damaged the village of Eastwick; no lives lost.
- February 1932 - Eastwick railroad fill failed. A slide caused railroad fill to back up and fail, destroyed a railroad line and damaged the village of Eastwick; 7 lives were lost.
- July 1976 - Increased discharge from Mud Mountain Dam caused a surge in flow killing two children playing in the White River near Auburn.
- January 1997 - N. Boeing Creek Dam in Shoreline failed due to excessive seepage, poor hydraulics, and no emergency spillway during a large storm event; no lives were lost.

Other notable dam incidents in King County:

- In January 2009 two depressions were discovered in the right abutment of the United States Army Corps of Engineers' Howard Hanson Dam. While repairs were being conducted, there

<sup>42</sup> Washington State Department of Ecology - Water Resources Program - Dam Safety Office. 2019. Washington State Notable Dam Failures and Incidents.

was a 1 in 3 chance of a 25,000 cfs release down the Green River which would have caused significant flooding. The USACE was able to fully fix the dam by 2011 before a substantial flood ensued. King County and local jurisdictions spent \$30 million on flood protection that wasn't reimbursed by FEMA.<sup>43</sup>

- In January 2009, Mud Mountain Dam, owned and operated by the USACE, released a higher than usual flow down the White River during a heavy rain event. As a result, 100 homes were flooded. Since then, King County Flood Control District, Washington State, and Pierce County jointly funded a levee setback to reduce the risk of flooding and increase habitat restoration<sup>44</sup>.

## Scenario Drivers

Howard A Hanson	<p>Howard Hanson, constructed in 1961, is a federally owned and operated dam by the United States Army Corps of Engineers. Its primary purpose is to provide flood control in the winter and fish enhancement in the summer. It dramatically reduced the amount of flooding that the Green River Valley experienced before its construction.</p> <p>The right abutment of the dam is the toe of a large landslide. Seepage problems can occur for dams built into landslides. As mentioned previously, landslide activity can pose a serious risk to dams. Many mitigation actions have been taken to reduce risk at the dam, such as a gravel blanket and additional vertical and horizontal drains in the drainage tunnel have all drastically improved the safety of the dam. If preventative actions are not taken, internal erosion could fail the dam.</p>
South Fork Tolt Dam	<p>The South Fork Tolt Dam is owned and operated by the City of Seattle. It is a hydroelectric dam that also provides drinking water for 30% of 1.3 million people across the greater Seattle area. South Fork Tolt Dam is a large embankment type dam, equipped with a morning glory spillway.</p> <p>The Tolt dam has known landslide hazards below the dam, and above the reservoir. If a slide were to occur below the dam, the slide may create a dam of its own. Engineers would need to evaluate what action should be taken. The Tolt Dam would have to lower the amount of flow downstream why the risk is being assessed. Additionally, if a slide were to occur in the reservoir, an overtopping wave may be generated that could cause the dam to fail or send a flood wave downstream.</p>
Mud Mountain Dam	<p>Mud Mountain Dam is a United States Army Corps of Engineer owned and operated dam on the White River. Its primary purpose is to provide flood control for nearly</p>

<sup>43</sup> Seattle Times. 2011. FEMA won't pick up \$30 million tab to prepare for flooding.

<https://www.seattletimes.com/seattle-news/fema-wont-pick-up-30-million-tab-to-prepare-for-flooding/>

<sup>44</sup> King County Department of Natural Resources and Parks – Water and Land Resource Division. 2018. Lower White River Countyline Levee Setback Project. <https://www.kingcounty.gov/depts/dnrrp/wlr/sections-programs/river-floodplain-section/capital-projects/lower-white-river-countyline-a-street.aspx>



400,000 residents in King and Pierce Counties. Typically, there isn't a reservoir being impounded by the dam. During heavy rains or times of snowmelt, engineers will impound the water and slowly release it downstream to avoid flooding residents.

The White River is a glacial river fed by Mt. Rainier. This leaves the possibility that a lahar, triggered by an earthquake, volcanic activity, or heavy rains could cause a debris flow that would block the intake structure on the dam. Such an event would decrease the storage capacity of the reservoir and cause flows to travel over the spillway. The loss in flood control capabilities on the White River would leave the Green, White, and Puyallup River Valleys susceptible to flooding.

Situated in Snohomish County, but inundating a portion of the King County's Lower Snoqualmie Valley, the Culmback Dam is owned and operated by Snohomish Public Utility District One. Culmback offers hydroelectric power generation, flood control, drinking water, and recreational benefits to the region.

Culmback Dam

Culmback's morning glory spillway is designed to maintain adequate levels of freeboard in maximum probable flood events. Changes in hydrology affect the amount of water a dam would need to convey downstream to keep it from failing. Culmback Dam's watershed lies within a densely forested area that slows the speed in which water enters the reservoir, prevents sediment from entering the reservoir, and prevents debris flows. A wildfire around the dam would increase the hydrologic strain on the dam. An increased flow could be compensated with larger releases from the dam, but would result in flooding of the Town of Sultan. If not enough water could be discharged, an overtopping scenario at the dam would prove very dangerous.

Lake Tapps is a reservoir that sits in Pierce County made up of a system of dikes. If particular dikes were to fail, they would inundate Auburn and portions of the Green and White River Valley. Lake Tapps was built by Puget Sound Energy in 1911 and ran a hydroelectric program until 2004. Lake Tapps was purchased by Cascade Water Alliance in 2009 who currently owns and operates the reservoir. Its primary function is to provide drinking water to a group of contracting King County cities and water districts.

Lake Tapps

In addition to providing drinking water, Lake Tapps is also a residential community, many of whom use the Lake for recreational purposes. While residents are instructed to stay off the dikes, there is no physical security to keep individuals from accessing the structure. Many dikes have publically accessible roads. Acts of terrorism or sabotage could provide a serious threat to the integrity of the levees.

Madsen Creek Flow and Water Control Pond	<p>Madsen Creek Pond is a King County-owned dam. Constructed in 2008, its primary purpose is to provide flood control in extreme rainfall events. There is oftentimes no impoundment behind the dam in summer months when there isn't consistent rainfall.</p> <p>Madsen Creek Pond is designed to store runoff from a 100-year 24-hour storm and still maintain freeboard necessary to prevent flooding downstream. While the dam is comparatively very young as climate patterns become more unpredictable, Madsen Creek Pond and other dams may need to be retrofitted to accommodate the change in probable maximum precipitation. If actions were not taken to adjust to the new hydrology, chances of failure from an overtopping situation or an uncontrolled release would become higher.</p>
Cedar Falls Project Masonry Dam	<p>The Masonry Dam within the Cedar Falls Project is one of the oldest dams in the County. It was built in 1914 and currently is owned and operated by the City of Seattle. The dam serves two purposes, hydroelectric power generation and water supply. The dam is a concrete gravity dam with an emergency spillway, service spillway, power tunnel intake, and a low-level outlet.</p> <p>While there have been fewer failures of concrete dams than earthen dams in general<sup>45</sup>, this doesn't mean that failure is unrealistic. The Masonry dam sits near the Rattlesnake Mountain Fault. While concrete dams have escaped failure in earthquake scenarios, minor damage has been observed. The Masonry Dam would need to be assessed for damage after an earthquake for cracking or other deficiencies in the structure or supporting structures. If deficiencies are noted, action must be taken to ensure that the dam doesn't fail. Earthquakes can also trigger landslides around the dam. Finally, large earthquakes can devastate communities, created a resource-scarce environment, potentially making it more difficult to find resources.</p>

## Priority Vulnerabilities

Small Local Government and Privately Owned Dams	<p>These dams may not have access to funding, or have employees dedicated to dam safety. This means that there is a higher chance that maintenance and deficiencies go unmediated. Thus, leading to a higher chance of dam failure.</p>
Lack of Public Knowledge	<p>Most dams use a "For Official Use Only" designation on their inundation maps. This means that inundation maps only be shared on a need to know basis. A lack of public knowledge about dams, their presence in the community, and their failure potential creates an added challenge in creating a resilient community.</p>

<sup>45</sup> Association of State Dam Safety Officials. 1989. Failure of Concrete Dams. Page 4.

Out of Date or Missing  
Emergency Action Plans

High and significant dams are required to have Emergency Action Plans in Washington State. Missing EAPs and out of date EAPs pose a risk if owners are unequipped to deal with an emergency at their dam.

Poor and Unsatisfactory  
Dams

Any dam that is designated as “poor” or “unsatisfactory” by the Washington State Dam Safety Office should be brought to a higher standard.

## Priority Impact Areas

With all the dams in the county, only a small amount of information can be shared here due to “For Official Use Only Designation”. Another reason is that there is a lack of in-depth study done on dam failure impacts to King County. The best and most available estimates for dam failure damages/impacts are from the potential high release scenario at Howard Hanson Dam in 2009. Examples provided here relate to those studies.

King County residents	Dam Name	Estimated Impacted King County Population (Full Pool Failure)	Estimated Impacted King County Population (Sunny Day Failure)*
	Mud Mountain	24,480	2,031
	Howard Hanson	20,845	6,235
	South Fork Tolt	2,291	N/A
	Lake Youngs	2,744	2,139
	Culmbach	145	N/A
	Other Dams Combined (Estimate)**	5,295	N/A

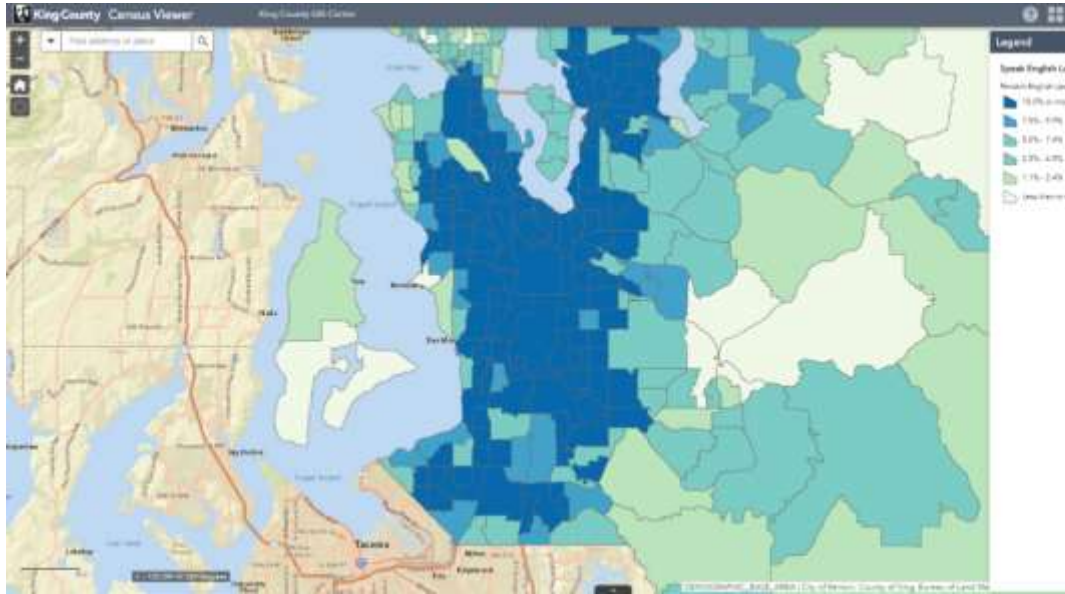
<sup>46</sup>

\*Sunny day failure assumes a regular pool

\*\*Hazard class median reach of range

Populations are based on census data. Areas such as the Green River Valley experience drastic differences in day time/night time population being an economic hub. The

<sup>46</sup> Tetra Tech. 2017. King County Dam Safety Emergency Planning Gap Analysis Report. Page 27.

	<p>number of people that would need to be evacuated could drastically differ from the numbers identified in the hazard classification. An estimate in 2009 put a 25,000 cfs release from Howard Hanson triggering an evacuation on the scale of 200,000 to 300,000 people.<sup>47</sup></p>
Vulnerable populations	<p>Dam inundation areas consist of some of the highest Limited English Proficiency populations in the County. Spanish, Vietnamese, African Languages, and Mandarin are all spoken in high percentages in dam inundation areas.</p>  <p>Auburn, Kent, and Riverview School District, as well as private schools, have locations that are vulnerable to dam failure. Riverview school district practices an evacuation of Carnation Elementary School and Tolt Middle School every September in the City of Carnation. Both of these schools would need to be evacuated if the South Fork Tolt Dam failed.</p> <p>Preliminary studies indicate that there are at least 15 assisted living facilities within dam inundation areas.<sup>48</sup> Evacuation will take longer for this population than most.</p> <p>A 2019 report indicates that there 11,199 individuals experiencing homelessness in the County.<sup>49</sup> Alert and warning can be especially challenging for this population as they may not be tied to a geo-coded database.</p>

<sup>47</sup> Seattlepi. 2019. 300,000 might have to evacuate if Green River Floods. <https://www.seattlepi.com/seattlenews/article/300-000-might-have-to-evacuate-if-Green-River-889468.php>

<sup>48</sup> FEMA Region X. 2009. HAZUS Analysis for the Green River Valley. Page 168.

<sup>49</sup> All Home. 2019. Seattle/King County Point-In-Time County of Persons Experiencing Homelessness.

Property

Dam Name	Residential Buildings Impacted in King County (Full Pool Failure)	Estimated Impacted in King County (Sunny Day Failure)*
Mud Mountain	9,992	829
Howard Hanson	8,508	2,545
South Fork Tolt	935	N/A
Lake Youngs	1,120	873
Culmback	59	N/A
Other Dams Combined (Estimate)	N/A	N/A

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\*Sunny day failure assumes a regular pool

2009 modelling of a high release from Howard Hanson.

Structures impacted	Lower Green	In 17,000 cfs impact area	In 25,000 cfs impact area
Residential	3,486	1,743	1,937
Commercial	16,798	12,245	13,667
Industrial	7,839	6,549	6,644

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The economy

The Green River Valley is an economic powerhouse in the region. Flood damage prevented in the valley by Howard Hanson Dam since the January 2009 flood is

<sup>50</sup> Tetra Tech. 2017. King County Dam Safety Emergency Planning Gap Analysis Report. Page 168.

<sup>51</sup> FEMA Region X. 2009. HAZUS Analysis for the Green River Valley. Page 166.



	<p>estimated at \$6 billion alone<sup>52</sup>. The economic impact of a failure would devastate the region. With large employers, such as Boeing, and economic centers like the South Center Mall, in the Valley, a dam failure would leave the local economy crippled. Commutes, roadways, and rail lines would all be impacted by a high release from Howard Hanson. Unemployment may follow after areas that experience a dam failure.</p> <p>2009 Hazus modeling for a high release from the Howard Hanson Dam show impacts:<sup>53</sup></p> <ul style="list-style-type: none"> <li>• At 17,600 cfs flows from a dam failure: - \$1.34 billion in economic losses</li> <li>• At 19,000 cfs flows from dam failure: - \$1.97 billion in economic losses</li> <li>• At 25,000 cfs flows from dam failure: - \$3.75 billion in economic losses</li> </ul> <p>An economic analysis is needed to quantify how much impact a complete failure would have on the local economy.</p>
The environment	<p>The primary environmental impact from dam failure is natural and manmade debris from the inundation. Silt, wood, rocks and gravel, hazardous materials, construction debris, vehicles, dead animals may be carried by inundation waters to locations that may be spawning areas for local fish, wetlands for birds and reptiles, or inhabited areas that the County has invested in heavily. While recovery and impact will vary with each inundation area.</p> <ul style="list-style-type: none"> <li>• At 17,600 cfs – 84,000 tons of debris</li> <li>• At 19,000 cfs – 208,000 tons of debris</li> <li>• At 25,000 cfs – 280,000 tons of debris <sup>54</sup></li> </ul> <p>Isolating the potential environmental impact of dam failure is obscured by the likelihood that another hazard, like an earthquake, may have triggered the dam failure.</p>
Health systems	<p>MultiCare Auburn Medical Center lies within a dam failure inundation area, but further study is needed to fully understand the impacts on health systems from dam failure.</p>
Government operations (continuity of operations)	<p>Auburn, Kent, Tukwila, Carnation, Pacific, and Algona all have city halls within inundation areas. Courts, the County Elections office, King County Regional Justice Center in Kent where Superior Courts, Adult Detention, and other county agencies are located within dam failure inundation areas as well.</p>
Responders	<p>Kent, Pacific, Seattle, Renton Regional Fire Authority, Valley Regional Fire Authority, and Eastside Fire and Rescue all have fires stations within dam inundation areas.</p>

<sup>52</sup> USACE. Howard A. Hanson Dam. Accessed 8/28/2019. <https://www.nws.usace.army.mil/Missions/Civil-Works/Locks-and-Dams/Howard-Hanson-Dam/>

<sup>53</sup> FEMA Region X. 2009. HAZUS Analysis for the Green River Valley. Page 166.

<sup>54</sup> FEMA Region X. 2009. HAZUS Analysis for the Green River Valley. Page 169.

	Auburn, Algona, Pacific, Kent, Seattle, State Patrol Crime Lab, and King County Sherriff all have stations in dam failure inundations.
Infrastructure systems	<p>Infrastructure impacts vary dramatically based on the individual dam and type of failure.</p> <ul style="list-style-type: none"> <li>• Energy- While there are dams that generate power in the County, they provide a relatively small amount of power. The Cedar, Snoqualmie, Twin Falls and, Tolt projects account for only 126 max MW output<sup>55</sup>. Power outages may be long term in areas where there has been a failure.</li> <li>• Water/Wastewater – Drinking water availability would be drastically impacted by a failure of the Masonry, Lake Tapps, Lake Youngs, and Howard Hanson Dams. A failure of one of the many of the reservoirs around the County would also challenge water systems. The King County South Treatment Plant also lies within a dam failure inundation area.</li> <li>• Transportation- Rail lines (commercial and commuter), LINK Light Rail, bus routes, numerous state highways, and numerous bridges can be impacted by dam failure.</li> </ul>
Public confidence in jurisdiction governance and capabilities	A dam failure may cause the public to lose confidence in dam owners to manage local dams. Depending on the success of the response, the public may also lose confidence in first responders.

### Full List of Dams That Impact King County

<u>Dam Name</u>	<u>NIDID</u>	<u>Max Storage (acre- feet)</u>	<u>Age (Years)</u>	<u>Hazar d Classif ication</u>	<u>Lat,Long</u>	<u>County</u>
ISSAQUAH HIGHLANDS WSDOT DETENTION POND	WA007 07	53	11	1A	47.541919,- 122.013939	King
MADSEN CREEK WEST BASIN DAM	WA018 62	27	11	1A	47.45887,- 122.146561	King
GREEN LAKE RESERVOIR	WA002 12	25	109	1A	47.681486,- 122.314571	King

<sup>55</sup> Bonneville Power Administration. 2018 Transmission Plan. 2018. Page 77.

HOWARD A HANSON DAM	WA002 98	136700	57	1A	47.27797,- 121.78603	King
MASONRY DAM	WA002 55	175000	105	1A	47.41221,- 121.75259	King
YOUNGS LAKE OUTLET DAM	WA002 54	18908	98	1A	47.402843,- 122.124665	King
MUD MOUNTAIN DAM	WA003 00	156000	71	1A	47.139329,- 121.931859	King
TOLT RIVER - SOUTH FORK	WA001 77	67200	57	1A	47.693158,- 121.689555	King
TAPPS LAKE DIKE NO. 1	WA004 18	22000	108	1A	47.241348,- 122.184894	Pierce
CULMBACK DAM	WA002 08	200000	36	1A	47.974825,- 121.687897	Snohomish
PANTHER LAKE BALLFIELD DAM	WA017 37	102	25	1B	47.293417,- 122.337225	King
LAKEMONT STORMWATER POND	WA016 51	30	27	1B	47.557275,- 122.111876	King
ISSAQUAH HIGHLANDS REID POND DAM	WA006 80	69	17	1B	47.537831,- 122.027253	King
PANTHER LAKE DETENTION DAM	WA017 33	339	25	1B	47.295169,- 122.338302	King
PANTHER LK. FIRST AVE. DETENTION POND	WA017 47	18	19	1B	47.293334,- 122.336049	King
VOLUNTEER PARK RESERVOIR	WA002 10	69	118	1B	47.629988,- 122.316676	King
HIGH POINT REDEVELOPMENT STORMWATER DAM	WA018 69	22	13	1B	47.549375,- 122.371263	King
LAKE FOREST PARK RESERVOIR	WA002 17	208	57	1B	47.770339,- 122.278611	King
HIRAM M. CHITTENDEN LOCKS & DAM	WA003 01	458000	103	1B	47.667639,- 122.39853	King

BITTER LAKE RESERVOIR	WA002 13	31	61	1B	47.7311,- 122.348669	King
RADAR LAKE (OBRIAN) DAM	WA001 86	68	46	1B	47.730511,- 122.024173	King
JOHNSON POND DAM	WA019 99	25	7	1B	47.66287,- 122.050033	King
CRYSTAL LAKE DAM	WA001 95	6	88	1B	47.775751,- 122.107419	King
TAPPS LAKE DIKE NO. 6	WA004 23	43000	108	1B	47.238839,- 122.163482	Pierce
TAPPS LAKE DIKE NO. 5	WA004 22	40000	108	1B	47.240926,- 122.167596	Pierce
TAPPS LAKE DIKE NO. 4	WA002 96	58340	108	1B	47.240789,- 122.170259	Pierce
NEWCASTLE VISTA DEVELOPMENT POND 3	WA019 08	13	13	1B	47.5347,- 122.161437	King
CEDAR WAY STORMWATER DETENTION DAM	WA014 04		34	1B	47.778205,- 122.289697	Snohomish
REDMOND RIDGE EAST POND SRN 2 NO.1	WA018 92	52	11	1C	47.697463,- 122.013921	King
ISSAQUAH HIGHLANDS SOUTH POND DAM	WA006 88	67	16	1C	47.541353,- 122.000025	King
SPRINGWOOD STORMWATER DETENTION DAM	WA016 68	50	27	1C	47.361671,- 122.170302	King
TALUS P5 STORMWATER DETENTION DAM	WA018 44	12	17	1C	47.534487,- 122.06288	King
SNOQ. RIDGE DOUGLAS AVE. POND D1 DAM	WA018 04	18	21	1C	47.527247,- 121.880358	King
SOUTH 336TH STREET STORMWATER DAM NO. 1	WA017 54	46	23	1C	47.295591,- 122.317872	King
PETERSON STORMWATER DETENTION DAM	WA013 37	90	31	1C	47.665661,- 122.021473	King

REBA LAKE STORMWATER DETENTION DAM	WA006 18	105	27	1C	47.467583,- 122.317944	King
MILL POND STORMWATER DETENTION DAM	WA017 16	16	25	1C	47.268797,- 122.219347	King
YELLOW LAKE OUTLET DIKE	WA005 59	220	33	1C	47.568281,- 122.009515	King
SOUTH RIDGE STORMWATER DETENTION DAM	WA018 20	25	17	1C	47.545498,- 122.035664	King
TROSSACHS DETENTION POND PC-3	WA017 87	18	20	1C	47.601051,- 121.975774	King
TROSSACHS DETENTION POND PC-2	WA018 33	55	17	1C	47.594216,- 121.972376	King
GARRISON CREEK - 98TH AVENUE DETENTION DAM	WA006 50	8	23	1C	47.394045,- 122.209814	King
MILL CREEK CANYON STORMWATER DETENTION DAM	WA014 43	18	37	1C	47.383155,- 122.222898	King
UPPER MILL CREEK STORMWATER DETENTION DAM	WA005 82	100	29	1C	47.362116,- 122.201882	King
SOUTH 336TH STREET STORMWATER DAM NO. 2	WA017 67	49	23	1C	47.29782,- 122.316762	King
WEYERHAUSER- ENUMCLAW FLOOD CONTROL DAM	WA006 36	140	26	1C	47.188673,- 121.929254	King
ISSAQUAH HIGHLANDS NPE POND	WA018 67	36	16	1C	47.555811,- 121.998433	King
REDMOND RIDGE CEDAR DAM	WA018 02	62	21	1C	47.690857,- 122.04408	King
REDMOND RIDGE DRIVE EC 4N ROADWAY DAM	WA018 37	148	16	1C	47.67683,- 122.026237	King
PORT OF SEATTLE - LAGOON #3 EXPANSION	WA006 71	256	18	1C	47.432537,- 122.31332	King



ISSAQUAH HIGHLANDS NP2 POND DAM	WA018 58	28	17	1C	47.548397,- 122.000606	King
ICON MATERIALS AUBURN SEDIMENT POND	WA006 83	200	22	1C	47.271936,- 122.206424	King
BOEING CREEK STORMWATER DETENTION DAM	WA004 83	41	36	1C	47.752036,- 122.360075	King
SNOQUALMIE MILL POND DAM	WA003 07	396	102	1C	47.529342,- 121.819312	King
WELCOME LAKE DAM	WA001 94	260	60	1C	47.724532,- 122.048251	King
TUCK LAKE DAM	WA001 80	290	53	1C	47.764918,- 122.03081	King
YOUNGS LAKE NEW INLET DAM	WA004 15	16836	93	1C	47.420921,- 122.102904	King
MARCEL LAKE DAM	WA002 00	350	55	1C	47.692486,- 121.918558	King
LOREENE LAKE DAM	WA001 93	86	56	1C	47.31269,- 122.385452	King
MARGARET LAKE DAM	WA002 36	1200	86	1C	47.766978,- 121.901433	King
DES MOINES CREEK REGULATORY DETENTION FACILITY WEST BERM	WA006 92	160	11	1C	47.428554,- 122.312781	King
DES MOINES CREEK REGULATORY DETENTION FACILITY EAST BERM	WA006 93	53	11	1C	47.427034,- 122.311192	King
ICON MATERIALS SEDIMENT POND 6	WA007 41	1200	4	1C	47.268341,- 122.193221	King
SOUTHWEST GENESEE STREET DETENTION DAM	WA003 80	52	45	1C	47.564882,- 122.36751	King
TAPPS LAKE DIKE NO. 11	WA004 27	38000	108	1C	47.238152,- 122.147596	Pierce

TAPPS LAKE DIKE NO. 3	WA004 21	28000	108	1C	47.249352,- 122.177817	Pierce
KAYAK LAKE DAM	WA001 99	230	54	1C	47.782211,- 121.931649	Snohomish
REDMOND RIDGE EAST POND SRS 1 No. 1	WA019 22	39	6	1C	47.685272,- 122.008553	King
SEATAC AIRPORT POND M	WA020 38	27	8	1C	47.464811,- 122.309788	King
SILVER FIRS DETENTION POND NO. 3	WA017 92	36	21	1C	47.858218,- 122.163964	Snohomish
DES MOINES CREEK STORMWATER DETENTION	WA016 49	23	31	2	47.426777,- 122.305916	King
204TH STREET STORMWATER DETENTION BASIN	WA018 19	17	18	2	47.419722,- 122.30375	King
NEWCASTLE RAILROAD EMBANKMENT DAM	WA006 48	200	119	2	47.522983,- 122.173869	King
QUADRANT EAST CAMPUS PARCEL 1 DAM	WA018 15	13	19	2	47.311672,- 122.289382	King
SNOQUALMIE FALLS DIVERSION DAM	WA002 95	818	121	2	47.54149,- 121.837891	King
TOLT RIVER REGULATED BASIN WEST DAM	WA002 37	35	57	2	47.70383,- 121.791131	King
YOUNGS LAKE CASCADES DAM	WA002 09	12320	69	2	47.419569,- 122.10876	King
LAKE KITTYPRINCE DAM	WA002 01	96	52	2	47.519114,- 121.894508	King
TOLT RIVER REGULATING BASIN SOUTH DAM	WA002 38	1100	57	2	47.699823,- 121.782893	King
TAPPS LAKE DIKE NO. 8	WA004 24	34000	108	2	47.239469,- 122.160082	Pierce
TAPPS LAKE DIKE NO. 9	WA004 25	26000	108	2	47.239893,- 122.157987	Pierce

TAPPS LAKE DIKE NO. 2B	WA004 20	28000	108	2	47.250305,- 122.186157	Pierce
TAPPS LAKE DIKE NO.10	WA004 26	32000	108	2	47.240913,- 122.155031	Pierce
TAPPS LAKE DIKE NO. 2A	WA004 19	20000	108	2	47.249683,- 122.187505	Pierce
TAPPS LAKE DIKE NO.13	WA004 29	10000	108	2	47.190787,- 122.164775	Pierce
TAPPS LAKE DIKE NO. 12	WA004 28	25000	108	2	47.229823,- 122.14456	Pierce
LAKELAND SOUTH POND NO.1	WA018 45	12	16	2	47.247554,- 122.226014	Pierce
BOEING CREEK M1 DETENTION DAM	WA017 82	14	21	2D	47.755515,- 122.363653	King
MUTH STORMWATER POND	WA018 83	37	12	2D	47.411031,- 122.277469	King
KLAHANIE STORMWATER DETENTION DAM NO. 2	WA014 85	14	35	2D	47.564342,- 122.019611	King
KLAHANIE STORMWATER DETENTION DAM NO. 13	WA006 02	56	29	2D	47.565061,- 122.001408	King
KLAHANIE STORMWATER DETENTION DAM NO. 1	WA014 84	28	35	2D	47.567181,- 122.024633	King
GARRISON CREEK STORMWATER DETENTION DAM	WA005 77	45	28	2D	47.406392,- 122.203895	King
CONNER JARVIS EAST POND	WA020 62	14	1	2D	47.573849,- 122.024296	King
SEATAC AIRPORT POND G	WA019 72	27	10	2E	47.459923,- 122.321072	King
SEATAC AIRPORT SE POND	WA019 01	14	12	2E	47.433611,- 122.300306	King
CEDAR HILLS LANDFILL CSW POND	WA020 61	53	3	2E	47.457243,- 122.05295	King

ECHO LAKE DAM	WA012 64	900	84	3	47.50649,- 121.871224	King
FOSTER WATERSKI POND	WA005 99	80	29	3	47.635375,- 121.929033	King
FRATT DAM	WA017 00	30	63	3	47.688042,- 122.061542	King
BEAR CREEK FAIRWAY ESTAE DETENTION POND 1	WA014 35	43	18	3	47.724374,- 122.07023	King
BELLEVUE DETENTION POND (133)	WA004 77	90	36	3	47.61931,- 122.14265	King
BELLEVUE DETENTION POND (149)	WA004 76	92	36	3	47.581056,- 122.167666	King
BELLEVUE DETENTION POND (104)	WA014 40	25	36	3	47.581056,- 122.167666	King
I-405 COAL CREEK STORMWATER DETENTION DAM	WA016 47	40	32	3	47.566555,- 122.180361	King
LINDSLEY DAM	WA017 49	13	69	3	47.58387,- 121.980395	King
STAR LAKE CONTROL WORKS	WA011 76	70	69	3	47.352621,- 122.286532	King
LANDSBURG DIVERSION DAM	WA015 43	15	84	3	47.375929,- 121.961535	King
TAYLOR DAM	WA014 74	10	69	3	47.45545,- 122.025472	King
HIGH WOODLANDS STORMWATER DETENTION DAM	WA006 13	29	28	3	47.730592,- 122.194303	King
PRESTON MILL POND	WA012 97	10	72	3	47.521821,- 121.92759	King
QUADRANT LAKE NO. 1	WA017 40	113	25	3	47.298433,- 122.315121	King

SAWYER LAKE OUTLET STRUCTURE	WA011 77	1116	67	3	47.335379,- 122.045013	King
REDMOND RESERVOIR DAM	WA006 18	33	92	3	47.713047,- 122.056138	King
SOUTH 120TH STREET RESERVOIR	WA013 45	15	43	3	47.494916,- 122.315985	King
SNOQUALMIE RIDGE GOLF COURSE POND M1	WA006 56	70	22	3	47.538501,- 121.863171	King
TROSSACHS STORMWATER DETENTION POND	WA017 53	14	24	3	47.584739,- 121.971619	King
BOEING AUBURN DRAINAGE DITCH DETENTION DAM	WA016 75	7	25	3	47.291489,- 122.251231	King
QUEENS BOG DAM	WA016 33	132	32	3	47.579896,- 122.017182	King
WETZEL FAMILY LLC	WA020 15	19	39	3	47.213244,- 122.041401	King
VERDANA POND C	WA019 07	11	12	3	47.335,- 122.180556	King
BELLEVUE DETENTION POND (179 NORTH)	WA013 98	26	42	3	47.62593,- 122.146391	King
WILDWOOD POND	WA011 64	29	67	3	47.400369,- 122.492826	King
REDMOND RIDGE DETENTION POND BC-2, NO.2	WA018 43	12	17	3	47.6959,- 122.031538	King
REDMOND RIDGE DETENTION POND ECC-1B-1	WA018 26	13	15	3	47.682759,- 122.028926	King
REDMOND RIDGE DETENTION POND ECW 1B1	WA018 32	18	17	3	47.682345,- 122.041503	King
TUKWILA SOUTH PROJECT SOUTH POND	WA007 27	164	8	3	47.420628,- 122.269055	King

ALDARRA POND DF-R1	WA018 18	53	18	3	47.587773,- 121.954399	King
CEDAR HILLS REGIONAL LANDFILL STORMWATER POND	WA020 60	40	3	3	47.456374,- 122.052682	King
CARNATION WASTE POND NO. 2	WA013 41	25	38	3	47.667648,- 121.948802	King
WEST CAMPUS DAM NO. 6	WA014 18	18	45	3	47.290947,- 122.325197	King
WEEKS FALLS HYDRO PROJECT	WA015 84	10	33	3	47.432483,- 121.645884	King
BELLEVUE DETENTION POND (197)	WA004 78	11	36	3	47.63173,- 122.152261	King
MORSE LAKE DAM	WA002 56	75000	115	3	47.409604,- 121.725455	King
GREEN RIVER DIVERSION DAM	WA015 83	10	69	3	47.300919,- 121.840592	King
BELLEVUE DETENTION POND (165)	WA004 79	12	36	3	47.624358,- 122.171261	King
MARTINDALE LAKE DAM	WA010 89	10	59	3	47.378439,- 122.311706	King
RAVENSDALE PIT	WA003 39	165	47	3	47.347285,- 121.996183	King
JEAN LAKE DAM	WA001 92	12	56	3	47.311983,- 122.380264	King
BLACK DIAMOND AERATED LAGOON	WA015 61	15	38	3	47.303243,- 122.010413	King
LOUTSIS DAM	WA001 87	97	49	3	47.721992,- 121.979478	King
WEYERHAEUSER DAM	WA001 91	80	49	3	47.297176,- 122.29882	King
KEEVIES LAKE DAM	WA004 98	500	59	3	47.314814,- 122.050117	King



DEJONG DAIRY WASTE POND NO 1	WA018 66	16	20	3	47.211114,- 122.096129	King
NORTH CLEAR ZONE DETENTION DAM	WA013 21	33	46	3	47.468754,- 122.314808	King
TAPPS LAKE DIKE NO. 14	WA004 30	400	108	3	47.196489,- 122.132892	Pierce
TAPPS LAKE DIKE NO. 15	WA004 31	400	108	3	47.194076,- 122.13531	Pierce

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<sup>56</sup> Washington State Department of Ecology Dam Safety Office. 2019. Inventory of Dams Report.

# Regional Risk Profile: Earthquake

## Hazard Description

Puget Sound has a high risk of experiencing damaging earthquakes. The most common damaging quake is deep M6+ event, six of which occurred over the past ~100 years. In comparison, the Seattle Fault has been active three-four times in the past 3000 years and a subduction zone quake occurs approximately every 200-600 years, with a 10-20% chance it will rupture in the next 50 years, according to the Pacific Northwest Seismic Network (PNSN). With many potentially active faults in the area, Earthquake impacts can occur anywhere in King County, with earthquake risk focused near faults and in areas with less stable soils. Washington has the second-highest earthquake risk in the United States, after California. According to the USGS, there is a 5% chance of a Seattle Fault and a 10-15% chance of a Cascadia Subduction Zone earthquake striking the region by 2055. This equates to an up to 20% chance of a major earthquake striking King County with potentially catastrophic damages in the next 35 years.<sup>57</sup>

Earthquakes can last from a few seconds to over five minutes. Earthquakes may also be accompanied by a series of foreshocks, or aftershocks in the weeks to months leading up to and following the earthquake, which can cause additional damage and injury. The actual movement of the ground in an earthquake is seldom the direct cause of injury or death. Casualties generally result from falling objects and debris as the shaking damages or demolishes buildings and other structures. Disruption of communications, electrical power supplies and gas, sewer and water lines, and transportation routes should be expected. Earthquakes may cause, or lead to fires, dam failures, landslides, tsunamis, or releases of hazardous materials, compounding their disastrous effects. An earthquake on the Cascadia Subduction represents the largest potential risk to the entire Pacific Northwest. However, local sources such as faults immediately beneath King County may have a much more intense shaking over a shorter period of time leading to focused damage on the area. The earthquake hazard presents the greatest regional potential for damages, casualties, economic, and social impacts.

## Vulnerability Characteristics and Previous Occurrences

The impact of an earthquake on structures and infrastructure is largely a function of ground shaking and secondary impacts. Ground shaking, or earthquake intensity, measured by the modified Mercalli scale, depends on distance from the source of the quake, and the soil type. A shallow earthquake that is relatively small, but nearer to populated areas with a hypocenter closer to the surface, is potentially more damaging than a much larger earthquake that is farther away. Even when an earthquake is distant, unconsolidated soils, such as sands, clays, or gravels, found in many floodplains or river valleys, amplify shaking, leading to more potential damage.

Secondary impacts of earthquake shaking include things like soil liquefaction and landslides. Liquefaction is a secondary effect of an earthquake in which soils lose their shear strength and flow or

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<sup>57</sup> LaForge, Gordon. 2019. Critical but Not Urgent: Seattle Prepares for the Big One. Innovations for Successful Societies, Princeton University.

behave as liquid, thereby damaging structures that derive their support from the soil. Liquefaction generally occurs in soft sedimentary soils. Landslides, or ground failures, are also a common hazard that can occur with ground shaking, ranging from singular rocks falling down a hill, to mass movements of land large enough to dam rivers. Landslides falling into bodies of water, can potentially generate tsunamis, as occurred in the Tacoma Narrows during the 1949 Puget Sound Earthquake.

Earthquakes on the Cascadia Subduction Zone, and on the Seattle Fault are also capable of producing Tsunamis. Tsunamis are a destructive movement of the ocean involving at least one 'wave', and strong currents. Even a relatively 'small' tsunami could be devastating to port and maritime infrastructure within Puget Sound.<sup>58</sup> There is evidence that an earthquake on the Seattle Fault that occurred around 900 AD produced a 16-foot tsunami. The National Oceanic and Atmospheric Administration (NOAA) recreated this tsunami using a model.

Soil type impacts ground Shaking. The National Earthquake Hazard Reduction Program (NEHRP) creates maps based on soil characteristics to help identify locations subject to amplification and liquefaction during earthquakes. . Areas with NEHRP soils classes D, E and F are prone to shaking amplification, and structures in these areas experience greater damage during earthquake shaking. These also tend to be more susceptible to liquefaction.

#### *NEHRP Soil Classification System*

NEHRP SOIL TYPE	DESCRIPTION	MEAN SHEAR VELOCITY IN METERS PER SECOND
A	Hard Rock	1500
B	Firm to Hard Rock	760-1500
C	Dense Soil / Soft Rock	360-760
D	Stiff Soil	180-360
E	Soft Clay	<180
F	Special Study Soils (liquefiable soils, sensitive clays, organic soils, soft clays > 36 meters thick)	

<sup>58</sup> Seattle Office of Emergency Management. Tsunamis and Seiches. Accessed online on 11/12/19 from <https://www.seattle.gov/emergency-management/hazards/tsunamis-and-seiches>.



King County has a long history of documented earthquake activity. The most recent significant activity was the Nisqually Earthquake – February 28, 2001. This earthquake, with an epicenter 10 miles northeast of Olympia in Thurston County (over 40 miles from Seattle), resulted in statewide losses exceeding \$2 billion and injured 700 people, many in King County.<sup>59</sup> A slide in King County generated from the 2001 Nisqually Earthquake partially blocked the Cedar River – flooding several homes.

The 6.8 magnitude Nisqually earthquake was centered under Anderson Island in south Puget Sound. The most extensive damage occurred along the Interstate-5 corridor, where river sediments led to shaking amplification and liquefaction impacts. Some damage was experienced in 300,000 households, many from settling foundations. Buildings built prior to 1950 located in the south downtown area and Pioneer Square in Seattle were the most impacted; structural damage to chimneys, walls, foundations and nonstructural elements accounted for two-thirds of all damage reported.<sup>60</sup> Insured losses were

<sup>59</sup> EQE International – Seattle Nisqually Washington Earthquake Feb 28, 2001; <http://www.propertyrisk.com/refcentr/seattleeq.pdf>

<sup>60</sup> Hazard Mitigation Survey Team Report, Nisqually Earthquake, February 28, 2001, DR-1361-WA, Federal Emergency Management Agency and Washington Military Department, Emergency Management Division.

recorded as \$305M with \$2B in losses overall. Of those impacted, 21% had earthquake insurance but did not meet the deductible. 75% of retail businesses in Seattle that were impacted closed for some period for cleanup or repairs. The average closure was 4.8 days in Pioneer Square. Of those businesses impacted, 50% were financially threatened with closure. Harbor Island saw 69 businesses impacted for an average of \$30,900.

The Nisqually Earthquake led to a new emphasis in Washington, and King County especially, on the importance of retrofitting historic, unreinforced masonry buildings that were the most serious casualties of the event. The loss of historic buildings is not only costly in financial terms but can alter the social fabric of a community and fundamentally change its feel and sense of place.

**Seattle-Tacoma Earthquake – April 1965<sup>61</sup>** At magnitude 6.5, the earthquake killed seven people and caused \$12.5 Million in damage (1965 dollars). Severe shaking was felt in Seattle and as far as Issaquah and beyond. Most damage was in the Pioneer Square area and waterfront. Older masonry buildings were most impacted. Damage patterns experienced in 1949 were repeated. Eight schools were closed for inspections and repairs; two were severely damaged. Areas along the Duwamish River experienced severe settling. Three water mains failed in Seattle.

**Olympia Earthquake – April 1949<sup>62</sup>** The 7.1 magnitude earthquake was centered along the southern edge of Puget Sound. Eight people were killed and property damage in Olympia-Tacoma-Seattle amounted to about \$25 Million in 1949 dollars. In Seattle, a sixty-inch water main ruptured, a radio tower collapsed, power lines and gas lines were broken in over 100 places. Three damaged schools needed to be demolished and one rebuilt.

### Scenario Drivers<sup>63</sup>

The Juan de Fuca plate is moving northeastward with respect to the North American plate at a rate of 3 to 4 centimeters per year. <sup>64</sup> The boundary where these two plates converge, the Cascadia Subduction Zone, lies approximately 50 miles offshore and extends nearly 700 miles from Northern Vancouver Island in British Columbia to northern California. The collision of these two tectonic plates produces three types of earthquakes: Subduction Zone Earthquakes, Deep/Benioff Zone Earthquakes, and Shallow Crustal Earthquakes. <sup>65</sup>

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<sup>61</sup> Seattle Earthquake History; <http://seattle.about.com/od/localgovernment/a/Seattle-Earthquakes.htm>

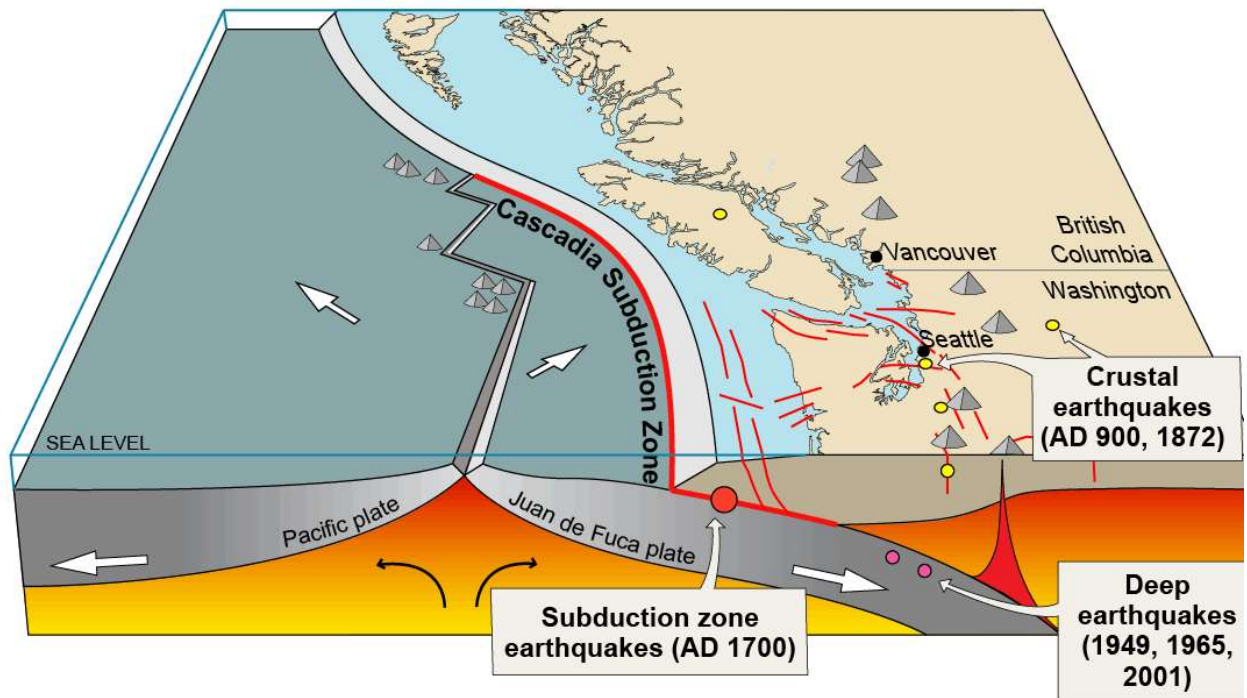
<sup>62</sup> Earthquake History of Washington. 5 Aug. 2003. U.S. Department of the Interior, U.S. Geological Survey. 5 Oct. 2003 <http://earthquake.usgs.gov/earthquakes/states/washington/history.php>

<sup>63</sup> Earthquake Hazards in Washington and Oregon – Three Source Zones. U.S. Department of the Interior, U.S. Geological Survey. 2 Oct. 2003 <http://www.ess.washington.edu/SEIS/PNSN/CascadiaEQs.pdf>

<sup>64</sup> Understanding plate motions, USGS; <http://pubs.usgs.gov/gip/dynamic/understanding.html>.

<sup>65</sup> Earthquake Hazards in Washington and Oregon – Three Source Zones. U.S. Department of the Interior, U.S. Geological Survey. 2 Oct. 2003 <http://www.ess.washington.edu/SEIS/PNSN/CascadiaEQs.pdf>.





Source	Max. Size	Recurrence
● Subduction zone	M 9+	200–600 years
● Deep Juan de Fuca plate	M 7+	30–50 years
● Crustal faults	M 7+	Hundreds of years?

-  Volcano
-  Active crustal fault
-  Active plate boundary

\*figure modified from USGS Cascadia earthquake graphics at <http://geomaps.wr.usgs.gov/pacnw/pacnweq/index.html>

Cascadia Subduction Zone Earthquakes	<p>A subduction zone earthquake would originate from the Cascadia Subduction zone off the coast of Washington and Oregon. Such earthquakes typically have minutes of strong ground shaking and are quickly followed by damaging tsunamis and numerous large aftershocks. The potential exists for large earthquakes along the Cascadia Subduction Zone, up to an earthquake measuring Magnitude 9 or greater on the Richter scale. This would produce a tsunami all along the fault line from British Columbia to Mendocino, California. Such an earthquake would last several minutes and produce catastrophic damage locally from the earthquake and distant from the generated tsunami.</p>
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Benioff Zone (Deep) Earthquakes (e.g. Nisqually Earthquake)	Deep, or Benioff Zone earthquakes are the most frequent damaging earthquakes occurring within the Puget Sound area. They occur within the Juan De Fuca plate as it sinks into the mantle. These earthquakes occur, 16 to 60 miles in depth. Due to their depth, aftershocks are typically not felt in association with these earthquakes. These earthquakes are caused by mineral changes as the plate moves deeper into the mantle. Minerals that make up the plates are altered to denser, more stable forms as temperature and pressure increase. This compression results in a decrease in the size of the plate, and stresses build up that pull the plate apart. Deep earthquakes generally last 20 to 30 seconds and have the potential of reaching 7.5 on the Richter scale. The last major one in the Puget Sound region was the 6.8 magnitude Nisqually Earthquake on February 28, 2001.
Shallow (Crustal) Earthquakes (e.g. Seattle Fault Earthquake)	Shallow crustal earthquakes occur within the North America plate at depths of 18 miles or fewer. Shallow earthquakes within the North America plate account for most of the earthquakes in the Puget Sound region, though most are small and not felt. The potential exists for major shallow earthquakes as well. Generally, these earthquakes are expected to have magnitudes less than 8 and last from 20 to 60 seconds. Of the three types of earthquake, the timelines and recurrence intervals of crustal events are the least understood. Ongoing research suggests that Magnitude 7 or greater events have occurred on at least eight faults in the Puget Sound basin. FEMA estimates using HAZUS show that events on these faults have the potential to cause greater loss of life and property in King County than any other disaster likely to affect the area. Evidence of a fault running east-west through south Seattle (the Seattle Fault) suggests that a major earthquake with a magnitude of 7 or greater affected the Seattle area about 1,100 years ago.

### Priority Vulnerabilities

Unreinforced buildings, especially those built during pre or low-code eras (pre 1973)	Brick and masonry buildings that characterize areas like Pioneer Square in Seattle are extremely susceptible to even minor earthquakes. Unreinforced masonry buildings are likely to collapse or partially collapse and be a leading source of fatalities due to falling debris.
Structures, including roads and bridges, structures, built on vulnerable soils.	Structures on vulnerable or less stable soils are more likely to buckle or collapse. High risk areas cover the region, but are especially common in historic river valleys where sediment has been deposited over time.
Public facilities built to “life safety” codes that	Public facilities, such as city halls, schools, etc. are not required to be built to “immediate occupancy” standards. A major earthquake would render many of these facilities inoperable, leading to difficulties in organizing the recovery in affected jurisdictions.

will be unusable after a major earthquake	
Structures and populations on or near steep slopes	Steep slopes greater than 40% grade are likely to fail in an earthquake. This likelihood increases when the ground is saturated. Buildings on or below these slopes will be damaged or destroyed in these events.
Dams, especially older, less regulated dams	Dams are responsible for most of the region's electricity and are extremely important to any future recovery. A major event may damage these dams and require repair before they can resume electricity generation. Total failure of the major dams is unlikely. In addition to the large dams, however, there are many lower-priority dams that nevertheless meet the standards of high-hazard. These dams are scattered throughout King County and may not even be recognized by the jurisdictions in which they are located. A failure of some of these dams would likely result in numerous fatalities and the inundation of property and infrastructure.
Hazardous materials sites, especially those in aging warehouses or with weakened containment systems	Hazardous materials, or Hazmat, sites dot the region and FEMA has recognized hazardous materials as a community lifeline due to experiences dealing with recovery after recent disasters. Hazmat releases are likely to occur at industrial facilities, on pipelines, and elsewhere around the region. The cocktail of potential contaminants is likely to threaten the public, responders, and the environment, and to delay recovery in parts of the region for years.
Port facilities built on unstable soils	Ports, are almost always built on fill and other extremely unstable soils. Major earthquakes will damage and potentially destroy port facilities. Any seiche or tsunami will also have a greater impact on port facilities than inland facilities.
Rail systems	Rail systems require tracks to be perfectly aligned and will fail during an earthquake as the ground shifts and buckles. Landslides may also deposit material on the tracks. Trains traveling at high speeds during an earthquake have a significantly greater chance of de-railing, potentially injuring passengers, or spilling cargo, which may cause additional hazardous material incidents.
Water and sewer transmission lines, especially those built of cast iron, concrete, or wood	Water lines throughout the region are currently being replaced by ductile iron. Nevertheless, most special purpose districts undertaking this work are decades from completing it. Water systems will likely fail throughout the region and will be difficult to restore due to limitations in transportation

	capacity. Even systems able to complete conversion to ductile iron will experience failures, especially in areas of unstable soils.
Populations without the means to care for themselves over multiple weeks, especially those with Access and Functional Needs	The response and initial recovery following a catastrophic earthquake will take weeks. Homebound populations, those requiring medications, the chronically ill, or others with access and functional needs may need to sustain themselves for an estimated two weeks in some places.
Populations without insurance, especially those without renters insurance or homeowner insurance earthquake riders.	<p>According to the Office of the Insurance Commissioner, which conducted a major earthquake insurance study in 2017, residential earthquake coverage in western Washington is 13.8%. Commercial coverage rates are much higher than residential, with 43.2% of insurance policies having some sort of earthquake coverage. A key finding is that, for both residential and commercial customers, insured properties have a much higher assessed value than uninsured properties, indicating that it is higher-income people that are, in general, purchasing earthquake insurance coverage.</p> <p>Earthquake insurance coverage rates are a good measure of resilience because insurance is the primary source of disaster recovery funding after an earthquake. Low levels of insurance coverage have stymied recovery efforts in major disasters, such as hurricanes, where hazard coverage is not automatically included in homeowner's policies.</p>
Populations communicating in languages other than English	Information from responders, notifications, and other information will likely be communicated predominately in English. Special care will need to be taken to ensure that non-English speakers have access to relief supplies from established points of distribution.
Levees, dikes, and other flood control structures	Flood control structures are usually earthen and built on highly unstable soils. An earthquake during the winter months when these systems are running close to capacity could cause major failures and widespread flooding.

### Priority Impact Areas

The severity of an earthquake is different depending on the conditions under which it occurs. Also, different sectors of the population, economy, or government will have different levels of exposure and vulnerability that impact their susceptibility to an earthquake. This risk assessment looks at impacts of various earthquake scenarios to a series of critical sectors. The impact data for physical structures is generated using the Hazus-MH tool for three different Seattle Fault M7.0 scenarios, a Tacoma Fault M7.1 scenario, and a Cascadia M9.0 scenario. These scenarios are chosen based on their probability and

potential impact. This earthquake model also includes information on liquefaction potential of soils and the age of buildings (as an instrument for building code levels).

This assessment considers impacts to physical and human elements of each of 11 impact areas. For example, for health systems, the locations of key facilities identified by Public Health Seattle – King County will be assessed against data on high hazard areas. The impacts to first the health system overall, including employees and existing patients, will also be examined.

The HAZUS scenarios used in this section were generated by the FEMA RiskMAP team for the 2018 King County Risk Report.<sup>66</sup>

King County residents	<p>The entire population of King County is potentially exposed to the direct and indirect impacts from earthquakes. The degree of exposure is dependent on many factors, including the age and construction type of residence, the soil type homes are constructed on, the proximity to the fault, etc. Business interruption could keep people from working, road closures could isolate populations, and loss of utilities could impact populations where no direct damage was experienced.</p> <p>Hazus estimates there are over 600,000 people living in 250,000 households on NEHRP Class D or E soils locally. This represents about 30% of the county population. The population over 65 and the population are the most vulnerable because of their concentration in areas with Class D and E soils.</p> <p>Impacts to the population are not restricted to displacement and sheltering. People may be injured, lose their jobs, schools may be closed from their own damages, government services may be interrupted, health facilities and care may also be interrupted or be completely unavailable. Family members may be separated, including children, institutionalized elderly and the infirm, may be moved to alternate facilities – and unaccounted for. Deaths of homeless and unidentified people may require burial before family can claim their remains.</p> <p>Following the 1995 Kobe, Japan earthquake, the total city population took over 10 years to recover. The population count of New Orleans following Hurricane Katrina still has not recovered to pre-storm levels. King County’s population is extremely mobile and many are relatively recent arrivals, drawn by the booming economy. A large earthquake may reverse this growth trend as people lose jobs, face housing recovery costs without insurance, and seek less hazard-prone areas after the trauma of a large earthquake.</p>
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<sup>66</sup> Federal Emergency Management Agency, 2018. King County Risk Report.  
[https://fortress.wa.gov/ecy/gispublic/AppResources/SEA/RiskMAP/King/KingCounty\\_RiskReport.pdf](https://fortress.wa.gov/ecy/gispublic/AppResources/SEA/RiskMAP/King/KingCounty_RiskReport.pdf)

Vulnerable populations	<p>Vulnerable populations are more likely to suffer losses during an earthquake and are likely to take longer to recover after. Factors influencing likelihood of damage include living in higher hazard areas, living in older buildings, being less likely to have emergency supplies, and having a higher rate of persons with disabilities. Slower recovery is exacerbated by poorer populations likelihood of not having access to institutions leading recovery, not having insurance, not having a stable job, wealth, or savings, being more likely to be renters who are ineligible for many federal recovery programs, and having a lower-level of education on average, making it more difficult to find a new job and to navigate the complex post-disaster system.</p> <p>In many catastrophic disasters, most notably Hurricane Katrina, poor communities may never recover.</p>
Property	<p>Lack of damage to structures built since the 1949 and 1965 earthquakes have demonstrated the value of building standards that resist earthquake damages. Overwhelmingly, damages in the Nisqually Earthquake of 2001 were to unreinforced masonry and buildings built before the 1949 earthquake. This held equally true for damages to roads and bridges. The FEMA project team completed an analysis to identify how many buildings were built to specific building codes. In the table below, “pre-code” refers to buildings built before 1950, low-code is 1951-1974, moderate is 1975-2003, and high is after 2003.</p> <p>Countywide, nearly 50% of buildings were built to pre or low code standards. This level of vulnerability is significant, especially for more intense earthquakes, such as the Seattle Fault M7.2.</p>
The economy	<p>King County alone contributes around 50% of Washington’s gross domestic product. The county has a diverse economy, which has made it especially resilient to other forms of disruption but is heavily dependent on a high degree of global interconnectedness. Losses to lifeline infrastructure, especially port facilities, communications hubs, and major highway corridors would be crippling if the loss was total and links could not be quickly restored. Some of western Washington’s key industries, such as Amazon and Microsoft, may be insulated somewhat from damage due to the highly global nature of their work and redundancy in their systems, while others such as Boeing would be severely impacted as rail and highway routes necessary for the transport of materials is restored. I-5, for example, suffers from limited redundancy and carries over 233,000 vehicles through Seattle, a number that has been steadily growing.</p> <p>Economic risk from a major earthquake is multi-faceted. Economic impacts from an earthquake include immediate loss of facilities and inventories, ongoing loss of</p>

	employees and customers, and loss of businesses. Ongoing impacts will depend on the speed of infrastructure restoration, levels of insurance coverage, international economic conditions, and the ability of jurisdictions to develop and implement a long-term recovery strategy.
The environment	<p>Impacts to the environment from an earthquake include the creation and disposal of large quantities of debris, releases of hazardous materials, the disruption of environmental conservation programs, and the relaxing of environmental programs during the cleanup and recovery. The greatest potential for environmental damage is from hazardous materials releases as fuel and waste pipelines rupture, underground fuel storage tanks fail, trains, including oil trains, may derail, port facilities are damaged by any tsunami or seiche, and other chemicals, including household items, are spilled. The multi-source nature of materials releases, the scale of potential releases, and the lack of resources for cleanup all complicate the scenario.</p> <p>While most common after rain and wind event hazards (approximately 75% of all disaster-triggered releases), hazmat releases after earthquakes are responsible for large releases over a wide area.<sup>67</sup> Earthquake-triggered hazmat releases have included hundreds of gas line ruptures and pipeline breaks, and releases of ammonia, chlorine, and sulfuric acid during the Northridge and Loma Prieta earthquakes.<sup>68</sup></p>

<sup>67</sup> Sengul et al, 2012. *Analysis of Hazardous Materials Releases Due to Natural Hazards in the United States*.

<sup>68</sup> Young, Stacy; Balluz, Lina; and Malilay, Josephine, *Natural and Technologic Hazardous Material Releases During and After Natural Disasters: A Review* (2004). Public Health Resources. 90.



## Health systems





Health system impacts from a major disaster include disruptions to emergency services, community health clinics, pharmacies, and hospitals. While new hospitals are required to meet criteria for seismic resilience and may engage in supply-chain and patient evacuation planning, much of the rest of the network is likely to be shut down after a disaster. This is an especially high threat to populations needing regular medical services, such as kidney dialysis and insulin injections (which require refrigeration). In Hurricane Maria in 2017, Puerto Rico was left without power for months and the majority of fatalities

recorded due to the storm were from the elevated death rate among medically-fragile populations.

In order to function, hospitals require significant infrastructure inputs, including power and water that are likely to be disrupted after an earthquake. Backup services are available; however, may be insufficient to meet the need if infrastructure recovery takes too long.

Health system impacts therefore include large-scale disruptions to supply chains, disruptions to ongoing care regimens for certain medically-vulnerable populations, disruption of community care networks of pharmacies and local clinics, loss of trained staff, and potential damage to hospitals or loss of hospital functionality due to infrastructure damage.

<p>Government operations (continuity of operations)</p>	<p>Any damaging earthquake has the potential to impact delivery of essential government services in the days, weeks, months, and even years following the earthquake. The damages to infrastructure and residential or business locations may curtail or even prevent government employees from reaching their work locations or may prevent services from reaching populations in need scattered around the county. Even after initial short term repairs have been made, the impact on the taxable value of properties in the county may cause a revenue shortfall that reduces available services from budgetary impacts. Collection of available tax revenue, the revaluation process (including documentation), and appeals process might produce a further burden on already stretched government obligations.</p> <p>Earthquakes have the possibility of damaging any fixed facility at which services are provided. This may include: adult and juvenile detention facilities, waste water treatment facilities, solid waste disposal systems and facilities, the court system, health and medical institutions and clinics, fire and police stations or equipment, public transportation, schools, and libraries.</p> 
<p>Responders</p>	<p>First responders experience personal and professional impacts from an earthquake. Since responders are also local residents, they will be personally impacted by the disaster. Professionally, emergency services will be called upon to help with life safety operations while also seeking to restore day-to-day services.</p>

	 <p><b>Hazard Mitigation Plan</b>  <b>First Responder Facilities</b>  <b>with Liquefaction Potential</b></p> <p>Fire Stations    Medic Units    Police Stations</p> <p>King County</p> <p>0 Miles 10</p>
Infrastructure systems	<p>Energy: Dams are the primary source of electricity generation for the region and may be impacted by a major earthquake, even if failure is relatively unlikely. Pipelines cross the region carrying fuel and are susceptible to earthquakes. Since Washington is home to the Northwest's only refineries, damage to this conveyance system will have far reaching, regional consequences. A major concern for maintaining power in facilities while the power grid is down after an earthquake is fuel distribution. With transportation networks seriously impacted, it will be difficult to ensure a supply of fuel is distributed to hospitals, public facilities, and communications centers. Without this fuel, systems are likely to fail after a few days of operation.</p>





Water/Wastewater: Water and wastewater systems are among the most vulnerable to an earthquake of all lifeline infrastructure. Pipelines, especially those over NEHRP class D, E, and F soils, are vulnerable to rupture. King County maintains a wastewater treatment system that is connected to dozens of smaller systems and operates multiple water treatment plants. There are also many separate water systems that operate their own conveyance systems and reservoirs.

Transportation: Transportation lifelines are both state and local responsibility. According to a Regional Resiliency Assessment Program (RRAP) report published by DHS,

WSDOT has operated a seismic retrofit program since 1991 and has been steadily retrofitting bridges through a three-stage process of stabilizing the bridge superstructure, strengthening single-column bridge supports, and reinforcing multi-column piers. In response to the 2012 Resilient Washington State report, WSDOT began a program to completely retrofit three identified lifeline routes for a total cost in excess of \$1B (2015 dollars). As of 2019, there are 17 state-responsibility bridges in King County that are in poor condition.



*Bridge Seismic Lifeline Routes (green) (WSDOT, 2015)*

King County has 177 bridges in its bridge program. At least every two years, those bridges are inspected and recommendations are made for their repair or replacement. Between 2006 and 2016, 32 bridges were replaced and many more repaired. In 2008, the bridge program concluded a 14-year seismic retrofit, improving 115 bridges for \$22 million. This retrofiting has substantially improved the survivability (likelihood of collapse) of bridges in the King County inventory.


One category of bridges is fracture critical truss bridges. The average age of these bridges in unincorporated King County is 42 years. Of the 11 bridges in this group, the Miller River Bridge was closed from damages in the January 2011 flood event and the Alvord "T" was closed June 2013. The Stossel Bridge is the lowest rated of those remaining in the inventory. Each carries thousands of vehicles daily.

Bridges, however, are only part of the transportation puzzle. Bridge approaches, and pavement crossing unstable soils, are major threats. The WSDOT Seismic Lifeline route discussed above is only considering bridges, not pavement or approaches.

Railways are another highly-vulnerable piece of transportation infrastructure. Tracks can become misaligned and require repair before train travel is possible. Even in the relatively small 2001 Nisqually Earthquake, rail travel was disrupted for several days.

Port facilities are seriously threatened by a major earthquake due to liquefaction potential of port areas and tsunami threats. It is likely a major earthquake would completely destroy port facilities, requiring years of investment to completely recover. As with the 1995 Kobe, Japan earthquake, port operations may never again reach pre-disaster levels.

Airports are also vulnerable to earthquakes. In the 2001 Nisqually Earthquake, the air traffic control tower at Seattle-Tacoma International Airport was damaged, drastically reducing takeoff and landing capacity. Runway damage is also common as the ground shifts and would require repair before large jets could land. While the region has a number of airports, many of them will also be critical facilities for disaster response, medical patient evacuation, and food and fuel deliveries.

	 <p><b>Hazard Mitigation Plan</b>  <b>Transportation—Major Roads</b>  <b>with Liquefaction Potential</b></p> <p>Highways</p> <p>King County</p> <p>0 Miles 10</p> <p>Communications: While the public sector maintains critical radio communications networks, the networks on which most residents depend is privately owned. While cell towers are equipped with backup generators, these generators may only have enough fuel for a few days of continuous operation.</p>
<p>Public confidence in jurisdiction's governance and capabilities</p>	<p>Disasters of the magnitude we can expect from a damaging earthquake have the potential to shake public confidence in government's ability to maintain law and order, provide essential services, repair or replace needed infrastructure for employment, processing of building permits and inspections, clearing of debris and other needs. Restoration efforts may well take longer than the public is willing to accept. Amendments to zoning and building standards may not be embraced by those seeking to rebuild. If rapid restoration is not possible, the area may lose employers and the population may relocate to other areas of the country in search of employment.</p> <p>Earthquake hazards specifically have been the subject of significant reporting in recent years. Articles in the Seattle Times, the New Yorker, and on local television have argued that the Pacific Northwest is unprepared for the level of destruction</p>



	expected following a Cascadia Subduction Zone 9.0 event. <sup>69</sup> These articles have led to both stepped-up state and local action on earthquake preparedness and to more public awareness.
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<sup>69</sup> Schulz, Kathryn, “The Really Big One,” The New Yorker (July 20, 2015).

# Regional Risk Profile: Flood

## Hazard Description

Flooding is King County’s most persistent and recurrent natural hazard. Flooding affects tens of thousands of families and properties owners in communities across the county, with life safety, economic, and workplace impacts on tens of thousands more. The communities within King County take flooding seriously; the King County Flood Control District was established in 2007 to regionally manage flood hazards and reduce risk, in partnership with the Department of Natural Resources and Parks’ River and Floodplain Management Section. The King County Flood Hazard Management Plan drives much of the work that both the District and King County do to reduce flood risk and manage flood-related hazards.

Flooding is the inundation of normally dry areas by overflowing rivers, increased coastal waves, or other accumulation of surface waters. A number of conditions can cause flooding from too much rainfall in a river’s watershed to sustained offshore wind driving a high tide inland, but flooding can also be caused by events such as liquefaction of levees during an earthquake that release water the levees hold back. Other causes of flooding include dam failure, landscape changes after wildfires that exacerbate flooding, rapid snowmelt, channel migration, and debris in streams causing water to backup.



*Figure 2. Flooding along the Snoqualmie River in 2015*

Typically, King County sees at least minor flooding ever year in the fall and winter and big events are often driven by atmospheric river where moisture is picked up from the Pacific Ocean and brought by the jet stream to drop as prolonged heavy precipitation in western Washington.

A variety of factors affect how flooding occurs and its severity. One main factor for riverine flooding is the “hydrology,” which includes

how much rain falls, how fast it falls, how fast it reaches the stream, and the amount of water already in the stream. The second main factor for riverine flooding is the “hydraulics” of the watershed, which includes characteristics like the topography, stream channel dynamics, and the overall slope of areas of the watershed.

Flooding is a natural phenomenon and many ecosystems thrive because of the natural floodplain functions that rivers and coastlines provide. Flooding is considered a “problem” when humans construct buildings and infrastructure in the path of floodwater. The many aspects of natural floodplain functions help reduce impacts, slow floodwaters down, and preserve important habitat for endangered species.



Figure 3. Map showing mapped 1% annual chance floodplains and floodways. Note that Lake Washington does not have an identified floodplain because its levels are controlled by the US Army Corps of Engineers operated Chittenden Locks.

### Vulnerability Characteristics and Previous Occurrences

Flooding, no matter the source, causes widespread and long-lasting damage. The force of moving floodwaters can tear homes from their foundations, sweep cars off the road, and destroy public infrastructure. Houses and businesses damaged by flooding can take many months to repair and are often unsuitable to live in during the repairs. Certain types of flooding can leave buildings inundated for several days, which can further worsen property damage. Flood-damaged buildings can pose health risks including mold, contaminated food and drinking water, and mental health stresses from the traumatic experience.

The velocity, depth, and amount of floodwaters impact how dangerous riverine flooding can be. A floodplain where the velocity is more than 3 feet per second and the depth is more than 3 feet is an area dangerous for people to be living or working since those flood conditions can be fatal to someone walking through floodwaters. King County code, for example, prohibits buildings in unincorporated areas to be built in fast-flowing and deep floodplains. Rivers in King County also carry substantial debris, from fallen trees to boulders and sediment, and debris impacts can add to the severity of flooding.

Rivers are dynamic systems and can shift significantly during high flow events or gradually through erosion of streambanks. This risk is called “channel migration hazards,” and is a prevalent feature in northwest river systems. The scale of channel migration depends on the severity of the high flow event, geology of the banks and streambed, and characteristics of the surrounding land. King County regularly maps channel migration zones and has applicable development standards for proposals within these zones.



*Figure 4. House destroyed due to channel migration along the Raging River.*

In coastal floodplains, wave action is the most dangerous aspect of flooding. Buildings are required to be specially designed to withstand powerful wave actions and can only be built on open foundation systems, like piers or posts.

King County covers six large drainage basins and costal flood hazard areas.

1. The South Fork Skykomish River basin lies primarily in the northeast portion of King County and flows into neighboring Snohomish County. The basin drains 234 square miles of mountainous terrain within King County and includes major tributaries such as the Foss, Tye, Miller, and Beckler Rivers. The cities of Skykomish, Baring, and Gold Bar as well as many unincorporated area neighborhoods are located near or on the banks of the rivers and frequently experience impacts from flooding. The basin features steep slopes in the upper portion, so significant runoff can cause major flooding relatively quickly. The rivers in the basin are also very prone to channel migration and it is a significant hazard that communities are focused on.
2. The Snoqualmie River basin drains much of the northeast and north-central part of King County and is typically divided into two areas: the Upper Snoqualmie and the Lower Snoqualmie, above and below Snoqualmie Falls, respectively. The basin also encompasses tributaries such as the Tolt River, the Raging River, Tokul Creek, Griffin Creek, Harris Creek, Patterson Creek, among others. The Upper Snoqualmie River and some of the major tributaries are characterized by steep gradient headwater systems and some lower gradient floodplains near the incorporated communities of North Bend and Snoqualmie. The Lower Snoqualmie River



features wide floodplains along the low gradient channel. The cities of Carnation and Duvall and the unincorporated community of Fall City all lie within the broad Lower Snoqualmie Valley.

3. The Sammamish River basin originates at Lake Sammamish and drains a 240 square mile watershed, including the tributaries of Bear, Little Bear, North, and Swamp Creek basins. The river has been channelized since the construction of the Lake Washington Ship Canal and is partially regulated by a weird outlet downstream of the mouth of the lake, which reduces frequency and severity of flooding.
4. The Cedar River basin stretches from the Cascade Mountains to Lake Washington, where the Cedar River terminates. The basin has been heavily altered from its natural condition, with major projects constructed including Masonry Dam and the Landsburg Diversion, both to serve as water supply infrastructure. Along the Cedar River are many unincorporated community neighborhoods as well as cities like Maple Valley and Renton. Naturally-occurring large wood is a prevalent hazard in the basin.
5. The Green River originates in the Cascade Mountains at an elevation of 4,500 feet and flows through many cities including Auburn, Kent, Renton, Tukwila, and Seattle. The basin is divided into four major sub-basins: the upper watershed above the Howard Hanson Dam, the middle Green below the dam and upstream of Auburn, the lower Green that flows through the incorporated cities, and the Duwamish estuary. The Green River basin features many large structural elements including Howard Hanson Dam, which provides flood control, and large levee and revetment systems on the lower Green River.
6. The White River originates in glaciers on the northeast face of Mount Rainier. The White River drains an area of about 490 square miles, approximately one third of which lies within King County. Major tributaries join the White River along its path like the Greenwater River and Boise Creek. Over one hundred years ago, the White River was diverted to flow into the Puyallup River in Pierce County. Mud Mountain Dam is a major flood control dam that has a significant effect on reducing flooding in the basin. Additionally, water is diverted from the river for hydropower generation near Lake Tapps. Along the river are a number of small unincorporated neighborhoods in addition to the Muckleshoot Indian Tribe Reservation and portions of the city of Auburn.
7. Coastal flood hazard areas pose potential risks to approximately 100 miles of shoreline, about half of which is on Vashon Island in unincorporated King County and the other half is the incorporated shoreline through the cities of Shoreline, Seattle, Burien, Des Moines, and Federal Way. Storm surge and wave action are significant flood hazards facing development along shorelines. Coastal erosion also is a prevalent hazard, including along the steep bluff areas around the shoreline in King County. Many miles of shoreline are variably armored by bulkheads and other structures. Coastal flooding will be exacerbated by sea level rise and other impacts of climate change.

Flooding is a prevalent threat during the fall and winter months due to atmospheric rivers, heavy rain, and king tides. Major floods occur on average every two to five years. Major river flooding has typically not caused fatalities, but rather significant property damage. Flooding along multiple rivers in 2006 and 2009 were the most recent major floods to cause many millions of dollars in damage. Flooding in 1990 is considered the largest flood of record for most of the county except for the Lower Snoqualmie and Tolt Rivers. There have been 28 flooding events since 1965 that have resulted in federal disaster declarations. At least minor flooding occurs every winter. Climate change is likely to have a significant effect in changing the patterns of flooding in the river basins.

## Scenario Drivers

Most types of flooding caused by extreme weather are cyclical and are measured by their probability of occurrence in a given year based on the factors that drive flooding. The larger a flood event, the less likely it is to happen in a year. A flood with a 10% chance of occurring in a year is sometimes called a “10-year flood,” and that flood event will have less river flow and likely fewer impacts than a 1% annual chance flood event, or a “100-year flood.” These flood events can be modeled and maps created to show their extents.

The 1% annual chance flood, or 100-year flood, is the most important scenario because floodplain regulations and federal flood insurance are based on this flood event. This flood event represents the mapped floodplain on FEMA Flood Insurance Rate Maps and forms the basis for community regulations for participating communities in the National Flood Insurance Program. In King County communities, all new or substantially improved buildings must be constructed with their lowest floor at least one foot higher than the expected elevation of the 1% annual chance flood.

While the 1% annual chance flood is scenario most often discussed, the 10%, 2%, and 0.2% annual chance floods are often used for planning and certain regulatory purposes. The extents of the flood events are not consistently mapped throughout the county, but engineering data in flood models can be used in project planning or regulatory compliance.

Typically the recurrence interval floods are driven by cyclical natural factors like atmospheric rivers bringing heavy rain or severe winter storms and king tides. Other factors can drive flooding scenarios in different ways. For example, levee or dam failures may happen due to problems caused by inadequate maintenance. Flooding damage from earthquakes will likely only be seen if an earthquake damages a levee, for example, during times of high water.

King County has a long-established Flood Warning Program that has been monitoring river systems for over 50 years. The King County Department of Natural Resources and Parks’ River and Floodplain Management Section operates a Flood Warning Center that opens 24 hours a day when flooding occurs on any of the river systems with gages. For the Flood Warning Program, the rivers are measured by a “flood phase” system based on real-time flow information. When a river reaches flood phase 2, the Center opens, coordinates with local, state, and federal agencies, and accepts calls from the public requesting information about flooding. When a river reaches flood phase 3, patrol teams are sent out to monitor flood protection facilities and any potential flooding impacts. When a river reaches flood phase 4, additional staff are brought in to the Flood Warning Center, sent on flood patrols, and begin to collect damage information in case of a disaster declaration.



## FLOOD WARNING PHASE THRESHOLDS

PHASE	SOUTH FORK SKYKOMISH RIVER (at Skykomish)	TOLT RIVER (near Carnation)	SNOQUALMIE (Sum of Forks)	ISSAQUAH CREEK (near Hobart)	CEDAR RIVER (near Landsburg)	GREEN RIVER (Actual or expected flow near Auburn)	WHITE RIVER (Actual or expected flow release from Mud Mountain Dam)
1	6,000 cfs	2,500 cfs	6,000 cfs	6.5 ft	1,800 cfs	5,000 cfs	4,000 cfs
2	10,000 cfs	3,500 cfs	12,000 cfs	7.5 ft	2,800 cfs	7,000 cfs	5,000 cfs
3	18,000 cfs	5,000 cfs	20,000 cfs	8.5 ft	4,200 cfs	9,000 cfs	7,000 cfs
4	27,000 cfs	8,500 cfs	38,000 cfs	9.0 ft	5,000 cfs	12,000 cfs	9,000 cfs

Heavy rain and atmospheric rivers	Most riverine and urban flooding is caused by heavy rain and atmospheric rivers that drive significant weather systems into the Pacific Northwest. Intense rainfall can overwhelm rivers' ability to carry flows in their banks and cause inundation of the adjacent floodplains. These factors not only drive riverine flooding, but also urban flooding issues that can overwhelm local stormwater infrastructure and can cause flood damage.
Severe winter storm, storm surge, king tides	Severe winter storms that have strong winds combined with king tides can cause significant coastal flooding, as seen in the 1982 king tide event that battered much of the shoreline in King County. Intense coastal storms and high tides can cause damage to coastal properties and damage infrastructure like roads and ferry docks.
Sea level rise	As sea level rises in Puget Sound, the stillwater elevation level, or the water level without effect of waves, rises and pushes more water inland during times of severe storms. While the actual increase in flood risk will differ based on the localized geography and wind patterns, sea level rise is certain to worsen flooding along the coastlines in King County.
Channel migration	Rivers natural erode banks and soils due to the energy of moving water. This erosion causes rivers to migrate or move laterally across a floodplain.

	A channel can also move abruptly over a large distance in a single flood event. This can threaten development located in channel migration zones, some of which are mapped.
Dam failure and overtopping	If dams fail, the water held back will rush out quickly, potentially causing catastrophic flooding downstream. Dams both large and small can pose significant impacts. The potential for Howard Hanson Dam's failure in 2009 brought to light the incredible flooding, loss of life, and property damage that could happen if dams fail. Smaller structures that might be in a neighborhood can also lead to deaths and significant property damage. Dam failure can be caused by too much water for a structure to handle or by lack of maintenance that causes the dam to fail.
Levee failure and overtopping	Levees act as flood protection facilities, but only offer protection to a certain recurrence interval. They also are manmade earthen structures that require maintenance. Flooding can exceed a levee system's capacity or flaws in the structure can cause it to fail, and both would cause rapid inundation behind the levee. Water can seep through levees and cause weaknesses that lead to collapse.
Landslide and mudflow	Landslides can rapidly fill in rivers, causing a blockage in the river and immediate overflowing. This threat is particularly present on the Cedar River. Landslides can also add significant material to a river, causing a mudflow and rapid damage to property, similar to the Oso Landslide event in 2014 in Snohomish County.
Earthquake	Earthen levee systems are prone to liquefaction in an earthquake, which can cause major failure of the levee structures. If floodwaters are being held back at the time of an earthquake, the levees can fail and flooding could occur very quickly.
Volcanic eruption	In the event that Mt. Rainier erupts, lahars can fill river valleys and drastically change the course of rivers, streams, and shorelines. The amount of materials brought downstream in a lahar would affect the severity of impacts in future flooding.
Tsunami	Tsunamis are powerful waves that are caused by an earthquake or displacement of water from an underwater land feature collapse. Specific scenarios are outlined in the Tsunami and Seiche Risk Assessment. A tsunami that affects King County would cause significant wave action and likely major damage to properties on the coast.

Humanmade watershed changes	One major factor in understanding flood risk is the underlying land that floodwaters flow over. Harder and more impervious surfaces carry floodwater faster, so as humans continue to build buildings, roads, sidewalks, and other impervious features, floodwaters travel faster to streams, which can increase the severity of flooding.
Climate change	While climate change has an effect and influence on many of the factors already identified, it is a specific scenario driver because of the potential to change flooding in King County. Research is currently ongoing to better analyze, quantify, and understand the effect of certain emissions scenarios that could drive flooding in multiple ways. King County is likely to experience higher intensity rainfall events, which have the potential to cause more impactful flooding.

#### Priority Vulnerabilities

Families living in floodprone areas	Families with limited budgets are the top concern for flooding. Because flood damage can be very expensive and disruptive, families have a difficult time recovering from the effects of flooding. Without flood insurance, families must take money from savings; and even with flood insurance, flood damaged homes may not be livable for many months. Renters are particularly vulnerable since they often are lower income and do not have flood insurance. Additionally, families that don't speak English as a primary language can be more vulnerable to flooding because most flood warning systems are in English and much of the flood insurance, floodplain regulations, and any mitigation programs are made up of materials in English.
Major roads and sole-access roads	The many bridges, major roads, cross-valley roads, and sole-access neighborhood roads that cross floodplains are a top priority during flooding. Many people in Duvall, Carnation, and other communities in the Snoqualmie valley can be entirely cut off during major flooding since SR 203 and the cross-valley roads are often underwater. During high tide flooding events on Vashon Island, many coastal roads are underwater as well and can limit access via Vashon Highway.
Critical facilities	Schools, hospitals, nursing homes, hazardous materials storage facilities, and other critical facilities operations are threatened during flooding. Schools will be inaccessible and hospital operations and access routes vulnerable. Facilities like nursing homes house populations that cannot easily leave floodprone areas. And hazardous waste, sewage, or animal waste storage facilities threaten water quality and pose health risks during flooding.

Farms	<p>There are many agricultural operations in King County's floodplains including major production areas in the Snoqualmie Valley, Green River Valley, Sammamish River Valley, and parts of the Enumclaw Plateau. Flooding can particularly affect harvest time in October and November as well as making it difficult to start planting in the spring. Farms with livestock faced significant losses in the 1990 floods, but now many dairy or other livestock operations have farm pads that offer refuge for animals in times of flooding.</p>
Linear infrastructure	<p>Linear infrastructure such as water and natural gas pipelines, sewage systems, and utility transmission lines cross rivers, streams, and floodplains. Significant water pipelines take water from protected watersheds down to Seattle, Renton, and other cities and often are threatened by flooding. A major capital project completed in 2019 added flood protection for the Tolt Pipeline, which is part of Seattle's water supply. Additionally, as sea levels rise and worsen coastal flooding,</p>
Flood protection facilities	<p>Levees and revetments are part of the flood protection facility systems in King County. During flood events, levees and revetments are tested by the force of floodwater. Revetments are intended to protect against channel migration, but if the flood is too large, they can fail and rivers can avulse. Levees similarly are put under serious pressure during flood events and a number of issues from seepage to sloughing can undermine levees and cause them to fail.</p>

### Priority Impact Areas

King County residents	<p>Flooding can affect anyone who lives in or near floodplains. Most flood hazards are mapped and families living in these mapped 1% annual chance floodplains can expect at least a 26% chance of seeing floodwaters over 30 years, the length of a typical mortgage. Flooding can threaten lives, particular in areas where flooding can happen quickly and with little warning, in addition to those driving on flooded roads. Most deaths occur from people driving through floodwaters and being swept away in their cars.</p> <p>Flooding also causes significant property damage and, on average, one foot of water in an average size home can cause over \$50,000 in damage. Without flood insurance, this level of damage can overwhelm a family's finances. And those without many financial resources will be severely impacted by flood damage to their home and/or belongings.</p> <p>Flooding also affects those who work in floodplains or commute through them. Many farmworkers are employed on farms in the Snoqualmie or Sammamish Valleys and when flooding inundates or ruins crops, farmworkers can find themselves without jobs. Businesses in floodplains also will shut down during flooding, particularly if buildings and</p>
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	access roads are damaged. After the 1993 Midwest Flooding, FEMA found that over 40% of small businesses don't reopen after being flooded.																				
Vulnerable populations	<p>Flooding is a complicated hazard to understand and accessing flood warning, flood insurance, and other information often requires command of English, understanding of government bureaucracy, and access to financial resources. Populations that don't speak English, don't have access to government resources, and those that cannot afford or don't have flood insurance are particularly vulnerable to the long-term impacts of flooding.</p> <p>Renters can be particularly vulnerable to the impacts of flooding. Families that rent make up over 50% of the households in the floodplain, whereas they make up approximately 37% of households in the entire County. Renters are more often vulnerable because they're far less likely to have a flood insurance policy. Out of the many thousands of families that rent, there are less than 300 renters flood insurance policies, according to data from FEMA, and some of those may be business properties that the data cannot distinguish. Renters often have less wealth or savings to draw from to pay for uninsured losses.</p>																				
Property	<p>Flooding particularly impacts property and often causes many millions of dollars in property damage in major flooding events. Even a small amount of water inside a building can cause significant property damage and leave building owners with large repair bills. For families, damage to homes may mean difficult financial decisions, displacement for weeks, and lost belongings. For business owners, flood damage may mean lost economic output from shutdowns, destroyed inventory, and inability to pay employees.</p> <p>Throughout King County, there is at least \$5 billion of building value in floodplains.</p> <p>Federal flood insurance through the National Flood Insurance Program is the primary way building owners financially protect their property in floodprone areas. As of June 2019, flood insurance policies cover over \$2 billion worth of property throughout King County. Many larger commercial or industrial facilities are insured through private contracts, the value of which is not available to government agencies.</p> <table border="1"> <thead> <tr> <th>Community</th><th>Repetitive Loss Properties</th></tr> </thead> <tbody> <tr> <td>Auburn</td><td>0</td></tr> <tr> <td>Bellevue</td><td>3</td></tr> <tr> <td>Burien</td><td>6</td></tr> <tr> <td>Carnation</td><td>0</td></tr> <tr> <td>Duvall</td><td>2</td></tr> <tr> <td>Issaquah</td><td>14</td></tr> <tr> <td>Kent</td><td>2</td></tr> <tr> <td>King County</td><td>108</td></tr> <tr> <td>Kirkland</td><td>1</td></tr> </tbody> </table>	Community	Repetitive Loss Properties	Auburn	0	Bellevue	3	Burien	6	Carnation	0	Duvall	2	Issaquah	14	Kent	2	King County	108	Kirkland	1
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Mercer Island	1
North Bend	4
Redmond	0
Renton	0
Skykomish	4
Snoqualmie	134
Woodinville	2

Most of these structures are residential. King County attempted to assess the use type of these properties; however, none of the available data sources on RL/SRL properties from the CRS or FEMA contained use types. Even the property-specific forms required to evaluate under CRS did not include use.

**The economy** In 2007, an economic study was conducted to understanding the economic impact of flooding. The study found that 6% of the region's jobs are located in the floodplain and nearly 7% of the county's wages and salaries are generated in the floodplain (\$3.7 billion). 20% of the county's manufacturing employment and 30% of the county's aerospace employment are found in floodplains. A major flood that would shut-down economic activity in floodplains would result in at least \$46 million per day in lost economic output.

Flooding will affect certain industries like agriculture, aerospace, manufacturing, and distribution more heavily because of their presence and reliance on floodplain locations. In the lower Snoqualmie valley, there are nearly 200 farms that produce a wide range of products from dairy to herbs and row crop vegetables. The Sammamish River valley supports a number of wineries and other small farms. And the Green River valley hosts many large fields of row crops as well as a large County-owned farm leased out by a diverse group of farmers. Flooding can negatively impact these operations, particularly if it occurs before harvest or late into the spring planting season. Farmers cannot sell food products from flood-damaged fields. Flooding, however, also provides nutrients to the soil that supports productive agriculture.

While some agricultural sectors are dependent on natural floodplain functions, other economic sectors have located in the floodplain over decades for other reasons. Large warehouses in the Green River valley, many in the floodplain, make the region one of the largest logistics hubs in the nation. But, the square footage of warehouse and aerospace facilities means that billions of dollars are at risk of flooding every year as well as thousands of jobs.

**The environment** Flooding is a natural process and supports unique ecosystems and habitats. Many riparian and aquatic ecosystems depend upon some amount of regular flooding or high water events. Various salmonid species use high water events to seek refuge as juveniles or

	<p>access more favorable habitats, which makes flooding an important part of recovery for the endangered salmon species in Puget Sound.</p> <p>Natural floodplain functions typically result in slower-moving floodwaters with less intense flood height peaks. When upland forest areas are logged or burned, rain and snowmelt reach streams faster, which can cause flooding to be more intense and push water through the floodplain more quickly.</p> <p>King County often incorporates natural functions into the design of projects, which helps reduce flood risk as well as protect and restore ecosystems. Reconnecting rivers and coastlines to their historic floodplains through levee setbacks, creating side channels, and removing obstructions help restore natural functions and bring flood risk reduction benefits as well. The large Countyline project near Auburn restored 121 acres of floodplain along the White River and reduce flood risk for over 200 residential properties.</p>
Health systems	<p>Of the 127 medical facilities throughout King County, only 5 are located in the 0.2% annual chance floodplain (which includes the 1% annual chance floodplain) and of those, only 1 is located in the 1% annual chance floodplain. No hospitals are located in the 0.2% annual chance floodplain. While these 5 facilities are certainly at risk, the risk from flooding to the overall healthcare and medical system is low.</p> <p>One area of concern is the ability of residents in certain areas of the County, in particular sole-access neighborhoods and the lower Snoqualmie Valley, to evacuate for medical reasons during times of flooding. Neighborhoods with roads that are inaccessible during flooding are particularly vulnerable. The lower Snoqualmie Valley can also be isolated when the river reaches beyond a flood phase 4 level.</p>
Government operations (continuity of operations)	<p>Because few government facilities are located in floodprone areas, flooding does not pose a substantial risk to the continuity of government operations. Certain city buildings in Snoqualmie, North Bend, and Carnation are in floodprone areas, but some are elevated and others are outside floodprone areas.</p>
Responders	<p>Police, firefighters, and paramedics play key roles in the response to flooding. Police officers often help shut roads down to prevent people from driving through floodwaters; firefighters often rescue people trapped by flooding; and paramedics transport people hurt by flooding, often from hypothermia or other causes. If any of these first responders' buildings are in the 0.2% annual chance floodplain, their ability to respond is seriously threatened.</p> <p>Of the 64 police stations in King County, 3 are located in the 0.2% annual chance floodplain (in Skykomish, Redmond, and Issaquah).</p> <p>Of the 161 fire stations in King County, 6 are located in the 0.2% annual chance floodplain (in Skykomish, Seattle, North Bend, Renton, Issaquah, and near Enumclaw).</p>

	<p>Additionally, neighborhoods with roads that are inaccessible during flooding pose challenges to first responders. They may not be able to drive to homes and may require helicopters or boats to access.</p>
Infrastructure systems	<ul style="list-style-type: none"> <li>• Energy systems: most overhead powerlines are not susceptible to impacts from flooding unless the power poles are not resistant to flooding. Buried cables typically aren't affected by flooding very often.</li> <li>• Water/Wastewater: flooding, particularly from king tides and coastal storm systems can damage wastewater infrastructure such as the County's West Point Treatment Plant. Some city wastewater treatment plants are also located in floodprone riverine areas. Where these linear systems cross rivers, flooding can pose issues. The Tolt Pipeline, a water supply line for Seattle, was at risk from the Snoqualmie River migrating further toward its alignment. In 2019, a project was completed to provide some protection from that risk.</li> <li>• Transportation: roads through the Snoqualmie Valley are particularly susceptible to flooding and close regularly during high water events. Valley residents are often isolated. King County Road Services Division closes roads and will be working on an effort to study the impacts of flooding on various county roads.</li> <li>• Communications: most communications infrastructure is not vulnerable to flooding.</li> </ul>
Public confidence in jurisdiction's governance and capabilities	<p>Flooding occurs frequently enough in King County that residents often turn to the King County River &amp; Floodplain Management Section for help and information during flooding events. Confidence is high in the government's ability to respond to flooding events. The multiple iterations of the Flood Hazard Management Plan have featured robust stakeholder involvement processes, which has inspired confidence in King County's ability to manage floodplains with higher regulatory standards and other programs to keep people and property safe from flooding.</p>

# Regional Risk Profile: Hazardous Materials

## Hazard Description

Hazardous materials releases are one of the most common incident types. They can occur due to an accident or also be secondary to other primary hazards like: terrorist attack, earthquake and volcanic activity, severe flooding, and fires. Hazardous materials releases occur from leaking containers or pipelines when corrosion or a puncture occurs, accidental overflow of vessels when being transferred, loading dock and warehouse accidents, careless handling, illegal activities like drug labs, and traffic accidents. The person who dumps paint down a sewer is releasing a hazardous material. The illegal drug lab is using hazardous materials and leaving hazardous waste. The car accident that leaves a pool of fuel, oil, and anti-freeze has left hazardous materials to clean up. A growing source of materials releases is from electronic waste dumping, releasing chemicals like lead, zinc, nickel, flame retardants, barium, and chromium into the environment.

There are nine classes of hazardous materials.

1. Explosives
2. Gases
3. Flammable Liquid and Combustible Liquid
4. Flammable Solid, Spontaneously Combustible, and Dangerous When Wet
5. Oxidizer and Organic Peroxide
6. Poison (Toxic) and Poison Inhalation Hazard
7. Radioactive
8. Corrosive
9. Miscellaneous

Examples of common hazardous materials include anhydrous ammonia (used as a refrigerant), gasoline and diesel (used as transportation fuels), paints and dyes (for homes and clothing), and many corrosives (used in the local aircraft manufacturing industry).<sup>70</sup> Pipelines and rail lines transport crude oil to refineries and finished fuels to homes (natural gas) and retail fueling stations for vehicles.

The risk of a CBRNe event (an attack using chemical, biological, radiological, or nerve agent) is low, if one were to occur this would have widespread impacts. There is little known day-to-day risk of an event, though this is a major focus of federal, state, and local counterterrorism planners. More information on hazardous materials in terrorist events will be provided in the terrorism hazard profile.

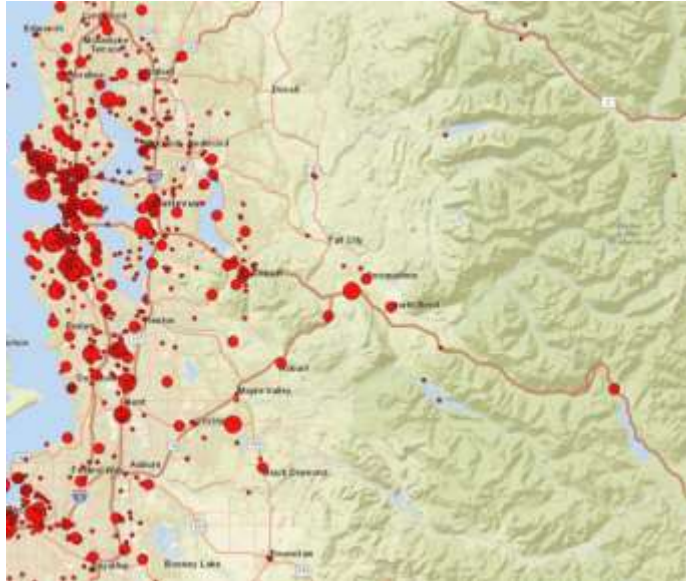
Although the likelihood of large numbers of fatalities from a single materials release is low, the effects can be devastating to impacted communities, the economy and the environment. A major oil spill in Puget Sound would destroy the fishery, including \$4.5 billion in commercial fishing, plus tourism, and sport fishing. The Puget Sound is also a culturally-sacred and environmentally-critical resource that

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<sup>70</sup> Federal Motor Carrier Safety Administration. Nine Classes of Hazardous Materials. Accessed online on 7/2/19 from [https://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/Nine\\_Classes\\_of\\_Hazardous\\_Materials-4-2013\\_508CLN.pdf](https://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/Nine_Classes_of_Hazardous_Materials-4-2013_508CLN.pdf).

cannot be replaced or valued in dollars. In this way, the hazardous materials incident hazard is one of the most complex. It includes frequent spills and releases from day to day human activities, a threat of a major release from a massive spill or accident, and the threat of an intentional release from an attack. The impacts from hazardous materials are also complex, including slow-acting releases that kill people

and the environment over years and catastrophes that kill thousands, such as in Bhopal, India in 1984.



*Class 1, 3, and 4 Spills Program-Regulated Facilities (WA ECY)*

of fluids dripping onto the pavement from parked vehicles is an oil spill.<sup>71</sup>

Between July 1, 2015 and March 31 2019 Washington State Department of Ecology received 748 reports of oil spills of one gallon or more reaching a water source, including both running into storm drains and running directly into a waterway. This only includes reported spills and only includes oil spills. This does not include the uncountable quantity of micro-spills that occur and are later washed into waterways by rain. For example, the rough spot of pavement in a parking lot that is the result

In Washington, the state Department of Ecology is the lead agency for hazardous materials. Local response is led by fire services.

<sup>71</sup> Washington State Department of Ecology. Coastal Atlas. Accessed online on 7/2/19 from [https://fortress.wa.gov/ecy/coastalatlas/storymaps/spills/spills\\_sm.html](https://fortress.wa.gov/ecy/coastalatlas/storymaps/spills/spills_sm.html).

## Vulnerability Characteristics and Previous Occurrences



King County hosts a variety of unique transportation and geographic conditions, including one of the largest deep water seaports on the west coast, an International Airport in SeaTac that handles cargo from all over the world, as well as fuel pipelines running south from Whatcom County through King County and down into Portland carrying jet fuels, diesel, gasoline, etc. An estimated 18,833 oil tank cars travel through King County each quarter.<sup>72</sup> Additionally, local highways like Interstate-5, Interstate-90, Interstate 405, US Highway 2, State Route (SR) 18, SR 516, SR 167, US Highway 99 and others transport hazardous materials throughout the region.

In the City of Seattle alone there are thousands of facilities with hazardous materials regulated under the fire code.<sup>73</sup> Other areas with high concentrations of hazardous materials usage include Auburn, Redmond and the Kent Valley.

Business types that commonly use hazardous materials include: hospitals, schools and universities, metal plating and finishing, the aircraft industry, public utilities, cold storage companies, the fuel industries, the communication industry, chemical distributors, research, and high technology firms. Each of these facilities is required to maintain plans for warning, notification, evacuation and site security under various regulations.

While the majority of incidents tend to involve petroleum products, a significant number involve extremely hazardous materials. Extremely hazardous materials include chemicals like chlorine, ammonia, sulfuric acid, nitric acid, some pesticides (EHS is a technical designation, so not pesticides- although the chemistries used as pesticides might be on the EHS list), and other chemicals that can cause immediate death or injury when inhaled, ingested, or come in contact with skin. Approximately 200 local facilities with extremely hazardous materials report to the county under Community Right to Know Act provisions. (plug with time and description of LEPC Seattle and King) These sites report their inventories annually with records being retained in databases in multiple locations.<sup>74</sup>

Though they occur every day, many spills are not reported or go undetected. Some industrial spills from the 1970's and 1980's are still being cleaned up in the Kent Valley, Harbor Island, Duwamish corridor,

<sup>72</sup> Washington State Department of Ecology. Coastal Atlas. Accessed online on 7/2/19 from [https://fortress.wa.gov/ecy/coastalatlas/storymaps/spills/spills\\_sm.html](https://fortress.wa.gov/ecy/coastalatlas/storymaps/spills/spills_sm.html).

<sup>73</sup> National Fire Protection Association. Materials Management Codes and Standards. Accessed online on 6/25/19 from <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards?mode=code&code=400>.

<sup>74</sup> King County Local Emergency Management Planning Committee. 2015. Tier II Reports.



and Seattle/South Park as federal Superfund cleanup sites. There are currently 10 active Superfund cleanup sites in King County.<sup>75</sup> At least five other Superfund sites have completed cleanup and have been closed since the program began. Currently active sites include:

1. Harbor Island – groundwater contains benzene, ethyl benzene, xylene, mercury, cadmium, lead and zinc with poly chlorinated bi-phenols (PCB) sediments. 18
2. Lockheed West Seattle – heavy metal contaminants: arsenic, chromium, copper, lead, silver, and zinc with butyl tins and PCBs.
3. Lower Duwamish Waterway – River sediments are contaminated with mercury, arsenic, PCBs, dioxins, furans, and phthalates.
4. Midway Landfill – Ground water contaminated with heavy metals and volatile organics.
5. Pacific Car and Foundry – Soil is contaminated with heavy metals, PCBs and solvents. Approximately 37,000 obtain drinking water from wells within three miles.
6. Pacific Sound Resources – Soil and ground water contaminated by PCBs and heavy metals from former wood treatment operations.
7. Queen City Farms – the site is a former landfill. Ground water, surface water, and sludge contaminated by volatile organic compounds. Soil contaminated with PCBs and metals.
8. Quendall Terminals – Soil and ground water contaminated with benzene and creosote from former manufacturing plant. Contaminants release to Lake Washington.
9. Seattle Municipal Landfill (Kent Highlands) – Landfill contains volatile organic compounds like toluene, xylene, vinyl chloride, and others – plus heavy metals.
10. Western Processing – former industrial processing facility ground water and sediment contains volatile organic compounds, PCBs, phenols, and heavy metals

An example of the cleanup costs for a Superfund site is illustrated by the Harbor Island Cleanup. The former owner, RSR Corporation agreed to pay \$8.5 million in fines toward the cleanup that will cost (when completed) over \$32 million.<sup>76</sup> The cost to cleanup an illegal drug lab (in a home) can cost between \$5,000 and \$100,000 depending on the size of the home. Often the occupants vacate or abandon the sites – leaving a bank or credit union holding the mortgage and cleanup costs.<sup>77</sup>

### Scenario Drivers

It is difficult to find a home, school, hospital or place of business that isn't without chemicals, solvents, pesticides, lawn chemicals, cleaners and/or paints.	
Pipeline rupture	Washington State hosts the only oil refineries in the Northwest. Multiple pipelines traverse the state, such as the Olympic Pipeline. Failures or shutdowns in the pipeline can cause fuel shortages and price increases. An explosion on the Olympic Pipeline in 1999 killed three people and cost over \$58 million in property damage.

<sup>75</sup> U.S. Environmental Protection Agency. Superfund Sites Where You Live. Accessed online on 6/25/19 from <https://www.epa.gov/superfund/search-superfund-sites-where-you-live>

<sup>76</sup> U.S. Department of Justice. 2006. Former Harbor Island Smelter Operator to Pay \$8.5 Million in Superfund Cleanup Costs. Accessed online on 6/25/19 from [https://www.justice.gov/archive/opa/pr/2006/January/06\\_enrd\\_047.html](https://www.justice.gov/archive/opa/pr/2006/January/06_enrd_047.html).

<sup>77</sup> Dewan, Shaila and Robbie Brown. July 25, 2009. When an ex-meth lab is home. *The Seattle Times*. Accessed online on 6/25/19 from <https://www.seattletimes.com/business/real-estate/when-an-ex-meth-lab-is-a-home/>.

Chemical/oil train derailment	An oil spill in 2016 in Moser, Oregon along the Columbia River very nearly caused the destruction of the entire town and an ecological catastrophe in the river. The community was saved by luck of the weather and because most of the oil that spilled flowed into a water treatment plan, where it was safely contained.
Oil tanker spill	An oil tanker spill in the Puget Sound would devastate marine life and potentially cause a permanent shut-down in oil tanker traffic due to public outcry. A major spill would close the fishery economy leading to \$4.5 billion in losses for Washington alone and permanent, incalculable damage to tribal cultural resources.
Storage facility failure in a populated area	A facility failure, including an explosion or release of chemicals, could endanger or kill many people. In Waco, Texas in 2013, an ammonium nitrate explosion occurred at a distribution facility, leveling a neighborhood and killing 15 people. A train derailment in 2013 in Lac Megantic in Quebec, Canada killed 60 people and destroyed much of the town.
Vehicle accident on a major roadway	Vehicle accidents that release fuel and oil occur every day on Washington roads. A major incident, especially at an interchange, such as the I-5 and I-405 interchange in Tukwila/Renton would potentially close both freeways for an extended period while cleanup occurs.
CBRNe Attack	Another lower-risk, but high-intensity hazardous materials event is from a chemical, biological, radiological, or nerve agent (CBRNe) attack.

### Priority Vulnerabilities

Low-income communities in or around industrial facilities	Low-income communities are more likely to be impacted from major releases due to the proximity of affordable housing to industrial areas and historic environmental injustices.
Individuals with respiratory issues	Individuals with respiratory issues are more likely to succumb quickly to an airborne release of a chemical.
Major transportation facilities such as the Port of Seattle	Major transportation facilities store huge amounts of chemicals and fuel in depots. A failure or fire at one of these facilities could damage or destroy these assets.
Rail facilities	Rail facilities transport chemicals and fuels, including highly combustible crude oil. There have been multiple derailments and spills. In Moser, Oregon

	in 2016, a train derailed causing a fire that nearly destroyed the town and the fuel was prevented from leaking in large quantities into the Columbia River by luck.
Interstate highways	Interstate highways are a major artery carrying chemicals. Accidents happen every day and major chemical spills can shut down a roadway for an extended period of time. (oil slicks contribute to traffic injuries and fatalities when it rains)
Oil tankers in Puget Sound	Oil tankers are expected to traverse Puget Sound in growing numbers due to Canada's approval of a major pipeline and terminal in Vancouver, BC. When this occurs, it will significantly raise the risk a spill that could destroy much of the aquatic life in Puget Sound.

### Priority Impact Areas

King County residents	Potential Impacts to the public from a hazardous materials spill can vary widely. Temporary or even permanent displacement through evacuation from an unsafe area can result in relocation/displacement of populations. Employment disruption, school closure, impacts to private and community wellheads and other impacts can change whole communities. Long term exposure to toxic chemicals can cause birth defects and temporary or permanent health problems – especially for the young, old and infirm. <sup>78</sup>
Vulnerable populations	Vulnerable populations often live in closer proximity to facilities with the risk of hazardous materials release. In King County, this includes residences near the Duwamish industrial area, in Kent, Renton, and south Seattle. These are also the locations of the superfund sites in the region. In cases of major releases or system failures, the most impacted populations are frequently lower-income, often ethnic minority communities that live nearby. Populations with respiratory issues are also at a heightened risk of impacts due to an airborne release of chemicals.
Property	Spills of hazardous materials to soil or buildings can result in extensive and costly cleanup efforts. Cleanup standards are established by federal (U.S. EPA), state (Washington State Department of Ecology), and local standards (fire agencies and environmental agencies). Until a site is cleaned up to those standards, residential or business occupancy can be denied under the Health Code. The responsible party (property owner) may be required to pay for the cleanup. Often this can lead to bankruptcy and clean up by state or federal agencies and contractors. Contaminated property can drastically reduce the value of the property and the King County subsequent property taxes available to local and state

<sup>78</sup> U.S. Centers for Disease Control. Health Effects of Chemical Exposure. Accessed online on 6/25/19 from <https://www.atsdr.cdc.gov/emes/public/docs/Health%20Effects%20of%20Chemical%20Exposure%20FS.pdf>.

	government. Similar impacts can be expected for transportation accidents with hazardous material spills.
The economy	Small spills can close businesses and rather large impact on employment and land use including the properties of neighbors not responsible for the chemical release. Superfund sites can impact a community for decades until they are cleaned up. The large salmon and fishing fleet that calls King County home may be impacted when some of a year's fish stock – or even the entire run is impacted.
The environment	Any chemical spill on or along rails, roads, pipelines, fixed industrial facilities or illegal drug labs/dumping may impact the natural environment. Wetlands, streams and rivers, lakes, and reservoirs may all be damaged from chemical spills. In some cases these damages may injure the plant and animal life irreparably. Birds, reptiles, amphibians, fish, and mammals may all be impacted. Air pollutants may impact human inhabitants as well as the natural environment. Recreational areas can be closed until a suitable solution can be found to recover the natural environment.
Health systems	Hospitals can be overwhelmed by major releases of hazardous materials as populations, both those exposed and those who feel they may have been, check in at emergency rooms. Hospitals and pharmacies are also sources of hazardous materials, including some radioactive materials such as those associated with cancer treatment.
Government operations (continuity of operations)	King County is the operator of several facilities that are vulnerable to hazardous materials spills. The county has three waste water operations (South Plant, West Point Treatment Plant, and Brightwater). These expensive facilities are vulnerable to the introduction of chemicals (when in large volumes) to the sanitary sewer system. The county also has solid waste (garbage) transfer stations and a major landfill operation at Cedar Hills. While contaminants are avoided, some material may make its way into the landfill and the ground water table. Drinking water facilities including private and community well heads and reservoirs may also be vulnerable to introduction of chemical or biological contaminants. Any chemical spill that impacts a major roadway or rail line may impact public transit routes in the county.
Responders	Hazardous materials make response and recovery activities in all disasters a threat to the health and safety of responders. During local events, such as house fires, stores of chemicals can catch fire and explode, injuring responders. During larger events such as earthquakes, large-scale releases can surprise and overwhelm responders without proper equipment. It can also be extremely difficult to determine the chemical or chemicals that have been released from a given spill, adding to first responder danger.
Infrastructure systems	With hazardous materials being everywhere in our modern community, it is possible to impact almost any critical facility in the county. Any roadway or rail line is vulnerable to the many chemicals transported over them daily. Spills to soils and surface water sources

	<p>can impact drinking water and the environment. Materials dumped into sanitary sewers can contaminate waste water treatment plants. Airborne chemicals can cause the evacuation of the area downwind of the spill, including critical facilities. Damage to road surfaces from chemical spills may require the removal and replacement of the entire road surface and foundational road bed. Transformers used in power transmission contain chemicals called PCB (Poly chlorinated bi-phenols) that can be released during wind storms or lightning strikes and traffic accidents. The impacts to business from interrupted commute/road or railroads closures can last for hours, days, weeks, or longer. White powder incidents have closed postal facilities and government buildings until the substance was identified and removed</p>
Public confidence in jurisdiction's governance and capabilities	<p>The Community Right to Know Act, and other related legislation, resulted from serious breaches in public confidence following massive releases, explosions, or other failures in hazardous materials systems. Any major incident in and of itself seems to offer proof to the public of a regulatory failure. Maintaining Local Emergency Planning Committees and a regular structure to report and analyze hazardous materials releases is critical to maintaining public confidence.</p>

# Regional Risk Profile: Health Incident<sup>79</sup>

## Hazard Description

Disease has been one of the most influential factors in human history. On many occasions, disease has shaped civilizations and altered the course of history. Throughout the 20th century great strides in medicine have produced many treatments and cures for the deadliest diseases. Many of these medical advances have given us a false sense of security that all diseases can be treated or cured in a timely manner, even though the potential for a devastating disease outbreak continues to threaten our community.

The impact of these diseases varies based on the virulence of the disease, duration of the illness, susceptibility of the population to the disease, and spread within the community.

An outbreak can be characterized by the extent of spread of the disease. Epidemic refers to an increase, often sudden, in the number of cases of a disease above what is normally expected in that population in that area. Pandemic refers to an epidemic that has spread over several countries or continents, usually affecting a large number of people. More common diseases are classified as endemic, as they are at baseline levels within a community. New or emerging diseases can quickly become an epidemic/pandemic if there is little or no immunity in the population.

Common disease outbreaks include influenza, norovirus, pertussis, hepatitis A, *Salmonella*, and *E. coli*. Novel strains of influenza are a great risk to King County, because of lack of immunity to a new influenza virus stain, the potential for severe illness, and the high degree of transmissibility from person to person.

For King County, the Communicable Disease Epidemiology & Immunization Section within Public Health – Seattle & King County investigates and coordinates the surveillance of communicable disease cases and outbreaks.

The impact of a disease can be tracked and characterized using several different indicators. These indicators can help Public Health assess and respond to potential disease outbreaks.

- *Incubation period*: The stage of subclinical disease extending from the time of exposure to onset of disease symptoms.
- *Contagious period*: The duration after infection during which the person can transmit the infection to others.
- *Infectivity*: The proportion of exposed persons who become infected.
- *Pathogenicity*: The proportion of infected persons who develop clinically apparent disease.
- *Virulence*: The proportion of clinically apparent cases that are severe or fatal.

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<sup>79</sup> This risk profile was developed for the Seattle and King County Hazard Mitigation Plans by Public Health Seattle & King County.



## Vulnerability Characteristics and Previous Occurrences

Epidemics directly affect the health of people who live, work, and visit a community. They have the potential to be one of the deadliest hazards a community can face. Sickness is the most visible consequence of an epidemic, but outbreaks can also severely impact the community as schools, businesses, government agencies and non-profit organizations curtail operations due to employee illness or as countermeasures. The effects of these curtailments grow the longer the disease persists.

In many epidemic and pandemic situations, disease spreads quickly throughout a community. There are many factors that can increase King County's vulnerability to disease spread:

- Rapid population growth, such as is occurring in King County, increases the potential for acquisition and spread of infectious diseases.
- King County's large international air and seaports (including an active cruise ship industry) increase the number of visitors to our area and the risk for importation of infectious diseases. Diseases that are not endemic to Washington have the potential for introduction and spread among our residents. Vaccine preventable diseases (e.g., acute viral hepatitis, measles, and influenza) are significant contributors to morbidity and potential mortality in international travelers and can cause local outbreaks among susceptible persons.
- Persons experiencing homelessness often also have limited access to medical care, so many people living homeless and with health problems have difficulty getting prompt treatment. Living conditions – like crowding and fewer opportunities for personal hygiene – can contribute to the spread of disease. If someone has an underlying medical condition, alcohol or drug use, or weakened immune system, they are even more susceptible. In 2017 and 2018, CD-Imms responded to increases in several infectious diseases among persons experiencing homelessness; new infections and outbreaks in this population continue to be reported and might continue to rise given the increase in persons experiencing homelessness in King County.

Disease often affects those most vulnerable in our communities. Young children, the elderly, the poor and those with underlying health conditions are often the hardest hit by disease.

King County has a large concentration of healthcare resources, but in an epidemic or pandemic these resources can be stretched or overwhelmed by the outbreak situation. The area also provides specialized medical care for a large geographic area, including one of the area's only pediatric hospitals and the only Level 1 Trauma center for Washington, Idaho, Montana, and Alaska. In addition, Airlift Northwest located at Boeing Field is the only life-flight agency serving the same four-state region.

Other resources, such as food and water, are also a concern when planning for disease outbreaks. King County has many open reservoirs that provide water to the city. These reservoirs could become contaminated and be a source of infection for area residents. Food sources can become contaminated by improper food handling practices or ill food workers. Public Health conducts ongoing surveillance for food- and waterborne illnesses to identify and quickly control outbreaks.

Although it is impossible to predict the next disease outbreak, history has shown that outbreaks are not uncommon and can produce devastating effects on a community. While the revolution in medicine in the past century has increased our ability to counteract disease, increases in the number of people without adequate healthcare, the evolution of antibiotic resistant bacteria and globalization help make

outbreaks spread more quickly and increase their magnitude. Disease outbreaks not only cause increased morbidity and mortality in the community, but also put a greater strain on the healthcare and infrastructure system that could prevent the operation of critical services.

Throughout the 20<sup>th</sup> century several epidemics and pandemics have affected our community.

**Influenza. 1918-1919:** The influenza pandemic of 1918 was especially virulent, killing a large number of young, otherwise healthy adults. The pandemic caused more than 500,000 deaths in the United States and more than 40 million deaths around the world. The 1918 pandemic first arrived in Seattle in October 1918; over the next six months the virus claimed 1,600 lives.

**Influenza. 1957-1958:** The influenza pandemic of 1957 was less severe than the 1918 pandemic and caused a total of 70,000 fatalities nation-wide.

**Influenza. 1968-1969:** The influenza pandemic caused more than 34,000 deaths in the U.S. and cause severe morbidity and mortality around the world.

***E. coli.* 1993:** *E. coli*-contaminated hamburger meat from a local Jack in the Box caused illness in 400 people and led to the death of two people within one month in the Washington area. Cases were seen in California, Idaho, and Nevada as well.

**Pertussis. 2002-2005:** Between 2002 and 2003 Public Health reported an 82% increase in the number of Pertussis infections in infants, and a three-fold increase in the number of cases in children <6 months. The occurrence of Pertussis in adolescents and adults has been on the rise since 1990, culminating in a national epidemic in 2005 when 25,616 reported cases nation-wide. Outbreaks within healthcare facilities can occur quickly because the bacterial infection is highly contagious.

**Influenza. 2009:** Like the 1918 pandemic, the H1N1 outbreak of 2009 affected the young and healthy populations as well as those with chronic diseases. This increase in morbidity caused strain on the local healthcare system. Although the H1N1 virus was not as virulent and there were not nearly as many fatalities as previous pandemics, the outbreak caused a larger than usual amount of disease in the community than seasonal influenza virus does.

## Scenario Drivers

The most likely scenario that activates the region's emergency management system would be a disease outbreak that just exceeds our public health system's capacity. We have chosen hepatitis A outbreak for the Most Likely Scenario. In 2017, several state and local health departments responded to hepatitis A outbreaks, spread through person to person contact, that occurred primarily among persons who use injection and non-injection drugs, and/or person who experienced homelessness and their close contacts. Multistate outbreaks of hepatitis A infections have also been linked to food products (i.e.

strawberries in 2016 and pomegranate seeds in 2013).<sup>80</sup> A large outbreak centered in Seattle would cause a strain on the public health system and potentially have strong impacts on local businesses, especially any that the public perceives as responsible for the outbreak.

Hepatitis A Outbreak	Seattle is the center of a hepatitis A outbreak that kills 20 people and makes hundreds severely ill, including hundreds of hospitalizations. The emergency is complicated, and infections are spreading among people who are living homeless who have limited access to adequate hygiene and prompt medical care.																																					
Pandemic Flu	<p>The most severe disease outbreaks would involve pathogens that would infect a large percentage of an exposed population and hospitalize or kill many people. Pandemic influenza has the potential to cause this great a disaster. It poses a great threat to the health of our local community as well as the national/international community. In addition to human morbidity and mortality, pandemic influenza can have many socio-economic consequences. Cancellations of schools, work and public gatherings may be enacted to attempt to halt the spread of disease. Staff absenteeism can create a strain on government and healthcare systems causing limitations of services and care. The 2009 H1N1 flu outbreak showed how potentially easy it is to overwhelm the healthcare system, even though, as it happened, H1N1 was an influenza that caused less severe disease than a typical seasonal flu. A pandemic influenza that caused moderate or severe disease would have a much larger impact on the community. The following table outlines expected disease rates based on Center for Disease Control modeling.</p> <table> <tr> <th rowspan="2">Characteristic</th><th colspan="2">Moderate (1958/68 - like)</th><th colspan="2">Severe (1918 - like)</th></tr> <tr> <th>US</th><th>King County</th><th>US</th><th>King county</th></tr> <tr> <td>Illness</td><td>90 million</td><td>540,000</td><td>90 million</td><td>540,000</td></tr> <tr> <td>Outpatient Care</td><td>45 million</td><td>270,000</td><td>45 million</td><td>270,000</td></tr> <tr> <td>ICU Care</td><td>128,750</td><td>733</td><td>1,485,000</td><td>8,910</td></tr> <tr> <td>Mechanical Ventilation</td><td>64,875</td><td>389</td><td>742,500</td><td>4,455</td></tr> <tr> <td>Deaths</td><td>209,000</td><td>1,254</td><td>1,903,000</td><td>11,418</td></tr> </table>				Characteristic	Moderate (1958/68 - like)		Severe (1918 - like)		US	King County	US	King county	Illness	90 million	540,000	90 million	540,000	Outpatient Care	45 million	270,000	45 million	270,000	ICU Care	128,750	733	1,485,000	8,910	Mechanical Ventilation	64,875	389	742,500	4,455	Deaths	209,000	1,254	1,903,000	11,418
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<sup>80</sup> Centers for Disease Control. Hepatitis A Outbreaks in the United States. Accessed online on 6/28/19 from <https://www.cdc.gov/hepatitis/outbreaks/hepatitisaoutbreaks.htm>.

Bioterrorism	Bioterrorism is another potential cause of on a catastrophic disease outbreak. The maximum bioterrorism scenario is estimated by Public Health – Seattle & King County to have impacts similar to the pandemic flu scenario identified above.
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### Priority Vulnerabilities

Old and young people	People who are either old or young have weaker immune systems and are usually more likely to succumb during an outbreak.
Healthcare staff	Healthcare staff come into regular contact with sick patients and are likely to be exposed both before the illness is identified and during treatment.
People with compromised immune systems	People with compromised immune systems are most likely to become infected and succumb from a serious disease.
People without health insurance	People without health insurance are more likely to delay getting care, allowing the disease to spread farther before it is identified.
Health system	The health system is likely to be overwhelmed in any serious epidemic. In especially serious outbreaks, it may be inadvisable for patients to even come to the hospital and treatment may have to occur outside of hospital facilities.

### Priority Impact Areas

King County residents	As many as 11,418 deaths are estimated to occur during the most severe pandemic scenario. Thousands more would be hospitalized, and hundreds of thousands sickened. As of May 4, 2019, there were 45 influenza fatalities in the 2018-2019 flu season.
Vulnerable populations	In 2017-2018 flu season, there were nearly 1,000,000 hospitalizations and 79,400 deaths. The most at-risk group is adults over 65 years of age (70% of hospitalizations). <sup>81</sup> Older adults account for nearly 90% of deaths. During a serious epidemic, older adults, individuals with compromised immune systems, children, people without health insurance, people who speak a language other than English, and people who are recent immigrants to the country are likely to be the most at-risk and suffer the worst impacts.
Property	There are no direct impacts to property.
The economy	The economy may come to a virtual standstill for weeks on end during severe outbreaks as people avoid public places. Many small businesses may lose too much revenue and be

<sup>81</sup> Centers for Disease Control. Estimated Influenza Illnesses, Medical visits, Hospitalizations, and Deaths in the United States — 2017–2018 influenza season. Accessed online on 6/28/19 from <https://www.cdc.gov/flu/about/burden/2017-2018.htm>.

	forced to close. Nationally, the economic impact of seasonal influenza has been estimated as high as \$166 billion (2012 dollars). <sup>82</sup>
The environment	There are no expected impacts to the environment.
Health systems	Health systems will be overwhelmed and many nurses and doctors potentially sickened. As facilities become unable to take additional patients, it may be possible to treat people in outpatient facilities. During the worst-credible scenario, nearly 300,000 residents of King County would require treatment. This would be far beyond the capacity of the public health system.
Government operations (continuity of operations)	Many government operations may cease to function on a normal basis during the most severe outbreaks. Agencies may have to adopt work from home policies and take other steps to protect employees. Due to employee illness, many non-essential functions may have to be curtailed.
Responders	Emergency services would be severely impacted during a serious outbreak because they are likely to be exposed early due to public contact. As responders become sick, response times and capabilities would be severely limited.
Infrastructure systems	<ul style="list-style-type: none"> <li>• Energy: There are no direct impacts, outside of employee absenteeism, to the energy sector.</li> <li>• Water/Wastewater: There are no direct impacts to the water and wastewater system from most outbreaks, although this system is a potential target of bioterrorist activities.</li> <li>• Transportation: A disease would not cause any direct damage to the transportation system, but high absenteeism would affect it. Public transit, shipping, and other services may only function at 50% during especially severe outbreaks.</li> <li>• Communications: There are no direct impacts, outside of employee absenteeism, to the communications sector.</li> </ul>
Public confidence in jurisdiction's governance and capabilities	The public understands that an outbreak is a severe natural event; however, restrictions on public gatherings are not popular and create frustration. Some people may believe they are not getting enough attention from the medical community. Others may begin to doubt the efficacy of treatment options if the disease worsens. In the most extreme cases, confidence in the medical system can be shaken.

<sup>82</sup> Mao, Liang, Yang, Yang, Qui, Youliang, and Yan Yang. 2012. Annual economic impacts of seasonal influenza on US counties: Spatial heterogeneity and patterns. *International Journal of Health Geography* vol. 11 no. 16. Accessed online on 6/28/19 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3479051/>.

# Regional Risk Profile: Landslide

## Hazard Description

The term “landslide” covers a range of geomorphic processes in which masses of soil, rock, debris (a mixture of soil and rock) become detached and move downslope. This mass is usually wet, saturated, or suspended in water. This movement can happen quickly or slowly; displaced material can remain solid or move as a liquid. Landslides can range in size from a few cubic yards to millions of cubic yards. The detailed character of movement is referred to herein as the landslide style. The style of landsliding depends on the local geology, topography, and hydrology in the vicinity of the failure. Five general styles of landslide phenomenon have been identified in King County:<sup>83</sup>

- Deep-seated landslides (including rotational slides, liquefaction spreads, debris flowslides, debris avalanches, and rock compound slides),
- Shallow debris slides,
- Processes that build depositional fans (including debris flows and debris floods),
- Rock fall, and
- Rock avalanches.

Landslides are usually a secondary hazard, typically driven by precipitation. Smaller and shallower landslides are often triggered by storm events lasting hours or days. Large deep-seated slides may be triggered by wetter than normal conditions that persist for months. Historical records and geologic evidence also show that large earthquakes, while relatively infrequent can be significant landslide triggers. Landslides can also be triggered by ill-advised clearing, grading, or stormwater discharge. Landslides tend to happen in areas where there is a history of previous occurrences. Another major determinant of landslide risk is local geology. King County’s landscape is very young and is largely a product of multiple glacial advances over the last two million years, with the most recent advance approximately 14,000 years ago. Landslides are most common where post-glacial erosion has created steep slopes in glacial deposits, primarily along beach bluffs, ravine slopes, and river valley walls. In addition to areas of steep slope some areas of lower slope are actually old, deep-seated landslides which may be at risk of reactivation. Characteristics of landslide hazard areas include:<sup>84,85</sup>

- A slope greater than 40 percent
- Landslide activity or movement in the last 10,000 years
- Stream or wave action with erosion or bank undercutting

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<sup>83</sup> King County. 2016. Mapping of Potential Landslide Hazards along the River Corridors of King County, Washington. Prepared by River and Floodplain Management Section, Water and Land Resources Division, Department of Natural Resources and Parks. Seattle, WA. August.

<sup>84</sup> Federal Emergency Management Agency. 2018. King County Risk Report: Landslide Exposure Assessment. Page 52.

<sup>85</sup> Washington State Emergency Management Division. 2018. Washington State Enhanced Hazard Mitigation Plan Risk Assessment. Page 308.



- The presence of a depositional fan that may indicate a history of debris flows, debris floods, or rockfall
- The presence of impermeable soils, such as silt or clay, which are mixed with granular soils such as sand and gravel

Landslides are dangerous and unpredictable. Some landslides may show indications of impending or incipient movement; others may happen suddenly without any warning signs. Warning signs of a potential or impending landslide include:<sup>86</sup>

- Rapidly growing cracks in the ground; downslope movement of rock, soil, or vegetation.
- Sudden changes in creek water levels, sometimes with increased sediment, especially during or right after large or protracted storm events
- Sounds of cracking wood, knocking boulders, groaning of the ground, or other unusual sounds, especially if the sound increases
- A hillside that has increased spring and (or) seep activity, or newly saturated ground, especially if it was previously dry
- Formation of cracks or tilting of trees on a hillside
- New or developing cracks, mounds, or bulges in the ground
- Sagging or taut utility lines; leaning telephone poles, deformed fences, or bent trees
- Sticking windows or doors; new and (or) growing cracks in walls, ceilings, or foundations
- Broken or leaking utilities, such as water, septic, or sewer lines
- Separation of structures from their foundation; movement of soil away from foundations
- Changes in water well levels or water wells that suddenly run dry

### Vulnerability Characteristics and Previous Occurrences

The most significant landslide risk in King County is during the rainy season from November through January.

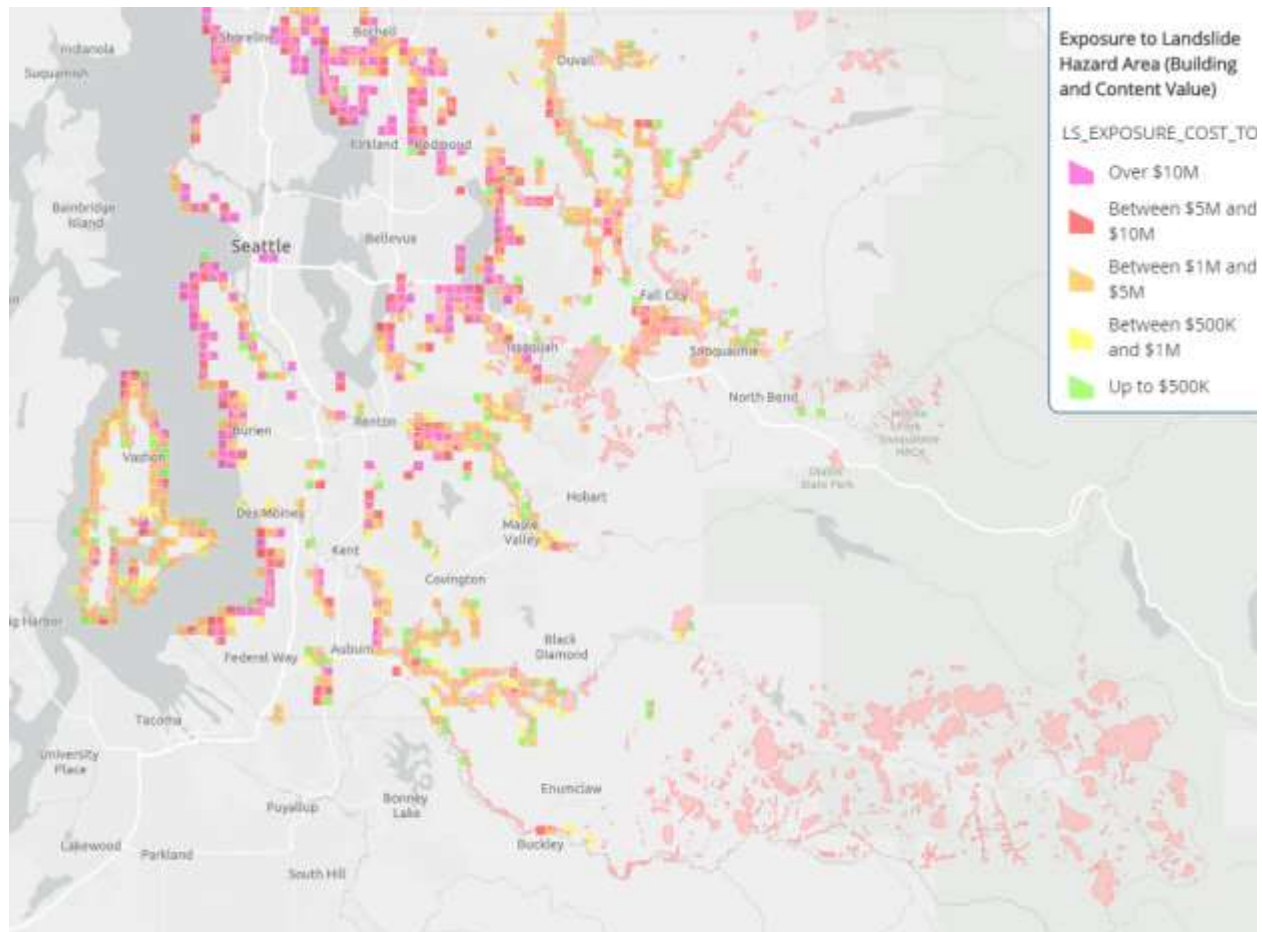
Areas in the County most at risk from landsliding include those on or near coastal bluffs, ravine and valley slopes, and in steep mountainous topography. Parcels on slopes greater than 40 percent are at an elevated risk of landsliding compared with more level sites. The landslide risk assessment used WA DNR Landslides and Landforms digital data identifying historic landslide areas, potentially unstable to intermediate-sloped areas, and potential deep-seated landslide areas.

Since 2006, there have been seven disaster declarations impacting the county, including DR-4168 for the SR 530 (Oso) landslide in Snohomish County. Landslides occur during virtually every major storm event and earthquake. Landslides are especially likely in areas where they have been recorded before. A good method of assessing likelihood of a future landslide is to know if the area has had a history of landslides.

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<sup>86</sup> Washington State Department of Natural Resources. 2017. Landslide Hazards in Washington State. Accessed online on 6/7/19 from [https://www.dnr.wa.gov/publications/ger\\_fs\\_landslide\\_hazards.pdf?h283k](https://www.dnr.wa.gov/publications/ger_fs_landslide_hazards.pdf?h283k).

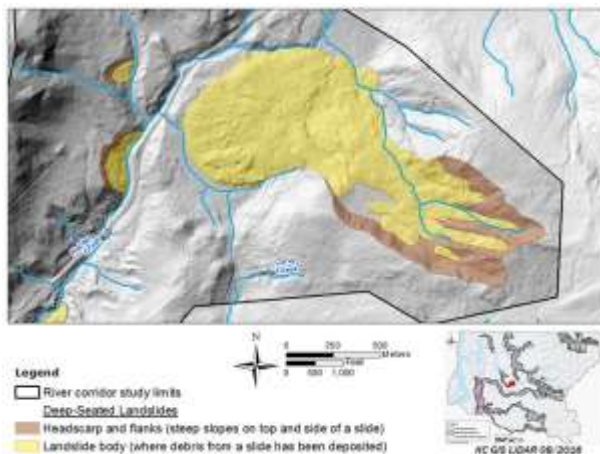
- 2001 – DR1361 – Nisqually Earthquake triggers landslides around the state. \$66.7M in Public Assistance was authorized.
- 2006 - DR-1737 – Severe storms trigger flooding and landslides. \$29.5M in Public Assistance (statewide) was authorized along with \$5.4M in Individual Assistance.
- 2007 – DR-1734 – Severe winter storms trigger landslides. \$61.3M in Public Assistance was authorized along with \$21.2M in Individual Assistance.
- 2009 – DR-1817 – Severe winter storms trigger flooding and landslide.
- 2011 – DR-1963 – Severe winter storms trigger flooding and landslides.
- 2014 – DR-4168 – A slope along SR 530 in Snohomish County fails, bringing with it an entire neighborhood and killing 43 people. This is one of the deadliest disasters in Washington State History. There is a long history of landslides in this area and the tragedy leads the state to invest in a new landslide mapping program.
- 2012 – DR-4056 – Severe winter storms trigger flooding and landslides. \$30.1M in Public Assistance was authorized.
- 2017 – DR-4309 – Severe winter storms trigger flooding and landslides. \$12.5M in Public Assistance was authorized.



## Scenario Drivers<sup>8788</sup>

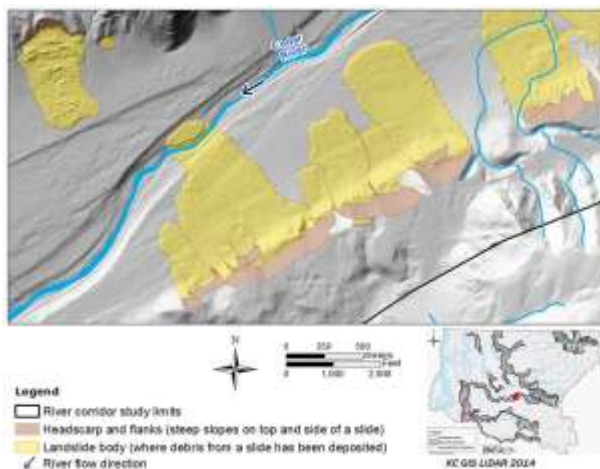
For planning purposes, King County looks at three common or particularly deadly landslides. These usually result after major weather events or due to human activities or other disturbances such as a major wildfire.

### Deep Landslide



Deep-seated landslides are those that fail below the rooting depth of trees and vegetation. They are often slow moving but can also move rapidly. Deep-seated landslides can cover large areas and devastate infrastructure and housing developments. These landslides usually occur as translational slides, rotational slides, or large block slides. Deep-seated landslides are typically much larger than shallow landslides, in terms of both surface area and volume. A deep-seated landslide may appear stable for years, decades, or even centuries. These long-lived features can be partially or entirely reactivated for a variety of reasons.

### Debris Flows

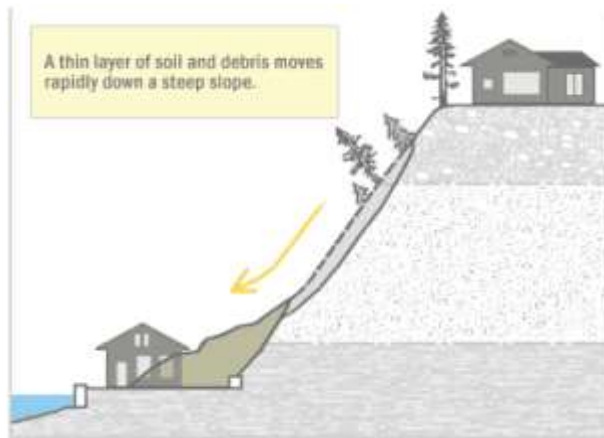


Debris flows usually occur in steep gullies, move very rapidly, and can travel for many miles. Slopes where vegetation has been removed are at greater risk for debris flows and many other types of landslides. The figure shows a series of flows located in the Cedar River Watershed. The ages of these slides are unknown, but they are geologically very young as they overlap (and therefore post-date) the entire suite of river terraces present here. The exact trigger for this assemblage of large, closely spaced landslides is unclear.

<sup>87</sup> King County Department of Natural Resources and Parks. Landslide Hazards Program website. Accessed online on 6/7/19 from <https://www.kingcounty.gov/services/environment/water-and-land/flooding/maps/river-landslide-hazards/landslide-types.aspx#Debris>.

<sup>88</sup> Washington State Geologic Survey. Landslide Hazards Program website. Accessed online on 6/7/19 from <https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/landslides#types-of-landslides.8>

## Shallow Landslides



Shallow debris slides (also known as shallow landslides) are a common style of slope movement both in the Puget Lowland and Cascade Mountains. Shallow debris slides are characterized by failure of a relatively shallow layer of soil typically sliding on a surface of more competent material, either bedrock or dense glacial sediments. Shallow debris slides are typically 3 to 6 feet (1 to 2 meters) and translational. Shallow colluvial soils on slopes are formed through a variety of processes, including breaking up of the underlying in-place substrate (either bedrock or Quaternary sediments) by freeze/thaw, wetting/drying, bioturbation, and chemical weathering. Soils on steep slopes in King County vary significantly with respect to soil thickness, soil strength, and hydraulic properties; this variability presents the central challenge in assessing their stability across a landscape.

## Priority Vulnerabilities

Homes built above, on, or below bluffs or slopes

Homes built on bluffs or other slopes apply additional weight to a slope and increase the likelihood of slope failure. Homes built below bluffs have also been destroyed by slope failure.

Transportation corridors, including on I-90 and Seattle-Everett BNSF rail line

Transportation routes are often cut through steep areas or travel through valleys with a history of landslides.

Debris flows after vegetation removal

Vegetation removal due to logging, land development, view clearing, or wildfire reduces the root strength that often anchors and reinforces shallow soils. Shallow landslides often increase following vegetation removal and if debris from such a slide enters a hillside swale it may transition into a debris flow that can have devastating impacts far below and distant from the initial failure.

Coseismic Landsliding

This Risk Profile addresses primarily landsliding for which our region has significant collective experience. This includes landslides triggered by weather events and human disturbance. Geologic evidence is clear that this region is subject to earthquakes from several sources larger than those that have been well documented in the historical record. Widespread landsliding

is likely to be a secondary but significant and potentially catastrophic consequence of a future occurrence of such a large earthquake <sup>xx</sup>.

## Priority Impact Areas

King County residents	While the total number of people exposed to landslides is relatively small, and the risk of a rapid slope failure has tended to be low, many homeowners do not carry insurance to cover losses from landslide hazards. The total number of people exposed to the landslide hazard is unknown since landslide hazards are spatially limited and do not align with population information in Census data.
Vulnerable populations	No additional impacts to vulnerable populations are expected from this hazard.
Property	<p>In total, 2.6 percent of structures in King County are identified as being within a landslide hazard area, resulting in an estimated \$9.8 billion in exposed value. The City of Lake Forest Park has the highest percentage of structures exposed in a landslide hazard area at 16.4 percent. The cities of Bellevue and Seattle and unincorporated King County are estimated to each have over \$1 billion of estimated exposed value within landslide hazard areas.<sup>89</sup> The slopes of Magnolia, West Seattle, Burien, Des Moines, Vashon Island, Newcastle, Federal Way and many areas of Bellevue have long been developed for their magnificent views of</p> <p>Mount Rainier, the Cascade and Olympic Mountains, and Puget Sound. Homes with vistas of the Olympic Mountains provide sunsets that are breathe taking – and expose a risk of land movement damages to property build on poor soils.</p>
The economy	There have been direct and indirect impacts to the greater King County community from landslide activity. Residential housing in the greater Puget Sound area that have been built to enjoy the spectacular mountain of the Olympics and Cascade ranges and water views of Lake Washington, Lake Sammamish, and Puget Sound are vulnerable to land movement. Loss of transportation can also have economic impacts. In November 2008, State Road 410 was closed as the result of a debris flow east of Enumclaw. A landslide caused damage to the Green River Bridge on State Route 169 that resulted in the bridge being closed for repairs for eight months. These incidents resulted in SBA loans to

<sup>89</sup> Federal Emergency Management Agency. 2018. King County Risk Report: Landslide Exposure Assessment. Page 52.

<sup>xx</sup> A scenario study of seismically induced landsliding in Seattle using broadband synthetic seismograms

Allstadt, K., Vidale, J.E., and Frankel, A., 2013, A scenario study of seismically induced landsliding in Seattle using broadband synthetic seismograms, Bull. Seism. Soc. Am., 103(6), 2971-2992



	impacted businesses. The SR 530 Oso landslide caused a complete reroute of the main highway between Everett and Darrington, devastating the local economy and forcing residents to commute several hours longer to work each day.
The environment	Landslides that fall into streams may significantly impact fish and wildlife habitat, as well as affecting water quality. Hillsides that provide wildlife habitat can be lost for prolonged periods of time due to landslides. However, landslides also provide integral resources for many ecosystems. They contribute needed gravel and sediment or wood for building complex in-stream habitats, estuarine marshes, and beaches that are important for fisheries, wildlife and recreation. The Cedar River was partially dammed by slide debris from the Nisqually Earthquake in 2001. Similarly, in March of 2004, a landslide near Renton partially dammed the Cedar River again. All major rivers in King County support salmon and/or steelhead spawning populations.
Health systems	No special impacts to health systems are expected from this hazard.
Government operations (continuity of operations)	Most impacts to King County delivery of essential services are indirect. Roadways closed may impede the county work force from reaching work locations. Transfer stations for solid waste management and sewer lines and lift stations feeding the Metro South Plan, West Point Treatment facility or Brightwater facility may be impacted by slide activity. Only a small number of bus routes use roadways with the potential for impacts by slide activity. Slide activity has resulted in first responder access issues and diverted road and infrastructure maintenance resources. Resulting detours have also impacted the commute of essential workers to their normal work locations. Some slide activity has caused temporary access issues for solid waste transfer stations and to the Cedar Hills Landfill locations.
Responders	Most commonly, homes are isolated and ready access to communities by first responders is impeded by slide activity. Access to schools, businesses, and public services may be impeded by road blockages from slide activity. While no recent deaths or injuries have been reported in King County from land movement, the incident in Snohomish County referred to as the SR 530 Slide or the Oso Slide, 43 people were killed (2014).
Infrastructure systems	<ul style="list-style-type: none"> <li>• Power: Landslides pose some risk to transmission lines that cross unstable slopes. Otherwise, landslides are not a primary concern for this sector.</li> <li>• Water/Wastewater: Landslides or debris flows in and around reservoirs or waterbodies that support water systems can cause disruptions in water services and the loss of infrastructure. Water supply pipelines may cross unstable areas and be damaged by slope movement. Even if not directly impacted by earth movement, systems that pull water directly from impacted waterbodies will have to deal with increased turbidity or a loss of supply if the water is temporarily cut off by earth damming or rerouting a river. Finally, failures in water system transmission mains can actually saturate a slope and trigger landslides.</li> </ul>



	<ul style="list-style-type: none"> <li>• <b>Transportation:</b> Transportation routes can be closed for long periods by landslides and rockslides. The following are some documented incidents. In November 2008, State Road 410 was closed as the result of a debris flow east of Enumclaw. A landslide caused damage to the Green River Bridge on State Route 169 that resulted in the bridge being closed for repairs for eight months. These incidents resulted in SBA loans to impacted businesses. In May 2005, 11 homes were isolated after a small slide on Mercer Island. That September, two lanes of I-90 west of Snoqualmie Pass were closed after a rockslide. A January 15, 1997 slide at Woodward in southern Snohomish County derailed five cars of a freight train. Passenger and cargo rail traffic was interrupted for nine days. Cargo traffic resumed first. Amtrak remained concerned for passenger safety and did not travel on this section of track for several weeks. This type incident can happen almost annually and sometime more than once each year.</li> <li>• <b>Communications:</b> There is limited risk to communications systems as a whole from landslides. Given the redundancy in systems and proliferation of cell towers, which tend to be less vulnerable, landslides are not a primary concern.</li> </ul>
Public confidence in jurisdiction's governance and capabilities	<p>The 2014 SR 530 Oso landslide demonstrated some of the major weaknesses in emergency management capabilities. It also demonstrated a lack of regulation and foresight on the part of government in the permitting of development in the area, which was a known slide area. Local critical areas ordinances do require mitigation for construction in slide hazard areas, but in the Oso slide, this proved to be inadequate. A failure by develops, the government, and residents to properly account for slide risk and protect people from it led to multiple lawsuits and a general lowering of public confidence in government's ability to properly regulate land development.</p>

# Regional Risk Profile: Severe Weather

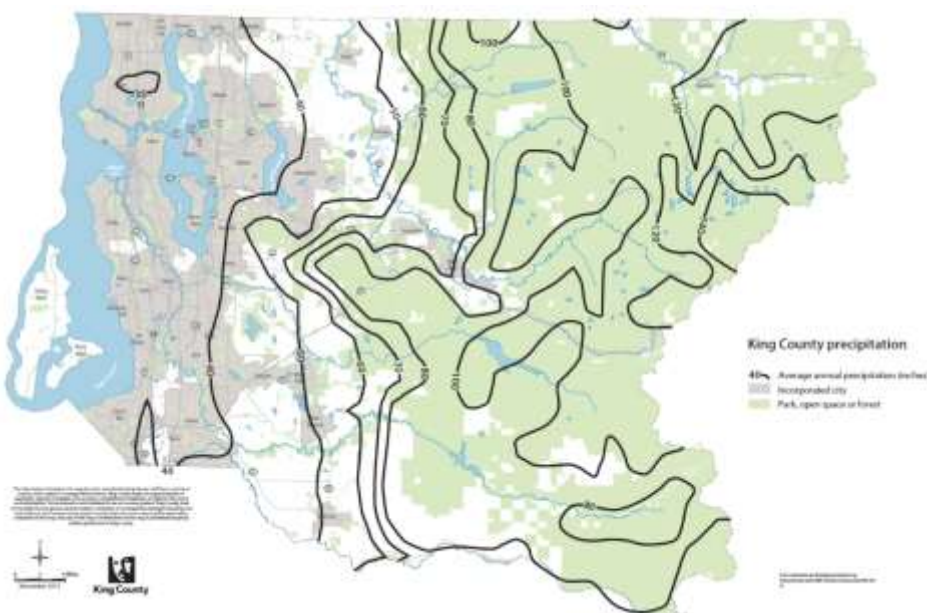
## Hazard Description

Severe weather events occur annually in King County, especially between October and April. Severe weather can include heavy rain, snow, and ice; drought; extreme heat and cold; and high winds. Secondary effects of severe weather can include avalanche, flooding, landslides, power outages, and increased demand on medical services such as during extreme heat events. Many of these events are expected to increase in frequency, duration, and/or intensity as the climate changes, and new weather hazards are growing in importance, especially heat and drought. The most frequent impacts from severe weather events are in the rural or suburban parts of the county, where it can take days or weeks to clear roads or restore power; however, events such as extreme cold or heat have a greater impact on urban parts of the county, where there are large unsheltered populations.

The most common source of damaging/severe weather is the Pineapple Express or atmospheric river event. This phenomenon results from moisture picked up by the jet stream over warm areas of the Pacific Ocean that drops as intense precipitation when the moisture-laden air rises over the Olympic and Cascade Mountains. Atmospheric river events are a significant contributor to river flooding in King County.

## Vulnerability Characteristics and Previous Occurrences

Though known for being wet, the Seattle metro area has around the same average annual precipitation as Dallas, Texas, and much less than New York City, Houston, Atlanta, or New Orleans. Higher amounts of rainfall occur as you move closer to the Cascades. King County owes its mild climate to the influence of Puget Sound and the Pacific Ocean, which moderate the climate, and to the protective barrier of the Cascade mountain range, which blocks cold air from the interior.



Given the rarity of extreme snow events, King County maintains a relatively low budget for snow removal services. When major incidents do occur, vehicles and drivers can be stranded almost anywhere in the county. Impacts from unusually heavy snowfalls and severe winter weather in King County tend to be short-lived, although there are exceptions. A well-known example is the 2008 winter storm, the largest event since 1996. In the 2008 ‘Seattle Snowpack,’ snow blanketed Seattle and much of King County and remained on the ground from December 13 to December 27 due to a prolonged period of cold temperatures. At the time, Seattle did not use salt to clear roadways, due to environmental concerns. This decision was reversed after the storm event.

Climate change is a major concern for King County. Climate change is projected to lead to drier, hotter summers and more heavy rain events. The consequences of these events can include floods, landslides, avalanches, droughts, and wildfires. The economic consequences can be serious since communities generally are not prepared for extreme weather events, and some events (such as flooding and wildfire) can have widespread impacts on public and private infrastructure. Extreme weather can also affect public health. For example, some climate scenarios project that hundreds of Seattleites could die in each extreme heat event if global temperatures rise 5.4 degrees Fahrenheit over pre-industrial levels.<sup>90</sup>

The majority of disaster declarations in King County are from severe weather events. Disasters are usually declared for a combination of severe storms or winter storms, mudslides, heavy rains, and straight-line winds. The primary impacts and costs triggering these declarations include emergency protective measures for, and damage to, utilities, roads, and bridges, and for costs associated with debris removal.

*Major Weather Disaster Declarations Including King County*

DECLARATION NUMBER	DESCRIPTION	FEMA-APPROVED DAMAGES (KING COUNTY ONLY)
852	1990, Jan - Flooding	\$5,246,411
883	1990, Nov - Flooding	\$3,694,824
896	1990, Dec – Flooding	\$477,737
981	1993, Jan – Inaugural Day Wind Storm	\$1,927,837
1079	1996, Jan – Winter Storm	\$3,031,519
1100	1996, Feb – Flooding	\$4,226,719

<sup>90</sup> Bush, Evan. June 14, 2019. Seattle unprepared for deadly heat waves made worse by global warming, researchers say. *The Seattle Times*. Accessed online on 6/17/19 from: <https://www.seattletimes.com/seattle-news/environment/heat-waves-could-kill-hundreds-more-in-seattle-as-globe-warms-researchers-say/>.

1159	1997, Jan Winter Storm	\$3,576,309
1172	1997, April – Flooding	\$1,266,446
1499	2003, Nov – Flooding	\$4,400,000
1671	2006, Nov Flooding	\$16,000,000
1682	2006, Dec – Hanukkah Eve Windstorm	\$29,000,000
1734	2007, Dec – Winter Storm	\$72,500,000
1817	2009, Jan – Winter Storm	\$17,000,000
1825	2009, Mar – Winter Storm	\$5,500,000
1963	2011, Feb – Winter Storm	\$8,697,563 (Statewide)
4056	2012, Feb – Winter Storm	\$32,345,445 (Statewide)
4309	2017, Feb – Winter Storm	\$26,612,080 (Statewide)

*King County Drought Declarations*

YEAR	DESCRIPTION	DESCRIPTION
1919	Water Shortage	Dry summer
1928-30	Statewide drought	Rainfall was 20% of normal
1952-53	Water shortage	Lack of winter precipitation
1977	Severe to Extreme Drought	Low Precipitation
1965-66	Water shortage	Dry throughout state
1967	Water shortage	Dry summer
2001	Moderate to Severe Drought; statewide	Low Precipitation
2005	Water shortage, March – King Co Drought Response Plan Activated	Record Low Precipitation, low snow pack, low river levels

2015	Water shortage record low snowpack	Snow pack at 0 in central Puget Sound by mid-May
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## Scenario Drivers

Severe weather can occur in any season. This may include: rain, wind, tornados and funnels clouds, ice, snow, hail, extreme heat, or extreme cold. Climate change is expected to affect extreme weather incidents by changing the frequency, intensity, and/or severity of events.

Rain and Snow Precipitation	<p>The geographical location of northwestern Washington subjects it to several natural climatic controls: the effects of terrain, the Pacific Ocean, and semi-permanent high- and low-pressure regions located over the North Pacific Ocean combine to produce significantly different weather conditions within short distances. Rainfall in King County varies widely from city to city and area to area. The City of Seattle has an average of 37 inches annually, while Enumclaw has an annual average of 57.9 inches and Snoqualmie/North Bend has 61+ inches of precipitation. The majority of this precipitation occurs as rain in the lowlands between October and early May with substantial snow pack in the Cascades during the same time frames. Precipitation on Snoqualmie Pass in the unincorporated community of Hyak (2800 feet) average 410 inches of snowfall from October to May.</p> <p>Snow accumulations in King County at elevations below 2,000 feet are uncommon. On average, Seattle will have one or two snow storms during a winter season with appreciable accumulations. Snow accumulation rarely remains two days after such a storm. Heavy local snows and associated cold conditions have resulted in power outages, transportation system impacts, school closures, and adverse impacts to the regional economy.</p>
Wind	<p>High wind events in King County are fairly common and are usually experienced as part of a winter weather pattern. Annually, wind gusts of 40-45 miles per hour are recorded locally (NOAA) with severe wind incidents recording speeds of 90 miles per hour and greater. Winter wind incidents often include: widespread power outages, road and bridge closures, tree damage, airport closures/re-routing, hospitalizations or fatalities related to carbon monoxide poisoning, and injuries to utility workers, first responders, and the public. One of the best known wind events was the Inaugural Day Windstorm on January 19, 1993. Winds began mid-morning, lasted five hours and reached over 90 miles per hour in downtown Seattle. The Hanukkah Eve Windstorm of December 15, 2006 heavily damaged the Seattle area power grid, affecting hundreds of thousands in the subsequent weeks. Usually, these damaging winter winds are from the south.</p>

Tornado	King County and the Puget Sound region do experience tornado activity. Tornadoes have reached F3 designation within the region, but the slower F0 and F1 class tornadoes are more common. In September of 2009 the Enumclaw area experienced a class F1 tornado. Though wind speeds of up to 110 mph were estimated, the most substantive damage recorded was the uprooting of trees and damage to roofs, much of which could be attributed to the preceding storm. Tornadoes are a result of strong weather systems and often times accompany serve wind, rain, and hail. It is not unusual to have funnel clouds spotted during the winter season.
Extreme Cold and Ice	King County's marine climate results in very few extreme cold/ice events. Regionally, temperatures below freezing occur for extended periods for 10-14 consecutive days in January or February each winter. Transportation impacts to buses, trains, roads, bridges include snow routes, shelter needs, and power outages. The December 26, 1996 storm lasted 11 days. Multiple consecutive freezing days can threaten the lives of unsheltered and lower-income individuals, requiring the opening of additional shelter beds or more heating assistance funding.
Extreme Heat	Climate change is expected to lead to warmer winters and hotter summers. Health sensitivity to heat events is higher in the Puget Sound region due to the lack of air conditioning in our region. Public Health Seattle-King County will activate cooling centers and public messaging for multiple days in the mid-80s.
Drought	With the anticipation that higher winter temperatures reduce our snowpack, drought conditions in the summer following low snowpack rises dramatically. Lower snow pack and drier summers can result in lower reservoirs and increased calls for water conservation, reduced water availability and higher mortality for salmon and steelhead runs (due to high water temperature and low river flows), impacts on local crops and livestock, and increased emergency room visits due to heat stress. Some degree of drought conditions exists where precipitation is less than 75% of normal. Drought has become a growing concern in the Northwest both because of variable rainfall patterns and because of observed increases in temperature in the summer. With a higher risk of drought and hotter temperatures, wildfire has become a higher risk for King County.

#### Priority Vulnerabilities

Unsheltered populations	Populations needing shelter are especially exposed during heat and cold events. Since King County has a moderate climate, many of these populations are unprepared. Cold events may require opening additional shelter spaces and canvassing areas to offer shelter services.
Rural transportation corridors	Rural transportation routes are lower priority and may not even be cleared at all during a snow event.



Immigrant populations and those with limited English proficiency	Populations with limited English proficiency or who are inexperienced with Northwestern climate are more likely to take risky actions, like operating a generator or grill indoors for heat. These populations are also less likely to receive information and warnings about weather systems and to know where to go for help.
Power transmission systems	Power transmission systems, especially power lines, are frequently damaged during storms with high winds by falling trees. During major wind events, it is not uncommon to have hundreds of thousands of residents without power.
Low-income and minimum-wage populations	Populations working in low-wage professions such as extractive industries and service industries can be severely impacted from multi-day weather events that impact transportation systems. These events can trigger a long-term decline in living standards or even homelessness in these populations.
Service industry during peak periods	Many service businesses, especially retail, are heavily dependent on income earned during certain months of the year. A major event around the Christmas holidays, for example, can threaten the viability of many businesses.
People dependent on public transportation	Public transit moved to the most restrictive routes ever recorded during the February 2019 snowstorm. These cutbacks had apparent disproportionate impacts on underserved areas, including some areas with populations dependent on transit. When transit services are cut, it can be impossible for these populations to get to work or appointments.
People with chronic medical conditions	People requiring regular care from doctors are negatively impacted by severe weather events. During heatwaves, people with chronic illnesses, especially heart and respiratory conditions, are also disproportionately impacted.
All residents during multi-day events	Although campaigns recommend having two weeks of food and supplies available, few residents follow this guidance, regardless of income. After more than a few days, many residents will run out of food for themselves and any pets.
Residents down private roads	Private roads are not eligible to be cleared by public snow removal services. Many homeowner's associations contract with the same set of snow removal companies. These companies may become overwhelmed during long-running events.

Water and wastewater systems facilities	Damage to water and wastewater facilities can occur due to a secondary hazard, flooding and tidal surge. These facilities are often built in low-lying areas. The severe damage and release of untreated water that occurred at King County's West Point Treatment Plan occurred during a severe weather event.
Buildings on slopes of greater than 40% grade	Landslides are a major secondary hazard of severe precipitation events. Buildings on or near slopes of greater than 40% grade are most at-risk.
Travelers at airport facilities	Airport facilities are frequently impacted by severe weather events, but often have plans and procedures to contain disruption. During multi-day events, however, passengers can be stranded and there can be a shortage of hotel rooms since many airlines contract with the same hotels.
Waste Management	Garbage pickup can be delayed for weeks. This causes significant public frustration.

#### Priority Impact Areas

King County residents	<p>Anyone present in King County at the time of a weather incident is subject to the potential impacts of severe weather incidents. While the likelihood of a winter weather incident is high, the likely of direct and significant impacts is Moderate.</p> <p>Impacts to residents may include: personal property damages, interruption of sports and recreation, extension of the daily business commute, impacts to daycare and school closures, injuries, and sheltering needs from power outages. Avalanche control may be needed to reduce the impact to alpine and cross-country skiing enterprises. Injuries and deaths do occur from avalanche impacts to recreational skiers. Impacts from drought take time to materialize as water shortage cause restrictions to water usage and issue of burn bans to reduce the threat of wildfires, especially in suburban areas. Only the most severe weather incidents have an impact on local employment.</p>
Vulnerable populations	Severe weather events, while usually concentrating impacts on infrastructure and agriculture, can seriously threaten the lives of vulnerable people. Cold and hot weather events can lead to an increase in fatalities among the elderly and homeless populations. Immigrant and low-income populations also have been known to succumb by carbon monoxide poisoning that can occur when generators or grills are lit indoors and without proper ventilation. Snow can trap people indoors for days, something especially threatening for people with food insecurity or chronic health conditions that require access to medical services. Any disruption to the economy is also especially threatening to those who are low-income or who work in hourly work or in the service

	sector. When those jobs are not open, they frequently do not pay wages, which can threaten the entire livelihood of a low-income family.
Property	<p>All structures in the county are subject to the direct impacts of severe weather incidents. These same structures are subject to flood impacts where they may be in the flood plain. Structures along the coastline (seawalls) may be eroded. Local urban flooding also occurs from storm debris clogged sewers.</p> <p>High winds that accompany winter weather fronts often cause infrastructure damages, power outages, and communications interruptions. Rain saturated soils may cause mudslides that close roadways, damage bridges, and buried rail service interruptions</p> <p>Private property damages to homes and vehicles from floods, trees downed from wind and saturated soils are regular occurrences. Private property experiencing repeated flood damages may require elevation of the structure or offers of buy outs (mitigation efforts).</p> <p>High winds, snow, and icy conditions can close airports or cause flight delays and rerouting. Mountain pass conditions may be so severe that they are closed to all traffic for days at a time. The floating bridges over Lake Washington (I-90 and SR 520) experience closures for sustained winds over 45 miles per hour. These closures extend the business commute with increased traffic on surface streets and routes around Lake Washington.</p> <p>Impacts to emergency medical services from impacts to the roadways of the county can delay response times, restrict emergency room staff and supplies, and result in under staffing EMS and hospitals during severe weather emergencies.</p>
The economy	<p>There are several local ski areas important to King County: Crystal Mountain (Chinook Pass); Alpental, Hyak, and Ski Acres (Snoqualmie Pass); and Steven's Pass (Steven's Pass). Ski area closures can occur from both large snowfalls and where snow is too light or melts off. This can impact seasonal employment at the ski areas.</p> <p>Also associated with the passes, as outlined in the avalanche chapter, a WSDOT study claimed that a four-day closure at Snoqualmie Pass in the winter of 2007/2008 cost the state \$27.9M in economic output, 170 jobs, and \$1.42M in state revenue (2008 dollars).</p> <p>Businesses can be severely impacted when weather events impede mobility during high seasons, such as around the holidays. Since a large percentage of</p>

	<p>annual personal spending is spent during the November-December season, negative weather limits access to stores and can cause stores to close.</p> <p>Drought conditions can impact the regional agricultural output of fruits, vegetables, and flowers grown in all the major river basin areas of King County. Regional drought conditions can impact generation of hydroelectric power and drive up electric rates as well as increase usage during hot summers.</p> <p>The most serious and longest-lasting impacts may be to low-income individuals and families who may lose jobs or days of wages due to snow closures. Debt traps caused by missed bills due to lost wages can damage a family for months or years.</p>
The environment	<p>Severe weather can have impacts to the environment through flooding and floodplain damages to salmon and steelhead habitat, wetland impacts to amphibians and reptiles, and bird sanctuaries. Oddly, this can occur from both too much water (flooding or dam failure) or too little snow pack and resulting drought conditions. Hillside destabilization can occur where soil geology and saturation of soils occur.</p> <p>The moisture content of vegetation drops throughout the summer. Dry conditions can result in an increase in the threat of wildfires from lightning strikes, unattended campfires, fireworks, sparks from automobiles, cigarettes thrown from cars on roadways and other heat sources.</p> <p>The dilemma of drought conditions is the balance between human water needs and the protection of the environment including plants, wildlife, and fish that require minimum stream flows to support their annual spawning migrations. Dry conditions also contribute to higher water temperatures, which causes increased salmon mortality.</p>
Health systems	<p>Severe weather disrupts the regular schedule of patient visits and regularly-scheduled appointments for chronic care. Severe weather also can cause more demand on the health system as people are injured or are unable to leave the hospital to return home. Any disruptions to electricity and water supply also can be a threat, though hospitals generally maintain backup generators.</p> <p>During severe cold or warm spells, public health may be required to provide additional patient transport services and to canvass for homeless populations that may be in need of shelter. During the February 2019 snowstorm, hospitals suffered major staffing shortages as doctors and nurses were unable</p>

	<p>to get to work. Staff had to work longer than normal hours and potentially stay temporarily at or near the hospital.</p> <p>Although both requiring the expansion of sheltering services, heat and cold differ because older and less health populations are especially at risk to hot temperatures. One of the most famous examples is the 1995 Chicago heat wave, during with 739 people lost their lives, with the city unprepared to provide support to residents who may be home bound or offer sufficient cooling centers to support residents. In Seattle, where few residents have air conditioners, deaths from heat events is a growing threat.</p>
Government operations (continuity of operations)	<p>During the February 2019 snowstorm, King County took the unprecedented step of closing many government offices to protect employee safety. After two days, due to the growing amount of snow and the need to resume services, offices were reopened. Even with the reopening, many employees chose to telework due to safety concerns. An earlier activation of the EOC for the 1996 snow/ice storm saw activations for 11 days – 2 shifts per day when 16 inches of snow came and stayed for weeks. During that time frame, buses were on snow routes, up to 40% of the employees for King County government were either unable to get to work or arrived very late. A major improvement from 1996 to 2019 is that it is now much easier to telework, meaning that non-public-facing positions can work remotely for days.</p> <p>Hospitals, courts, detention facilities, businesses, law enforcement, fire and emergency medical services were all severely impacted. Search and Rescue volunteers transported medical personnel, emergency management staff, and other essential employees to work and between hospitals for the duration of the incident. During the February 2019 snowstorm, busses were on the most restrictive service routes ever seen. These routes were established in response to previous snow events. Similar impacts were observed for the January 2011 snow storm that impaired King County government operations for 8 days. Some damages were experienced at crucial facilities around the county. See FEMA Disasters 1079 and 1817 above. The recent February 2019 snowstorm did not receive a disaster declaration.</p> <p>During that time frame, most regional public services were impacted by absenteeism, access restrictions to critical facilities, and damage to vehicles like buses, police cruisers, and aid units. Busses and other vehicles that use tire chains are especially vulnerable to breaking down, which can delay a return to full service, even once the snow has melted.</p>
Responders	<p>Portions of the population may be stranded or isolated from the results of severe weather, like roads blocked by trees and power lines, snow- and ice-</p>

	<p>covered roads, water or slides over roadways. Closure of the mountain passes for heavy snow conditions or avalanche control is a fairly common occurrence.</p> <p>Excessive heat that extends over days or weeks or cold conditions for similar timeframes may result in the need for cooling or warming shelters. These especially impact the poor, elderly, young, and infirmed.</p> <p>First responders will be impacted by limited road access, impacts of heat and cold on operations. Conditions will require monitoring efforts during incident response.</p>
Infrastructure systems	<ul style="list-style-type: none"> <li>• Power: Downed trees caused by high winds and rain saturated soils can damage transmission lines and cause power outages in local areas for hours to days when multiple occurrences are experienced. Utility crews from Puget Sound Energy, Bonneville Power and Seattle City Light work around the clock to restore services. The Inaugural Day Windstorm left 750,000 customers without power. The Hanukkah Eve Windstorm winds and subsequent heavy rains cut electricity to more than 1.8 million customers, hundreds of thousand remained without power for days. Downed power lines pose an electrocution hazard to motorists, pedestrians and any unsuspecting by-standers. During extremely hot temperatures, demands on the power system can increase, especially as more residents install air conditioning. As a winter-peaking system, however, this power demand will still likely be lower than current winter demand.</li> <li>• Water/Wastewater: Water and wastewater systems are vulnerable to a multi-day loss of power as well as to serious flooding. In February 2017, as a result of heavy rains, high tides, and other severe weather, an equipment failure at King County's West Point Wastewater Treatment Plan led to the dumping of over 235 million gallons of untreated wastewater into Puget Sound. Drought can also impact water systems as water levels in reservoirs and groundwater wells drop.</li> <li>• Transportation: Events that impact transportation can include severe snow, ice, wind, and rain. Storms may cause downed trees and snow or ice that temporarily blocks roadways or can cause large floods that can wash out or undermine roads and bridges. For many parts of the state and county, such as around the town of Skykomish, the loss of a single route due flooding can completely cut the community off from the rest of the county. This is especially a problem in the eastern parts of the county that are more rural and have fewer transportation route options.</li> <li>• Communications systems can be knocked out by high winds or loss of power transmission. While the move to cell phones has reduced the vulnerability of telephone lines to outage caused by trees, a multi-day loss of power can still shut down a cell transmission site. Furthermore, high winds can damage or destroy critical equipment</li> </ul>



	<p>on cell towers. Most equipment is built to withstand inclement weather; however, especially severe conditions could still lead to outages.</p>
<p>Public confidence in jurisdiction's governance and capabilities</p>	<p>The 2008 and 2011 snow storms highlighted the shortage of snowplows and the management of the general response to the snow incident in the City of Seattle. Considerable political fallout from the incidents resulted in Mayor Nickels losing his re-election bid.</p> <p>The February 2019 event can be regarded by many as much more successful on the public perception front. Successful coordination of a regional call center in the EOC to support other county departments and take snow plowing requests helped ensure the public always had someone to call. The county also maintained substantial engagement with media outlets. The County Executive was fully involved as well, helping to boost awareness and public perception that county government was engaged in the storm recovery effort.</p>

# Regional Risk Profile: Terrorism

## Hazard Description

Title 18 of the United States Code defines terrorism and lists the crimes associated with terrorism. In Section 2331 of Chapter 113(B), defines terrorism as: “...activities that involve violent... or life-threatening acts... that are a violation of the criminal laws of the United States or of any State and... appear to be intended (i) to intimidate or coerce a civilian population; (ii) to influence the policy of a government by intimidation or coercion; or (iii) to affect the conduct of a government by mass destruction, assassination, or kidnapping; and...(C) occur primarily within the territorial jurisdiction of the United States...” . Within the government, combating terrorism is the Federal Bureau of Investigation’s top investigative priority. The FBI further defines terrorism as either domestic or international:

- Domestic terrorism: Perpetrated by individuals and/or groups inspired by or associated with primarily U.S.-based movements that espouse extremist ideologies of a political, religious, social, racial, or environmental nature.
- International terrorism: Perpetrated by individuals and/or groups inspired by or associated with designated foreign terrorist organizations or nations (state-sponsored).

The terrorism threat has evolved significantly since the September 11, 2001 series of coordinated attacks by the Islamist terrorist group al-Qaeda against the United States. The threat landscape (referring to identified threats, trends observed, and threat actors) has expanded considerably. Three factors have contributed to the evolution and expansion of the terrorism threat landscape:<sup>91</sup>

- Internet: International and domestic threat actors have developed an extensive presence on the Internet through messaging platforms and online images, videos, and publications, which facilitate the groups’ ability to radicalize and recruit individuals receptive to extremist messaging.
- Social Media: Social media has allowed both international and domestic terrorists to gain unprecedented, virtual access to people living in the US in an effort to enable homeland attacks. Islamic State of Iraq and Syria (ISIS), in particular, encourages sympathizers to carry out simple attacks where they are located against targets—in particular, soft targets. This message has resonated with supporters in the US and abroad. Several recent attackers have claimed to be acting on ISIS’ behalf.
- Homegrown Violent Extremists (HVEs): The FBI defines HVEs as global-jihad-inspired individuals who are based in the US, have been radicalized primarily in the US, and are not directly collaborating with a foreign terrorist organization (FTO). HVEs may assemble in groups but typically act independently in attacks or other acts of violence.

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<sup>91</sup> Federal Bureau of Investigation. 2019. Terrorism Webpage. Accessed online on 8/26/19 from <https://www.fbi.gov/investigate/terrorism>.

Domestic terrorists can be ‘right-wing’ or ‘left-wing’ extremists such as white supremacists, anti-government militias or anarchists. Domestic terrorists can also be ‘single-issue’ groups such as animal rights or environmental rights extremists. And, domestic terrorists can also be ‘lone wolves’ with a personal agenda or grievance and prepares, commits violent acts alone outside of any group support.

According to FBI Director Senate testimony in July 2019, the bureau has recorded about 100 domestic terrorism arrests since December 2018 compared to about 100 international terrorism arrests.<sup>92</sup> The FBI, according to the director’s testimony, is most concerned with “lone offender attacks, primarily shootings.” Earlier, at a congressional hearing in May 2018, the head of the FBI counterterrorism division testified that the bureau was investigating 850 domestic terrorism cases and of that approximately 350 of the cases involved racially motivated violent extremists<sup>93</sup>. Most in that group, he said, were white supremacists.

In 2015, the Seattle division of the FBI revealed 70-100 active cases possibly linked to terrorism across the state.<sup>94</sup> In the years since revealing the breadth of terrorism investigations in Washington State, domestic terrorism arrests outpaced jihad-inspired terrorism arrests nationwide.<sup>95</sup> The US government acknowledged the problem in its October 2018 ‘National Strategy for Counterterrorism’. "Notably, domestic terrorism in the United States is on the rise, with an increasing number of fatalities and violent nonlethal acts committed by domestic terrorists against people and property," the strategy paper says.<sup>96</sup>

### Vulnerability Characteristics and Previous Occurrences

Terrorism events can be distinguished from other types of man-made hazards by three important considerations:<sup>97</sup>

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<sup>92</sup> Zapotosky, Matt. July 23, 2019. Wray says FBI has recorded about 100 domestic terrorism arrests in fiscal 2019 and many investigations involve white supremacy. *The Washington Post*. Accessed online on 8/26/19 from [https://www.washingtonpost.com/national-security/wray-says-fbi-has-recorded-about-100-domestic-terrorism-arrests-in-fiscal-2019-and-most-investigations-involve-white-supremacy/2019/07/23/600d49a6-aca1-11e9-bc5c-e73b603e7f38\\_story.html](https://www.washingtonpost.com/national-security/wray-says-fbi-has-recorded-about-100-domestic-terrorism-arrests-in-fiscal-2019-and-most-investigations-involve-white-supremacy/2019/07/23/600d49a6-aca1-11e9-bc5c-e73b603e7f38_story.html).

<sup>93</sup> Zapotosky, Matt. July 23, 2019. Wray says FBI has recorded about 100 domestic terrorism arrests in fiscal 2019 and many investigations involve white supremacy. *The Washington Post*. Accessed online on 8/26/19 from [https://www.washingtonpost.com/national-security/wray-says-fbi-has-recorded-about-100-domestic-terrorism-arrests-in-fiscal-2019-and-most-investigations-involve-white-supremacy/2019/07/23/600d49a6-aca1-11e9-bc5c-e73b603e7f38\\_story.html](https://www.washingtonpost.com/national-security/wray-says-fbi-has-recorded-about-100-domestic-terrorism-arrests-in-fiscal-2019-and-most-investigations-involve-white-supremacy/2019/07/23/600d49a6-aca1-11e9-bc5c-e73b603e7f38_story.html).

<sup>94</sup> Kim, Hana. December 11, 2015. FBI investigating 70 to 100 cases in Washington State with possible ties to terrorism. *Q13 Fox News*. Accessed online on 8/26/19 from <https://q13fox.com/2015/12/11/fbi-investigating-up-to-a-100-cases-possibly-linked-to-terrorism-in-washington/>.

<sup>95</sup> Barrett, Devlin. March 9, 2019. Arrests in domestic terror probes outpace those inspired by Islamic extremists. *The Washington Post*. Accessed online on 8/26/19 from [https://www.washingtonpost.com/world/national-security/arrests-in-domestic-terror-probes-outpace-those-inspired-by-islamic-extremists/2019/03/08/0bf329b6-392f-11e9-a2cd-307b06d0257b\\_story.html](https://www.washingtonpost.com/world/national-security/arrests-in-domestic-terror-probes-outpace-those-inspired-by-islamic-extremists/2019/03/08/0bf329b6-392f-11e9-a2cd-307b06d0257b_story.html).

<sup>96</sup> Dilanian, Ken. August 9, 2019. There is no law that covers 'domestic terrorism.' What would one look like? *NBC News*. Accessed online on 8/26/19 from <https://www.nbcnews.com/politics/justice-department/there-no-law-covers-domestic-terrorism-what-would-one-look-n1040386>.

<sup>97</sup> Mid-America Regional Council. 2015. *Regional Multi-Hazard Mitigation Plan*. Accessed online on 8/26/19 from [https://www.marc.org/Emergency-Services-9-1-1/pdf/2015HMPdocs/HMP2015\\_Sec4-HAZ-Terrorism.aspx](https://www.marc.org/Emergency-Services-9-1-1/pdf/2015HMPdocs/HMP2015_Sec4-HAZ-Terrorism.aspx).

- In the case of chemical, biological, and radioactive agents, their presence may not be immediately obvious, making it difficult to determine when and where they were released, who was exposed, and what danger is present for first responders.
- Terrorist events evoke very strong emotional reactions, ranging from anxiety, to fear to anger, to despair to depression.
- Even failed attacks have long-term economic impacts for the targeted government and critical infrastructure sector disproportionate to the cost of the attack itself.

The form and locations of many natural hazards are identifiable and, even in some cases, predictable; however, there is no defined geographic boundary for terrorism. Based on previous historical events, it is presumed that critical facilities, services, and large gatherings of people are at higher risk.

King County is the most populous county within Washington State and is ranked 12<sup>th</sup> most-populous in the US according to the US Census Bureau. King County is geographically diverse characterized by high-density urbanization along the shores of Puget Sound, suburban communities to the east, and rural communities to the southeast. King County is the largest labor market in the state. In 2018, nearly 42 percent of all nonfarm jobs in Washington State were reported from King County-located businesses. Within King County, the Washington State Fusion Center tracks over 800 annual large-gatherings that encompass public assembly and outdoor events. These events include a diverse range of sites that draw large crowds of people for shopping, business, entertainment, sports or lodging, as well as for fireworks, marathons, festivals and parades.

English-language terrorist media continues to identify similar gatherings as “soft targets” and promote them as potential attack sites. For example, Inspire #12 magazine published online by Al Qaeda, suggested targeting locations “flooded with individuals, e.g., sports events . . . election campaigns, festivals, and other gathering [sic]. The important thing is that you target people and not buildings.”<sup>98</sup> Attacks targeting these types of events will continue to present security challenges to public safety personnel, because attendees are anonymous and generally unscreened for prohibited items. Violent extremist propaganda continues to urge lone actors to attack soft targets using small arms, knives, and vehicles because they are simple and effective. Foreign terrorist organizations implore followers to kill with whatever means available “whether an explosive device, a bullet, a knife, a car, a rock, or even a boot or a fist.”<sup>99</sup>

Prior to the attacks on September 11, 2001, there were less than a dozen major terrorist events in Washington State. Since then, violent extremism has become commonplace, on a global and national

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<sup>98</sup> National Counterterrorism Center. 2018. Planning and Preparedness Can Promote an Effective Response to a Terrorist Attack at Open-Access Events. Accessed online on 8/26/19 from <https://www.dni.gov/files/NCTC/documents/jcat/firstresponderstoolbox/First-Responders-Toolbox---Planning-Promotes-Effective-Response-to-Open-Access-Events.pdf>.

<sup>99</sup> Farivar, Masood. July 18, 2016. New, Low-tech Terror Tactics Simple and Deadly. *Voice of America*. Accessed online on 8/26/19 from <https://www.voanews.com/europe/new-low-tech-terror-tactics-simple-and-deadly>.

scale, and the number of local terrorism and violent extremism cases continue to rise.<sup>100</sup> Some of the most notorious terror cases in Washington State include the arrest of Ahmed Ressam, the “Millennium Bomber,” in December 1999, the Earth Liberation Front (ELF) firebombing of University of Washington’s (UW) horticulture center in May 2001, and the foiled Seattle Military Entrance Processing Station attack plot in 2011.

- On March 26, 2018, Thanh Cong Phan from Everett was arrested after mailing at least 11 suspicious packages to multiple military and government facilities in the Washington, D.C. metropolitan area, which contained potential destructive devices. He was charged with shipping of explosive materials, after the packages were found to contain small amounts of black explosive powder.<sup>101</sup>
- On March 31, 2017, Muna Osman Jama of Reston VA and Hinda Osman Dhirane of Kent WA were sentenced to 12 years and 11 years respectively, after being found guilty of conspiracy to provide material support to al-Shabaab. The two reportedly organized an all-female fundraising group, called the “Group of Fifteen,” who provided monthly payments to al-Shabaab; facilitating and tracking money sent through conduits in Kenya and Somalia.<sup>102</sup>
- On August 25, 2017, Melvin Neifert from Selah was arrested and charged with receiving incendiary explosive device materials—specifically, potassium nitrate and other materials to make a potassium nitrate-sugar bomb—that were to be used in connection with the 2016 May Day events. Federal authorities seized evidence and questioned Neifert on May 1, the same day anti-capitalist demonstrations took place in Seattle.<sup>103</sup>
- On September 4, 2016, a fire was intentionally set at the Planned Parenthood clinic in Pullman, WA. Authorities recovered a video from inside the clinic showing a flammable object had been thrown through the window. While no injuries were reported, and no suspects identified, there is a history of domestic terrorism against the Pullman clinic.<sup>104</sup>
- On April 9, 2015, Blake Heger was arrested after attempting to place two shrapnel-laden pipe bombs near a high foot-traffic area outside a hardware store in Puyallup, WA. Police were called after a concerned citizen saw him sharpening large knives in the parking lot. He was found with

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<sup>100</sup> United Nations Development Programme. 2016. Prevent Violent Extremism Through Promoting Inclusive Development, Tolerance and Respect for Diversity. Accessed online on 8/26/19 from <https://www.undp.org/content/dam/norway/undp-ogc/documents/Discussion%20Paper%20-%20Preventing%20Violent%20Extremism%20by%20Promoting%20Inclusive%20%20Development.pdf>.

<sup>101</sup> Shayanian, Sara. March 28, 2018. Man charged with sending explosives to D.C. military sites. *United Press International*. Accessed online on 8/26/19 from [https://www.upi.com/Top\\_News/US/2018/03/28/Man-charged-with-sending-explosives-to-DC-military-sites/5591522255789/](https://www.upi.com/Top_News/US/2018/03/28/Man-charged-with-sending-explosives-to-DC-military-sites/5591522255789/).

<sup>102</sup> Department of Justice. Friday, March 31, 2017. Two Women Sentenced for Providing Material Support to Terrorists. Accessed online on 8/26/19 from <https://www.justice.gov/opa/pr/two-women-sentenced-providing-material-support-terrorists>.

<sup>103</sup> Meyers, Donald W. August 31, 2016. Bail decision delayed in Selah explosives case. *The Seattle Times*. Accessed online on 8/26/19 from <https://www.seattletimes.com/seattle-news/crime/bail-decision-delayed-in-selah-explosives-case/>.

<sup>104</sup> The Associated Press. September 10, 2015. Video shows object thrown in Planned Parenthood arson. *The Seattle Times*. Accessed online on 8/26/19 from <https://www.seattletimes.com/seattle-news/video-shows-object-thrown-in-planned-parenthood-arson-in-pullman/>.

two additional pipe-bombs, four large knives, and a screwdriver that he had sharpened into a dagger.<sup>105</sup>

- On January 1, 2014, Musab Masmari attempted to set fire to a gay nightclub on Capitol Hill in Seattle, WA by spilling gasoline down a set of stairs and lighting it, while 750 people packed the club's New Year's Eve event. According to investigative documents, Masmari told a friend that "homosexuals should be exterminated." In July 2014, he was sentenced to ten years in federal prison for arson.<sup>106</sup>
- On July 18, 2014, Ali Muhammad Brown was arrested after killing four people in WA and a college student in NJ, as part of a personal vengeance against the U.S. government for its actions in the Middle East. In 2004, he was arrested and prosecuted for his role in a bank fraud scheme to finance fighters traveling abroad, and had known links to a disrupted terror cell in Seattle, WA and Bly, OR in 1999.<sup>107</sup>
- On October 27, 2012, Abdisalan Hussein Ali, a 22-year old born in Somalia but raised in Seattle and Minnesota, was the third American killed as an al-Shabaab suicide bomber in Mogadishu. Ali was reportedly one of two bombers in an attack that killed "scores of African Union peacekeepers." He arrived in Seattle in 2000 and moved to Minneapolis before being recruited into al-Shabaab and travelling to Somalia in 2008.<sup>108</sup>
- On September 8, 2011, Michael McCright was arrested and charged with second-degree assault for a July 2011 incident where he intentionally swerved his vehicle at a government-plated vehicle occupied by two U.S. Marines in Seattle. Known on the Internet as "Mikhail Jihad," McCright had ties to Abu Khalid Abdul-Latif, a man convicted of plotting to kill federal employees and military recruits in Seattle, WA.<sup>109</sup>
- On June 22, 2011, Abu Khalid Abdul-Latif and Walli Mujahidh were arrested for planning to attack the Military Entrance Processing Station (MEPS) in Seattle with machine guns and grenades after previously planning, but discounting, an attack at Joint Base Lewis McChord (JBLM). According to FBI investigators, "Abdul-Latif said that 'jihad' in America should be a 'physical jihad,' and not just 'media jihad'."<sup>110</sup>
- On May 11, 2011, Joseph Brice of Clarkston WA was arrested for assembling, practicing, and detonating explosive devices after an incident that occurred on April 18, 2010, when an

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<sup>105</sup> McCarty, Kevin. August 10, 2015. Man arrested after 2 bombs discovered outside Pierce County hardware store. *KIRO 7*. Accessed online on 8/26/19 from <https://www.kiro7.com/news/man-arrested-after-two-bombs-discovered-outside-pi/28802706>.

<sup>106</sup> Carter, Mike. July 31, 2014. Man who set fire in Capitol Hill nightclub sentenced to 10 years. *The Seattle Times*. Accessed online on 8/26/19 from <https://www.seattletimes.com/seattle-news/man-who-set-fire-in-capitol-hill-nightclub-sentenced-to-10-years/>.

<sup>107</sup> Collins, Laura. September 18, 2014. Revealed, one man's terrifying 'jihad' on U.S. soil: Extremist 'executed four in revenge for American attacks in the Middle East and carried out bank fraud for the Cause'. *Daily Mail Online*. Accessed online on 8/26/19 from <https://www.dailymail.co.uk/news/article-2759901/Revealed-terrifying-one-man-jihad-U-S-soil-Extremist-executed-four-revenge-American-attacks-Middle-East-carried-bank-fraud-Cause.html>.

<sup>108</sup> Kron, Josh. October 30, 2011. American Identified as Bomber in Attack on African Union in Somalia. *The New York Times*. Accessed online on 8/26/19 from [https://www.nytimes.com/2011/10/31/world/africa/shabab-identify-american-as-bomber-in-somalia-attack.html?\\_r=0](https://www.nytimes.com/2011/10/31/world/africa/shabab-identify-american-as-bomber-in-somalia-attack.html?_r=0).

<sup>109</sup> Carter, Mike. May 29, 2012. Felon admits he tried to run Marines off I-5. *The Seattle Times*. Accessed online on 8/26/19 from <https://www.seattletimes.com/seattle-news/felon-admits-he-tried-to-run-marines-off-i-5/>.

<sup>110</sup> The Associated Press. June 5, 2012. Seattle terror suspect wants evidence tossed. *Fox News*. Accessed online on 8/26/19 from <https://www.foxnews.com/us/seattle-terror-suspect-wants-evidence-tossed#ixzz28jz1MkOE>.



explosive device he made prematurely ignited, causing him significant injuries. He had a YouTube channel called “Strength of Allah,” where he posted the videos in an attempt to support terrorism.<sup>111</sup>

- On January 17, 2011, Kevin Harpham, an admitted white supremacist, placed a remote-controlled backpack improvised explosive device (IED), with rat-poison coated shrapnel, at a park bench near the marching route on the morning of the Martin Luther King Jr. Day Parade in Spokane, WA. Prosecutors said the device was “constructed with a clear, lethal purpose,” and Harpham said it was intended to protest social concepts, such as unity and multiculturalism.<sup>112</sup>

## Scenario Drivers

Terrorist attacks continue to take place at open-access events, mass gatherings, and outside the perimeter of secured events, possibly because of a perceived lack of security, the availability of publicized schedules, and largely unrestricted admittance. Examples of open-access events include marathons, parades, protests, rallies, festivals, fireworks displays, farmers markets, and high-profile funerals and vigils or memorials. Terrorists could also target gatherings located close to ticketed events, such as tailgating adjacent to major sporting events or concerts<sup>113</sup>. Judging from previous terrorist plots and attacks, terrorists will likely remain interested in conducting opportunistic attacks against civilian targets, most notably mass gatherings. Techniques used in recent terror attacks have included the use of vehicles as weapons, edged weapons, small arms, and improvised explosive devices (IEDs).

### Coordinated Domestic Extremist Attack on Seattle

The radicalization of Pacific Northwest extremist groups has recently been promoted by other national terrorism movements which have called for violent resistance to destroy human life and disable critical infrastructure. Radicalization starts to build in the Winter of 2018. Over the next six months there is an increase in expression of on-line animosity towards the U.S. Government which calls for action on June 24. In recent weeks there has been an increase via social media of on-line extremist groups indicating an intense animosity and a belief of injustice by the U.S. Government. These local online indicators show lone actors, inspired by extremist ideology, have been able to circumvent security measures to take up small arms, make vehicle borne and rudimentary standalone improvised explosive devices (IEDs) with the stated intent to attack the Region. In addition, there are calls for “Leaderless Resistance” making it difficult to locate, mitigate, or prevent their stated intent. Within the Seattle Region, there is increasing concern about a number of these groups starting to influence public opinion, which may lead to violent actions. The on-line information promotes and warms of the need for longer and ongoing

<sup>111</sup> Pignolet, Jennifer. Wednesday, June 12, 2013. Clarkston man convicted of trying to aid terrorists *The Spokane Spokesman-Review*. Accessed online on 8/26/19 from <https://www.spokesman.com/stories/2013/jun/12/bomb-maker-sentenced/>.

<sup>112</sup> Clouse, Thomas. December 20, 2011. MLK bomb maker gets 32 years in prison. *The Spokane Spokesman-Review*. Accessed online on 8/26/19 from <https://www.spokesman.com/stories/2011/dec/20/mlk-parade-bomber-seeks-guilty-plea-withdrawal/>.

<sup>113</sup> National Counterterrorism Center. 2018. Planning and Preparedness Can Promote an Effective Response to a Terrorist Attack at Open-Access Events. Accessed online on 8/26/19 from <https://www.dni.gov/files/NCTC/documents/jcat/firstresponderstoolbox/First-Responders-Toolbox---Planning-Promotes-Effective-Response-to-Open-Access-Events.pdf>.

acts of violence to achieve superiority over current government authority. On July 3, there are several online attacks which a precursor to the July 4th physical attacks on an iconic building are, multiple active shooter events, vehicle borne violence and IEDs, and unattended small items across the City of Seattle and surrounding areas.

### Priority Vulnerabilities

Public events	Terrorists have increasingly targeted mass-gatherings in densely populated or high profile areas. Consequently any major urban area in Washington State could be considered at-risk as well as any crowded or high profile critical infrastructure. The specific motivations of terrorists will largely dictate target selection.
Terror tactics used by non-terrorists	A new challenge that is emerging is the increasing use of terror tactics by non-terrorists. A number of evolved weapons, tactics, and targets have emerged through the sheer volume of attacks within the last decade. This normalization of violence has been further exacerbated by extensive media coverage and the ease by which detailed instruction manuals, 'how-to' videos, and online forums dedicated to weapons, explosives, and tactics. It is "essentially shared community content, easily accessible for extremists of all stripes to consume and put into action" including those with no affiliation to foreign or domestic extremism ideologies. <sup>114</sup> Lessons learned from past attempts continue to shape the means by which attackers develop plots—the push for using small arms, edged-weapons and vehicle ramming against soft targets—instead of the often failed large-scale attacks.
Critical infrastructure	Infrastructure systems such as dams, water systems, bridges, and public buildings are high-value targets to terrorists that both stand for government order and, when lost, can cause significant regional harm to people, property, and the economy.

### Priority Impact Areas

King County residents	Any King County resident attending a public event could be a victim of a terrorist attack.
Vulnerable populations	Some populations are more likely to be targeted by extremists than others. Terrorist attacks and attempted attacks in the northwest have been motivated by white supremacy (targeting non-white populations), xenophobia (targeting immigrants), homophobia/transphobia (targeting gathering places of gay, lesbian, and transgendered people), and anti-religious attacks against Muslims, Jews, Christians, or other religious groups.

<sup>114</sup> Johnson, Bridget. March 21, 2018. The Austin bomber and our new age of open-source terrorism: How Mark Anthony Conditt likely benefited from Al Qaeda tutorials. *The New York Daily News*. Accessed online on 8/26/19 from <http://www.nydailynews.com/opinion/austin-bomber-new-age-open-source-terrorism-article-1.3888244>.

Property	Property, including commercial buildings, venues, vehicles, places of worship, or other areas are often damaged or destroyed during terror incidents. Trauma from the incident can prevent the rebuilding of the facility in the same place.
The economy	In addition to the economic costs of stepped-up security, attacks can have a huge impact on a region's economy. Places seen as less safe are less attractive to investors or visitors. Often, terrorist attacks attempt to destroy part of the economy by killing tourists or destroying an important piece of infrastructure.
The environment	A major attack can pollute the environment and poison water and food sources. This can have far-reaching, long-term consequences and damage animal and plant life as well as people.
Health systems	Health systems can be impacted as a target for attacks, by being overwhelmed with patients in the aftermath of attacks, and by personnel being injured or killed from secondary attacks or due to exposure to chemical or biological agents used in the attack.
Government operations (continuity of operations)	Government facilities and employees are a common target for anti-government extremists. These attacks can disrupt day-to-day operations for long periods of time and require additional security measures to protect facilities and employees.
Responders	Responders are often the first on the scene of an incident and therefore can be injured or killed in shootings or due to exposure of chemical or biological agents. Responder facilities, such as police stations, are also potential terrorist targets.
Infrastructure systems	<ul style="list-style-type: none"> <li>• Energy: Energy facilities, including fuel pipelines, are common targets for terrorists and saboteurs around the world. Many power facilities, such as neighborhood substations, are relatively unguarded and, if lost, can have immediate impacts on people and property in an area. Cyber-attacks are one area where a large-scale attack on the energy system could cause widespread disruption.</li> <li>• Water/Wastewater: Water systems are considered a high-impact potential target. A chemical attack on a water system, if not immediately detected, could injure or kill thousands, depending on the size of the water-system targeted.</li> <li>• Transportation: transportation systems, especially public transit, have been targets around the world, such as in the Madrid Train Bombings or the London Subway Bombings. Attacks on busses are also common. These incidents can cause a loss in public confidence in the transit system. Furthermore, an attack on a tunnel, such as the I-90 tunnel across Lake Washington, can impede mobility in our region over the long-term.</li> <li>• Communications: Communications infrastructure, such as cell towers, are relatively redundant and so somewhat less vulnerable to terrorist attacks. There is a huge vulnerability, however, to cyber-terrorism, which can take multiple facilities offline quickly.</li> </ul>

Public confidence in jurisdiction's governance and capabilities	A failure to protect the public from a terrorist attack, even one that is thwarted at the last moment, can cause a total failure in public confidence in government. As seen after 9/11/2001 or after attacks by white supremacists against African-American or Jewish congregations, groups begin to feel isolated, threatened, and isolated from the community. This is especially true in cases where government fails to quickly reassure impacted communities and support them morally and with security resources.
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# Regional Risk Profile: Tsunami and Seiche

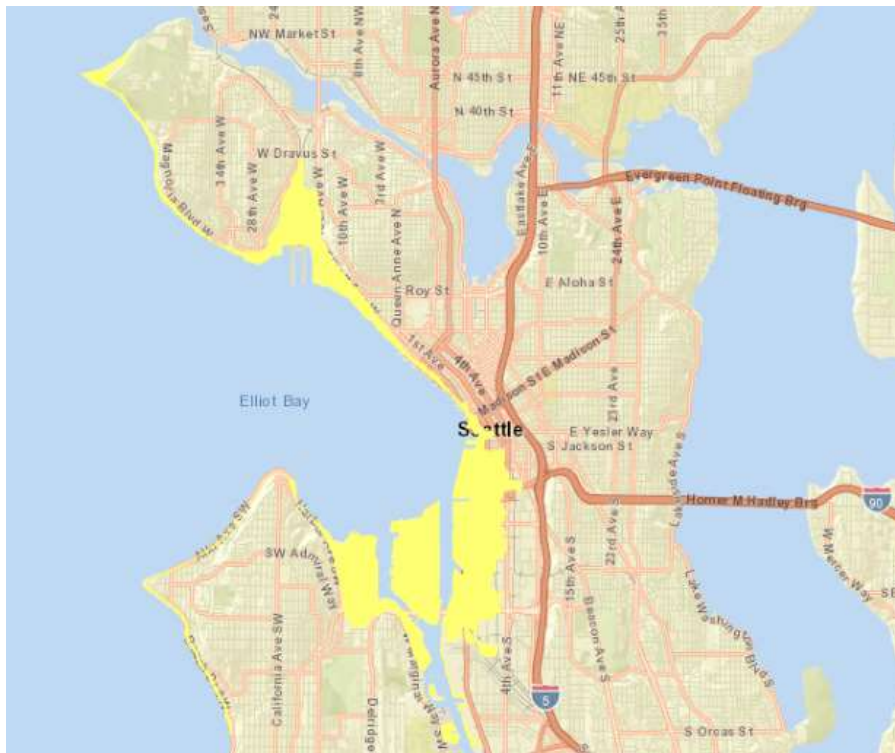
## Hazard Description

A tsunami is a series of fast, powerful, and destructive waves that radiate outward in all directions from the source. Tsunamis are usually caused by a displacement of the ocean floor from an earthquake or the collapse of an underwater land feature. Seiches are waves that form in any enclosed or semi-enclosed body of water (i.e. lakes, bays, and rivers) from wind, atmospheric pressure, or seismic waves. Seiche action can also affect harbors and canals.

The primary tsunami threat in King County is from a Seattle fault earthquake, or other events originating in the Puget Sound Lowlands (such as big landslides into the water and possibly other faults). Not all of King County has been modeled for tsunami hazards but scientists are actively working on it. The tsunami inundation (flooding) impacts from a magnitude 7.3 Seattle fault event are shown below in yellow:<sup>115</sup> In addition to the Seattle fault, a Pacific ocean sourced tsunami, like a Cascadia Subduction Zone event, can still affect King County. Wave arrival times for a Seattle fault and Cascadia-derived tsunami are extremely different. In a Seattle fault event, the first wave arrives within minutes, where in a Cascadia event, the first wave will arrive in approximately 2 hours and 20 minutes. In both cases, wave action will persist for multiple hours. An earthquake on the Seattle Fault could generate a seiche in Lake

Washington or Lake Sammamish that could impact cities including Sammamish, Kenmore, and Kirkland.

There can also be significant maritime hazard along the western United States' coastlines associated with smaller tsunamis. A tsunami from a local Seattle fault event would cause major damage to port infrastructure and navigational terminals. Additionally, powerful distant tsunamis generated across the Pacific Ocean



<sup>115</sup> Washington Geologic Survey. Geologic Hazards Information Portal. Accessed online on 6/11/19 from <https://geologyportal.dnr.wa.gov/>.

can cause maritime hazards in the Puget Sound. Although these distant-sourced events generate relatively smaller tsunamis than local-sourced events, their waves can still cause damage to boats, docks, piers, and aids to navigation (e.g. channel markers, lighthouses, warehouses and port terminals used for loading and unloading cargo ships). Moored boats and vessels underway in the harbor may also be impacted by smaller distant-sourced tsunamis. For example, the 2011 earthquake off the coast of Japan caused a relatively small eight-foot tsunami in Crescent City, California, which led to one hundred million dollars in damaged boats and infrastructure. Anything near the shoreline that has the potential to float or be moved by the wall of water can be carried away – ramming into other structures.

## Vulnerability Characteristics and Previous Occurrences

King County includes the deep-water Port of Seattle and several cities that border Puget Sound, including Shoreline, Seattle, Burien, Des Moines, and Federal Way. Together with Vashon Island, unincorporated King County includes a great deal of industry, import/export activity, and commercial and residential real estate that border bodies of water. These key waterfront areas are vulnerable to a tsunami or seiche generated from an earthquake up to hundreds, if not thousands of miles distant from King County.

The most significant documented risks are to port transportation and industrial facilities in the Seattle waterfront and Magnolia. It is likely a tsunami would impact docks, harbors, and other water-dependent facilities in communities such as Des Moines and Burien too. The consequences of a tsunami to the Port of Seattle would likely be catastrophic, causing permanent to semi-permanent harm to the region's economy. As described in the earthquake chapter, damage from the Kobe, Japan earthquake in 1995 led to a permanent reduction in the scale and importance of that port.

The table below summarizes the identified tsunami hazard area, the City of Seattle, following a magnitude 7.3 Seattle fault earthquake. Approximately 0.6 percent of structures within the city are exposed to a Seattle fault earthquake-induced tsunami, totaling an estimated value of \$5.1 billion (3.5 percent of the total building value within the city).<sup>116</sup> The modeling to show potential impacts from a Seattle fault tsunami or a Cascadia tsunami for the remaining communities in King County is not yet complete.

### *City of Seattle Tsunami Exposure Assessment – Seattle Fault Scenario*

STRUCTURES EXPOSED	EXPOSED BUILDING AND CONTENT VALUE	PERCENT OF EXPOSED VALUE
969	\$5.1 Billion	3.5%

Geologic evidence of previous shallow crustal fault-induced tsunami events has been recorded in the Puget Sound at Cultus Bay on Whidbey Island and at West Point in Seattle.<sup>117</sup> This evidence suggests the last tsunami occurred around 900 AD when the local Seattle fault raised some landmasses around

<sup>116</sup> Federal Emergency Management Agency. 2018. King County Risk Report: Tsunami Exposure Assessment. Page 58.

<sup>117</sup> Moore, Andrew. Looking for paleotsunami evidence: an example from Cultus Bay, Washington. Accessed online on 6/11/19 from [https://serc.carleton.edu/integrate/workshops/risk\\_resilience/activities/82019.html](https://serc.carleton.edu/integrate/workshops/risk_resilience/activities/82019.html).



the Puget Sound shoreline by as much as 26 feet. A scientific study focused on seismic activity on the Seattle fault within the last 8,000 years found evidence for an additional earthquake that occurred ~6,900 years ago. This suggests a low probability of a large earthquake to occur on the Seattle fault as the recurrence interval could be thousands of years. Since 900 AD, tsunami waves in King County have been less than 18 inches in height and caused little damage to boats and shoreline property.<sup>118</sup> Additional verbal accounts among the Snohomish Tribe reported by Colin Tweddell in 1953 described a great landslide-induced wave caused by the collapse of Camano Head at the south end of Camano Island around the 1820s.<sup>119</sup> No injuries have been reported since the settlement of Seattle in the 18th century. The value and density of property along the waterfront suggests a potential for moderate impacts from such an event.

Multiple seiches have been generated in King County from various local and distant seismic events. Seiche events in the King County have been noted in the following years: 1) In 1891 two earthquakes near Port Angeles caused water in the Puget Sound to surge onto beaches two feet above the high-water mark and an eight-foot seiche in Lake Washington. 2) In 1906 the magnitude 7.9 San Francisco earthquake caused agitated wave activity on the west shore of Lake Washington “so violently that house boats, floats and bathhouses were jammed and tossed about like leaves on the water,” reported by the Seattle Post-Intelligencer (4/19/1906). 3) In 1949, a magnitude-7.1 deep earthquake occurred in Olympia that caused seiches within Lake Union and Lake Washington, but no damages were reported. 4) The magnitude 9.2 Great Alaska earthquake of 1964 created global seiches, including in Lake Union that damaged houseboats, buckled moorings, and broke water and sewer lines. 5) In 1965, a magnitude 6.5 deep earthquake occurred in the Puget Sound which caused a seiche where water “sloshing back and forth like soup in a shallow bowl” was observed at Green Lake, North Seattle (reported by the Seattle Times, 4/30/1965). 6) Lastly, in 2002 a magnitude 7.9 Denali earthquake caused seiches in Lake Union that damaged houseboats, buckled moorings, and broke water and sewer lines.

Tsunamis generated along the Pacific Rim have a hard time reaching Puget Sound with any destructive force. The tsunamis generated by the 2011 magnitude 9.0 earthquake in Japan and the 1964 magnitude 9.2 earthquake in Alaska did reach Puget Sound, but the maximum wave height recorded was only 0.04 meters (~2 inches) and 0.12 meters, respectively in (~5 inches) in King County.

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<sup>118</sup> National Geophysical Data Center / World Data Service (NGDC/WDS): Global Historical Tsunami Database. National Geophysical Data Center, NOAA. doi:10.7289/V5PN93H7 [accessed online on 09/11/2019 from <https://www.ngdc.noaa.gov/nndc/struts/form?t=101650&s=70&d=7>]

<sup>119</sup> Koshimura, Shunichi and Harold O. Mofjeld. 2001. Inundation modeling of local tsunamis in Puget Sound, Washington due to potential earthquakes. ITS 2001 Proceedings, Session 7, Number 7-18. Accessed online on 6/11/19 from [https://www.pmel.noaa.gov/pubs/docs/ITS2001/7-18\\_Koshimura.pdf](https://www.pmel.noaa.gov/pubs/docs/ITS2001/7-18_Koshimura.pdf).

## Tsunami Scenario Drivers<sup>120121</sup>

There are four likely triggers for a tsunami in King County. These include an earthquake on the Seattle Fault, an earthquake on the Cascadia Subduction Zone, a tsunami caused by a major landslide into Puget Sound or another major body of water, and an earthquake on the Alaska-Aleutian Subduction Zone.

Seattle Fault Tsunami	A tsunami triggered by a rupture of the Seattle Fault would compound damage caused by the initial earthquake. It would devastate low-lying areas of Puget Sound, but especially the port and industrial facilities around the Port of Seattle and Magnolia. Preliminary modeling suggests the first wave arrives within 2 and a half minutes after the earthquake starts at the Magnolia Bluff area of Seattle and all coastlines within Elliott Bay experience an average of 20 feet (6 meters) of inundation above Mean High Water during the first 10 minutes. Harbor Island also experiences major flooding with at least 13 feet (4 meters) of flow depth above the ground level. South of Elliott Bay has milder flooding compared to Seattle, but strong currents are prevalent at Portage Bay.
Cascadia Subduction Zone Tsunami	A Cascadia Subduction Zone tsunami would devastate the outer coast and seriously impact low-lying areas around Everett and the San Juan Islands. The islands and the strait of Juan de Fuca protect King County from the worst flooding impacts. Preliminary modeling suggests that little inundation would occur along the coastline of South King county, though some flooding may be expected in areas of Seattle SODO and Port. The worst flooding is expected to occur at Portage Bay with estimated wave amplitudes up to 13 feet (4 meters) above Mean High Water. Strong currents are also estimated at Portage Bay near spits of land and in the narrows, which can be hazardous to the maritime community. The first wave is expected to reach Seattle at approximately 2 hours and 20 minutes. Statewide, this tsunami is expected to cause over 15,000 fatalities, primarily in coastal communities in the outer coast counties.
Landslide Tsunami	Verbal accounts among the Snohomish Tribe reported by Colin Tweddell in 1953 describe a great landslide-induced wave caused by the collapse of Camano Head at the south end of Camano Island around the 1820s. The slide itself is said to have buried a small village, and the resulting tsunami drowned people who were clamming on Hat

<sup>120</sup> King County Department of Natural Resources and Parks. Landslide Hazards Program website. Accessed online on 6/7/19 from <https://www.kingcounty.gov/services/environment/water-and-land/flooding/maps/river-landslide-hazards/landslide-types.aspx#Debris>.

<sup>121</sup> King County Department of Natural Resources and Parks. Landslide Hazards Program website. Accessed online on 6/7/19 from <https://www.kingcounty.gov/services/environment/water-and-land/flooding/maps/river-landslide-hazards/landslide-types.aspx#Debris>.

	(Gedney) Island, 2 miles to the south. Bathymetry between Camano Head and Hat Island could have contributed to the size and destructive power of the wave. <sup>122</sup>
Alaska-Aleutian Distant Source Tsunami	An Alaskan-Aleutian subduction zone earthquake can be as large as a magnitude 9.2 event, as experienced in 1964. A tsunami generated from Alaska is a distant-sourced tsunami for Washington state. The preliminary tsunami modeling results for a potential worst-case scenario magnitude 9.2 Alaska earthquake to King County is estimated to be somewhat similar to the Cascadia Subduction Zone event, but half as strong. The highest wave amplitudes can be up to 7 feet (2 meters) and predicted to occur inside Portage Bay, but not predicted to overtop the northern spit. Additionally, it is probable for some unsafe currents for the maritime community to occur, with the highest risk being at Portage Bay. The first wave is expected to reach Seattle's coastline approximately 6 hours after the earthquake.
Lake Washington or Lake Sammamish Seiche	A Seattle Fault earthquake could generate a seiche on Lake Washington that would impact low-lying areas of cities along the lake, including Sammamish, Kenmore, Kirkland, and others.

### Priority Vulnerabilities

Port and harbor facilities	Tsunamis are expected to devastate near-shore port infrastructure, boats, and piers. This is the largest economic consequence of a tsunami.
Low-lying and waterfront homes and businesses	Homes and businesses along the many waterfronts would be damaged or destroyed by a mid-sized tsunami and devastated by a local crustal earthquake and tsunami.
Wastewater treatment facilities	West Point treatment plant is in the inundation zone for a Seattle Fault tsunami. Historical records also suggest tsunamis have impacted this area before.

### Priority Impact Areas

King County residents	While it would take a rather sizable tsunami along the shoreline of King County, precautionary evacuations from houseboats, live aboard pleasure craft, cruise ships, and property immediately adjacent to waterfronts of Puget Sound and lakes Washington, Sammamish, and lake Union may be recommended.
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<sup>122</sup> Koshimura, Shunichi and Harold O. Mofjeld. 2001. Inundation modeling of local tsunamis in Puget Sound, Washington due to potential earthquakes. ITS 2001 Proceedings, Session 7, Number 7-18. Accessed online on 6/11/19 from [https://www.pmel.noaa.gov/pubs/docs/ITS2001/7-18\\_Koshimura.pdf](https://www.pmel.noaa.gov/pubs/docs/ITS2001/7-18_Koshimura.pdf).

Vulnerable populations	There are no additional anticipated direct impacts from tsunami to vulnerable populations. As always, any disruption to services, the economy, and infrastructure would cause more harm to lower-income and marginalized communities.
Property	Tsunami and seiche threats were not defined until recently. Most of the early 19th and 20th century structures located near the water were probably not engineered to withstand impacts from a tsunami, seiche, or earthquake. The properties along the entire Seattle Waterfront and those in Shoreline, Des Moines, Federal Way, and Vashon Island are at risk from tsunami activity.
The economy	A tsunami or seiche that impacts port facilities, such as one triggered by the Seattle Fault would have any sizable impact on the economy of the region. Damage would run potentially in the billions and have far-reaching consequences for Washington's export-based economy.
The environment	It is possible for a tsunami or seiche to have an impact on the natural environment immediately adjacent to Puget Sound through the release of fuels and hazardous materials or their storage facilities around the waterfront. This may include fish habitat or natural and farmed shellfish beds, wetlands, estuaries, and marsh areas.
Health systems	There are no major health centers located in the mapped tsunami inundation areas.
Government operations (continuity of operations)	It is possible that Sounder traffic between Everett and Seattle or Tacoma and Seattle could be impacted by any large tsunami in Puget Sound. Otherwise, it is unlikely that King County governmental operations would be directly impacted by a tsunami or seiche.
Responders	Along the shoreline of King County, precautionary evacuations from houseboats, live aboard pleasure crafts, cruise ships, and property immediately adjacent to waterfronts of Puget Sound and lakes Washington, Sammamish, and Lake Union would cause impacts to the public. The volume of search and rescue efforts along waterfronts affected from the tsunami may pose potential issues to first responders (police, fire, EMS). There are only small number of scenarios where this is a likely issue.
Infrastructure systems	<ul style="list-style-type: none"> <li>• Power: Little to no impact directly from tsunami is expected.</li> <li>• Water/Wastewater: Tsunami may impact the West Point treatment plant. The damage would depend on the height of the tsunami and a significant event would be required. If such an event were to occur, the plant would be rendered inoperable.</li> <li>• Transportation: damage to port facilities and ferry terminals are the primary threat to infrastructure from a tsunami. Even relatively small tsunami surges, such as the aforementioned example from Crescent City, have caused tens of millions</li> </ul>

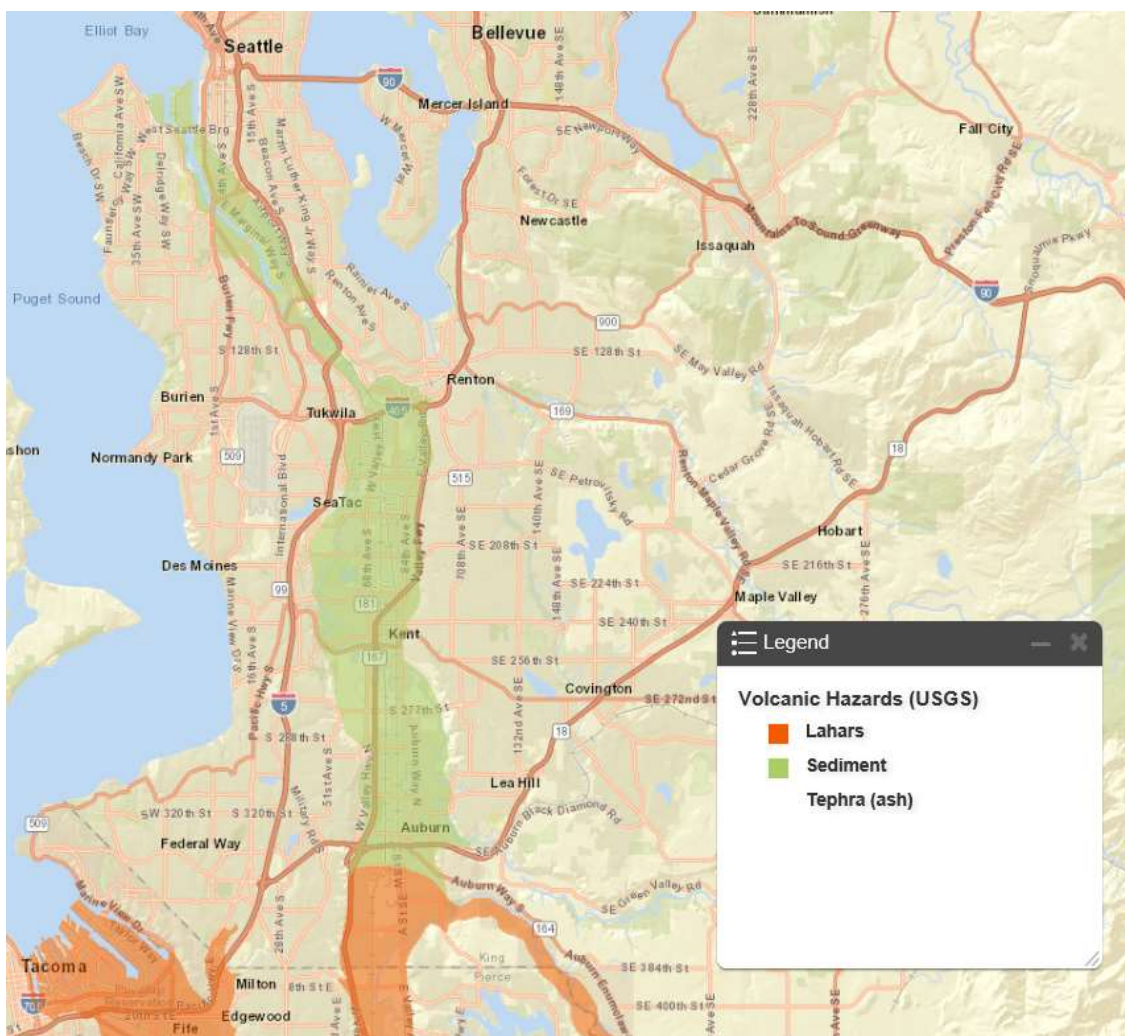
	<p>of dollars. Damage to low-lying rail and roads is also likely, but less of a concern since it would not impact primary transportation routes.</p> <ul style="list-style-type: none"> <li>• Communications: There is limited risk to communications systems as a whole from tsunami.</li> </ul>
Public confidence in jurisdiction's governance and capabilities	<p>Coverage from major news outlets, including the Seattle Times and the New Yorker magazine, have argued that Washington is highly underprepared for a major seismic event large enough to generate a tsunami. Both media coverage and reports from state emergency management has led Washington's governor to convene a Resilient Washington Subcommittee to look into mitigation actions out of concern for the apparent low-level of public confidence in state and local ability to manage major disasters. Data is available from Japan and New Zealand that clearly demonstrate that policy level decisions and direct communication to the public will greatly influence the public confidence in King County government.</p>

# Regional Risk Profile: Volcano

## Hazard Description

Volcanic eruptions are the result of geological activity, and may include lava, rock fragments, gases, and ash ejected from a vent on the surface. Deposits of rock, lava, and ash create the structures we call volcanoes. Washington State has five active volcanoes, four of which have been classified as “Very high” threat by the U.S. Geological Survey, and one considered “High” threat. Mount Rainier would cause the most significant local disruptions in the event of an eruption, but any of them could cause major disruptions due to ash or impacts on the transportation system.

Volcanoes can lie dormant for hundreds or thousands of years between eruptions. Hazards from eruptions are typically divided into near-volcano hazards, those which impact areas immediately on the slopes of the volcano, and distant hazards, which can put areas miles away from the volcano at risk. Near-volcano hazards include pyroclastic flows (hot avalanches of gas, ash, and rock fragments), lava flows, rock (tephra), debris flows, and landslides. Distant hazards, include Lahars – volcanic mudflows,





and volcanic ash. Lahars may travel tens of miles down river valleys, picking up debris and inundating floodplains, and leave a cement-like deposit of sediment where they stop. They are a hazard at all five of Washington's volcanoes, and the only personal protective action available to avoid a lahar is evacuation to higher ground. Volcanic ash – made up of tiny particles of glass – may be extremely widespread, as it travels in the direction of the wind. The fine particles may travel hundreds of miles or more downwind. Even in tiny quantities, volcanic ash can be very disruptive, as it lowers air quality, makes roads slippery to drive on, is abrasive, poses risks to aircraft, motor vehicles and electronics, and is extremely difficult to clean up, as it easily remobilizes into the air. Volcanic ash is also dense, and quite heavy when wet – 4 inches of wet volcanic ash is heavy enough to collapse most roofs.

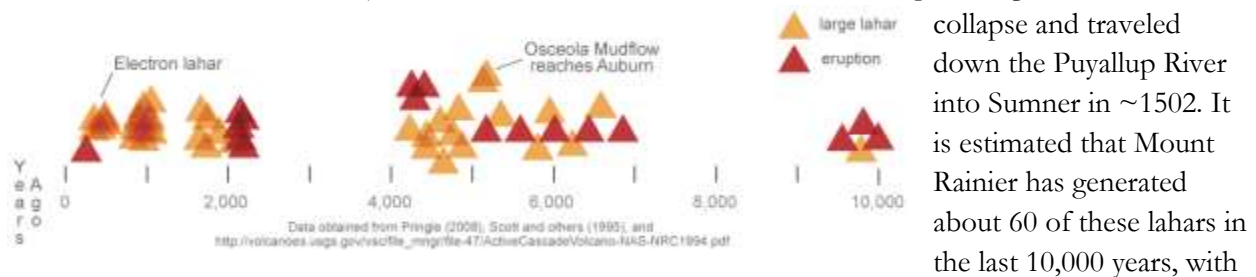
### Vulnerability Characteristics and Previous Occurrences

There are multiple hazards from a volcano, including lahars that could impact communities in the south of the county to ash that could impact the entire region and come from any of Washington's five active volcanoes.

Lahars, mudflows that can have the consistency of wet cement, are historically the most damaging element of a volcanic eruption. These flows pick up large and small debris like trees, houses, boulders – anything in its path. Lahars can move 20-40 miles per hour down slopes. They slow down once they reach floodplains, but are still an unstoppable mass of mud and debris, often pushing a flow of water ahead of it. While the lahar risk to King County is limited to a major eruption of Mt. Rainier and impacts primarily the cities of Algona, Pacific, and Auburn, the regional impacts would include a complete disruption of regional transportation routes, including through airport closures, damage to I-5, and damage to the Port of Tacoma.

The best examples of potential local damages from volcanic activity are from the Mt. St. Helens eruption in 1980. This eruption had significant ash-fall over eastern Washington, Oregon, Idaho, and Montana, with trace amounts falling over the Dakotas, Wyoming, Nebraska, Colorado, Oklahoma, and Minnesota as well as Canadian provinces. A long history of volcanic eruptions in the cascades is recorded by the Native Americans in the area. Volcanic activity occurs in geological timelines these events are spaced over hundreds if not thousands of years, during which time the number of exposed inhabitants and inventory of infrastructure has changed greatly. Even the difference between 1980 and today (39 years) has seen a marked increase in population and infrastructure in the possible impact area for volcanic activity. The Mt. St. Helens eruption in 1980 damaged or destroyed 200 buildings, ruined 44 bridges, and buried 17 miles of railway along with 125 miles of roadway. Community water supplies and sewer systems were disabled and reservoirs partly filled with silt and debris.

Mt. Rainier, however, is much closer (60 miles to Seattle) and poses a much more direct threat. Modern Mount Rainier started erupting 500,000 years ago and has had numerous eruptions and mudflows since then. About 5,600 years ago, an eruption created a massive debris avalanche, called the Osceola Mudflow, poured down from the summit of Mount Rainier, picking up sediment and anything else in its path as it traveled down the White River valley and into the Puget Sound. The mudflow filled valleys with up to ~400 feet of sediment and moved at speeds of 40 to 50 miles an hour. Following the Osceola Mudflow, many smaller volcanic eruptions and lahars occurred as the volcano continued to show signs of unrest. The most recent major mudflow, called the Electron Mudflow, began as a part of a crater



about 10 large enough to reach the Puget Sound. Many communities, including Orting, Puyallup, and Auburn, between Mount Rainier and the Puget Sound are built on top of these deposits.<sup>123</sup>

An eruption of Mt. Rainier, or any other Cascade volcano, is likely to be preceded by warning signs, such as series of earthquakes, and deformation of the volcano. This volcanic “unrest” may last for days before an eruption, or possibly for weeks, to months, to years or more. Monitoring networks are in place to provide advanced warning. This advance warning is critical to communities downstream from the volcanoes, because Even a relatively small eruption could melt glaciers significantly, generating lahars that will reach heavily populated areas.<sup>124</sup>

A lahar should not be seen as a singular event, but a mass movement of sediment requiring significant time to recover from. Deposition of feet to tens of feet of sediment through a watershed and over a floodplain creates long-term changes to the river environment. After a lahar, mitigation measures may be necessary to prevent continued sedimentation over the decades following the eruption, such as the sediment retention structure built following the Mt. St. Helens 1980 eruption. In lieu of this solution, dredging may be required to prevent shipping channels from filling with sediment. Deposition of a large amount of sediment within a floodplain may also change floodplains to a point where floods now occur in areas which were previously safe from flooding.

<sup>123</sup> Washington State Emergency Management. 2018. Enhanced Hazard Mitigation Plan: Volcano Risk Assessment, page 470-472.

<sup>124</sup> United States Geologic Survey. 2018. USGS Volcano Hazards Program website. Accessed online on 6/12/19 from [https://volcanoes.usgs.gov/volcanoes/mount\\_rainier/geo\\_hist\\_future\\_eruptions.html](https://volcanoes.usgs.gov/volcanoes/mount_rainier/geo_hist_future_eruptions.html).

## Summary of Hazard Effects

Major types of volcanic hazard, their effects and extents are listed in the table below. The occurrence and scale of volcanic hazards are inversely related, with small events occurring more frequently (10-20 a month), and larger events occurring every hundred years or so.<sup>125</sup>

Hazard	Threat to Life	Threat to Property	Areas Affected
<i>Ash and tephra fall</i>	Low except near vent; high for aviation	Depends on size of particles and amount of ash; can  lead to roof collapse,  bomb damage, fire	Local, Regional,  National, International
<i>Pyroclastic flows</i>	Very high – Near vent and on slopes; low in King County	Very high	Local, Regional, National,
<i>Lava flows</i>	Low except near vent.	Very High	Local
<i>Lahars</i>	High to moderate	High	Local, Regional
<i>Flooding (post-lahar)</i>	Moderate	High	Regional
<i>Gases/ acid rain</i>	Low to moderate	Moderate	Local, Regional

## Priority Vulnerabilities<sup>126</sup>

Communities in the path of lahar hazards	Communities in the vicinity of Rainier, including the King County communities of Algona, Pacific, and Auburn, are most vulnerable from a large lahar generated by an eruption of Mt. Rainier.
Populations vulnerable to respiratory distress brought on by ash	Ash from any volcanic eruption can lead to disruption of daily life and is a major threat to people with medical vulnerabilities.

<sup>125</sup> Washington State Emergency Management. 2018. Enhanced Hazard Mitigation Plan: Volcano Risk Assessment, page 463

<sup>126</sup> Clark County Emergency Management. 2007. 2006 Volcanic Ashfall Exercise After Action Report / Improvement Plan.

Populations in the immediate vicinity of a volcano	Populations that use Mt. Rainier National Park or work in the area around the mountain are most susceptible to the immediate impacts. Although advanced warning is likely, it will be impossible to predict the exact moment of eruption. Residents from the town of Orting have approximately 45-minutes to evacuate following activation of their lahar sirens.
Roof collapse caused by ash fall	Buildings can collapse following large ash accumulation.
Electrical systems and the energy sector	Electrical systems may short out due to ashfall and power generation can be curtailed as generation systems are shut off to protect sensitive components.
Communications equipment	Communications equipment has the same vulnerability as general electrical systems and is subject to failure due to ash damage.
Air travel	Airports would likely be closed for the duration of major ash dispersal.
Roads and transportation systems	Traffic signals would likely short out during ashfall. Ash is also creates a very slippery driving surface. Ash can also damage vehicle engines, and scratch windshields when wipers are being used – Driving is not recommended during heavy ashfall.

### Priority Impact Areas

King County residents	Cities in the south of the county, including Algona, Pacific, Auburn, and Kent all may be impacted by a lahar. The sedimentation zone spreads throughout the Green River Valley. This area includes some of the largest and fastest-growing cities in the county. The distance from Mt. Rainier makes direct impact of eruption from a pyroclastic event extremely unlikely. Prevailing winds make ash fall in the county unlikely or at least minor. Lava flows and landslide activity would impact Pierce County but are unlikely to reach any portion of inhabited King County. Indirect impacts from a major eruption might include a cooling climate from atmospheric suspended ash clouds but this too is unlikely. Fine ash may cause regional health impacts – especially respiratory for the duration of ash fall. Impact to vehicles and air handling systems in homes and work places may have an employment impact to the King County population.
Vulnerable populations	Impacts to individuals with access and functional needs will be extremely serious. Transportation will be impacted, resulting in difficulty accessing appointments. Individuals with chronic respiratory vulnerabilities will be most negatively impacted by ash. While there are limited numbers of King County residents in the path of the lahar, the communities that are most impacted have higher rates of disability and poverty than the statewide average.

Property	<p>The cities of Algona and Pacific are the most at risk from a Mt. Rainier lahar event, with over 90 percent of their structures exposed to the lahar. While the percentage of structures is not as high, the City of Auburn has the highest potential dollar-value losses. Other damages would include the loss of HVAC and air filtration systems, electrical systems shorting out, and the danger of roof collapse from ash accumulation since ash is heavier than snow. Furthermore, following rains, ash hardens to a concrete-like consistency, which can clog gutters and drains and cause them to fail or collapse. Businesses that operate electronic systems will require decontamination rooms to prevent ash from getting inside and damaging electrical equipment.</p>
The economy	<p>Many of the impacts from a Mt. Rainier eruption to humans and the environment would also impact the economy of King County. Aviation interruption would likely occur from airborne ash. A lahar event would impact rail and port service from direct damages to infrastructure like bridges, rails, and roadways, or from inaccessibility to ports. Ash would cause interruption of all internal combustion engines or vehicles that require filters would impact the workforce and movement of food and supplies as well as repair crews. Abrasion from fine ash on all mechanical parts would cause longer term damages to industrial operations and the ports. Health and respiratory issues would make both indoor and outdoor professions difficult. Medical facilities and the patients that rely on them would have difficulty operating. The cost of debris removal following a lahar would be enormous, even similar to efforts from a major earthquake.</p>
The environment	<p>Any significant volcanic activity on Mt. Rainier would have an impact to the environment. Lava flows, tephra, ash, and lahar activity would directly impact birds, fish, mammals, reptiles, amphibians, trees, and vegetation. Sediment deposition would impact rivers that support salmon and steelhead spawning. Debris and lahar may change the course of rivers entirely. Lahars may cause hazardous materials releases that harm birds, fish and other wildlife. Recreational use of ski areas and hiking trails would also be impacted. It has been four decades, and Mt. St. Helens timber and wildlife have not yet returned to pre-1980 levels.</p>
Health systems	<p>Health systems would be impacted by an expected dramatic rise in demand for services as ash causes people to seek care for respiratory distress. Health systems would also be hindered by transportation system impacts. First responder vehicles should have air filters changed every 35 miles during volcano ash events and there are not enough air filters on hand to meet this requirement.</p>
Government operations (continuity of operations)	<p>Potential impacts to county delivery of services from a Mt. Rainier eruption would be the result of damages to infrastructure, equipment including machinery and vehicles, inaccessibility to service areas, impedance to transportation routes used by the county workforce, and health impacts to residents and the workforce. County services that might be interrupted might include: Medic One response, King County Sheriff's Office services</p>

	like 9-1-1 dispatch, search and rescue and marine or aviation unit response, adult detention, solid waste and waste water services. Services provided by other government agencies and basic service providers might include interruption of: power, phone and cell phone service, emergency medical service, fire and law enforcement, water systems, and health/medical facilities.
Responders	Responder vehicles need regular air filter changes during ashfall. Air filters in the quantity required are likely not available. Responders will also be taxed by high numbers of calls and dangerous roads caused by slick ash.
Infrastructure systems	<ul style="list-style-type: none"> <li>• Power: Ash can short out electrical systems and cause widespread power failure. Ash accumulation may also cause issues with power generation dams. Generation facilities may be shut down to prevent damage to sensitive components.</li> <li>• Water/Wastewater: Water systems, including reservoirs, could quickly clog with ash, potentially polluting water supply.</li> <li>• Transportation: volcanic ash is very slick and roadways would become treacherous. Vehicles would need regular air filter replacements and there are not sufficient air filters in the region to offset the need. Airports in the region would have to close, potentially for months. Any lahar could potentially destroy major transportation routes, including I-5. Traffic signal systems and communications systems could short out due to ashfall.<sup>127</sup></li> <li>• Communications: Electrical and communication impact can be severely impacted during ashfall. Ash getting into electrical systems can cause systems to short out.</li> </ul>
Public confidence in jurisdiction's governance and capabilities	<p>The 1980 Mt. St. Helens eruption revealed that even heavy monitoring of a volcano, while effective, cannot predict exactly how the volcano will behave. Since that time, investments and public information have created confidence that USGS and local emergency management is capable of providing public warnings and evacuations in time to save lives. Continued investment in risk assessment and warning systems, for example, around Orting, WA, continue to build public confidence. An event could either undermine or strengthen this confidence, depending on losses and the speed of warning.</p> <p>A potential public confidence issue is from false positives that trigger evacuations. There have been numerous cases outside of the US where communities are evacuated, only for the volcano not to erupt at that time. Communities can become inured to warnings. When this happens, and an event does occur, there are much higher losses. A false alert is unlikely in the USGS monitoring system for Mt. Rainier as the danger of a false alert has been a central consideration in the design of the system.</p>

<sup>127</sup> Clark County Emergency Management. 2007. 2006 Volcanic Ashfall Exercise After Action Report / Improvement Plan.



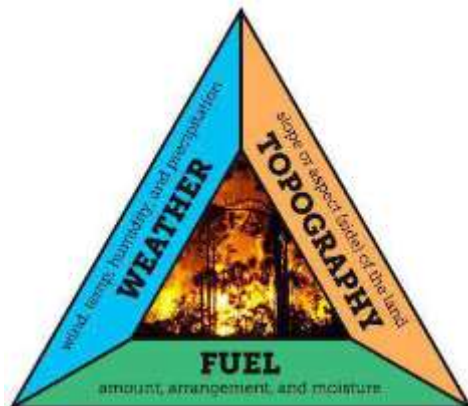
A period of unrest, leading to heightened monitoring and public awareness could last days or years before anything (or nothing) happens. Sharing information with the public on the uncertainty of volcanoes and the potential for long-term monitoring is important. Additionally, in the event of unrest and a potential lahar, the local jurisdiction are the only ones who can actually order the evacuation and so much be prepared to assess risk, inform the public, and act when needed.

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# Regional Risk Profile: Wildfire

## Hazard Description

King County and Western Washington in general have historically been at a low risk from major wildland and wildland-urban interface fires. The historic return period for the heavily forested areas of the slopes of the Cascades in eastern King County is between 200 and 300 years. Western Washington fires are not unheard of, however – in 1902, dozens of wildfires burned nearly 239,000 acres in what is



now the Yacolt Burn State Forest, causing 38 deaths. This occurred after an extended period of hot, dry weather, high wind, and an over-accumulation of timber harvest slash.<sup>128</sup> Climate change is shortening this interval, though it is still unknown by how much. By 2040, a four-fold increase in the annual area burned by fires in Washington is projected.<sup>129</sup> Of a more immediate concern is the amount of new development in areas close to the wildland-urban interface. This new exposure is the primary driver of risk in the short and medium term.

Wildfires can occur when the necessary combination of weather (low humidity, low precipitation, high temperatures, high wind), topography (steeper slopes, gulches, canyons, and ridges), and fuel (higher amounts, higher concentration, continuous across the landscape, low in moisture) are brought together with an ignition source (lightening or human-caused). In the western United States, we have seen an increase in large wildfires due to more than a century of fire prevention efforts, rising temperatures, declining forest health, and increased development.

Wildfires can spread quickly when burning in areas with dense, dry, uninterrupted fuels. This is particularly true in areas with steep slopes and ridges and in windy weather with high temperatures and low humidity. This mix of requirements has meant that there have been very few serious fires in King County.

The wildland fire season in Washington usually runs from July through September. Drought, low snow pack, and local weather conditions can lengthen the fire season. Many of the worst fire years on record have occurred in the past decade. Suppression costs alone cost \$60 million for the Carlton Complex fire. Economic costs were estimated at \$98 million for that fire.<sup>130</sup>

<sup>128</sup> Washington State Department of Natural Resources. Yacolt Burn State Forest website. Accessed online on 6/19/19 from <https://www.dnr.wa.gov/Yacolt>.

<sup>129</sup> King County. 2018. King County Strategic Climate Action Plan 2018 Biennial Report.

<sup>130</sup> Washington State Emergency Management. 2018. Washington State Enhanced Hazard Mitigation Plan Risk Assessment. Pp. 493-495.

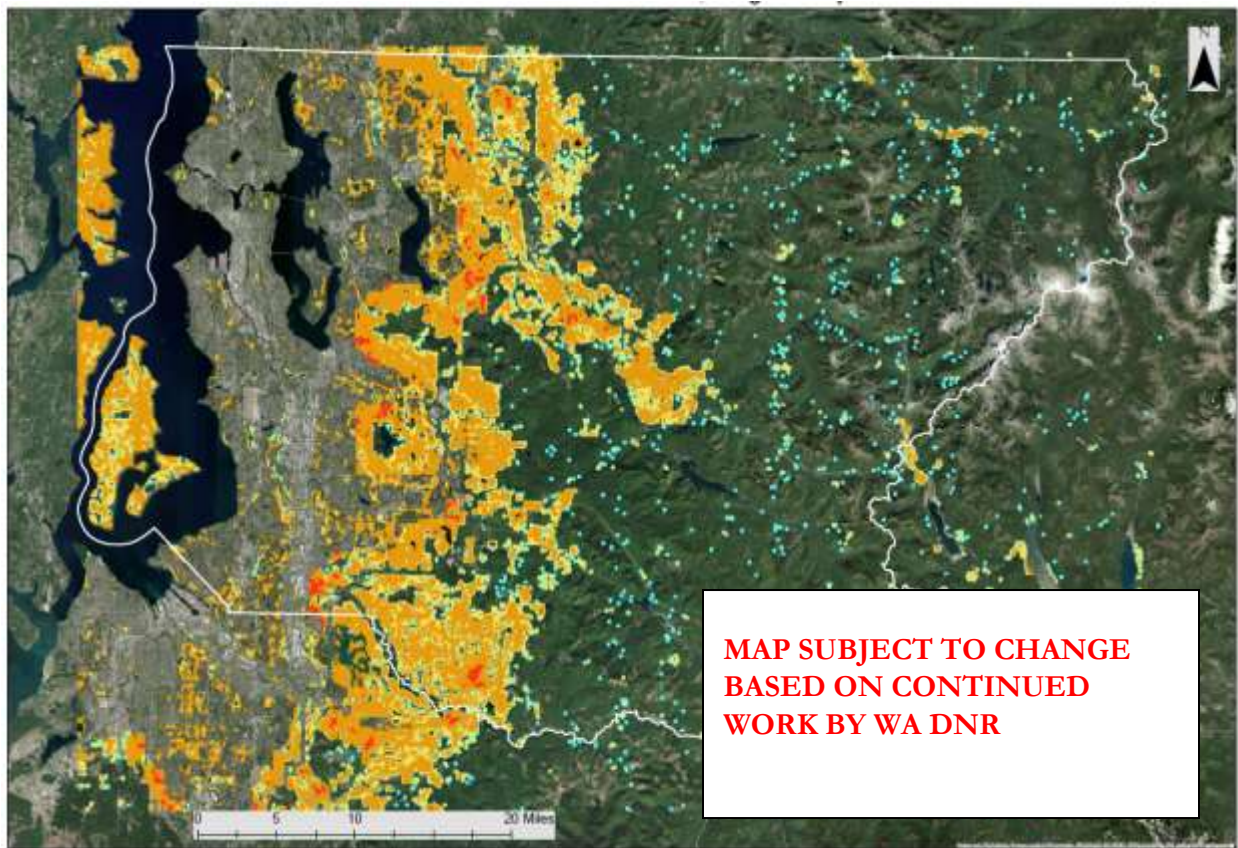
Washington State Department of Natural Resources lays out the scale of the problem in the new, 10-year strategic plan.<sup>131</sup> “In 2018, wildland fires burned more than 350,000 acres in Washington state and cost more than \$112 million dollars to suppress—all before the end of August....Yet, 2018 was not the state’s worst for fire. In recent years, hotter, drier summers and longer fire seasons have led to a trend in increased fire starts and area burned. Fires in 2014 and 2015 burned approximately 425,300 and 1,064,100 acres and cost state and federal agencies nearly \$182 million and \$345 million in firefighting expenses, respectively. In addition to the significant structural and economic losses, three firefighter lives were lost in 2015.”

The largest fires in Washington State are usually sparked by lightning in wilderness areas. Small fires (often ignited due to human activity) can also be damaging, however. For example, a small 400-acre fire in Thurston County in 2017 led to the evacuation of nearly 100 homes and the loss of four homes. Human-caused ignition sources may include chains dragging behind trucks, cigarettes, arson, or the loss of control of fires set for recreational purposes.

Washington State Department of Natural Resources is leading an effort including King County to complete a statewide map of all wildland-urban interface areas. Once the mapping is complete, RCW 19.27.560 will take effect, adopting the ICC’s 2018 International WUI Code. The following map is a draft map developed using United States Forest Service land cover data and King County parcel data. Interface areas are at the boundary of urban and vegetated areas. Intermix areas are areas where structures and vegetation are mingled.

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<sup>131</sup> Washington State Department of Natural Resources. 2018. Washington State Wildland Fire Protection 10-Year Strategic Plan. Accessed online on 8/26/19 from [https://www.dnr.wa.gov/publications/rp\\_wildfire\\_strategic\\_plan.pdf?ivvzxs](https://www.dnr.wa.gov/publications/rp_wildfire_strategic_plan.pdf?ivvzxs).



*Draft Wildland-Urban Interface Areas: red = interface/intermix areas with high structure density (Source: DNR WUI Mapping Program, 2018)*

Wildfire hazards include the fire itself, but also smoke and post-wildfire erosion and flooding. Wildfire smoke is made up of particulate matter, carbon monoxide and other harmful pollutants from burning trees, plant materials, and combustion of plastics and other chemicals released from burning structures and furnishings. Exposure to fine particulate matter (2.5 micrometers and smaller) is a significant health concern, because the small size of the particle allows people to inhale it deep in the lungs where the particles can directly enter the blood stream. The effects of smoke exposure range from eye and respiratory tract irritation to more serious health problems including reduced lung function, bronchitis, and exacerbation of asthma, heart failure, and premature death. People with existing heart and lung diseases, older adults, children and pregnant women are especially at risk of smoke-related health problems.<sup>132</sup>

Post-wildfire flooding, landslides, and mudslides is a deadly secondary hazard to extreme wildfires in areas with steep slopes. Soils in areas burned by fire not only lose their stabilizing vegetation but can also become hydrophobic (water repelling), leading to massive water runoff that carries debris down slopes and into nearby waterways. In Montecito, CA more than 17 people died, 100 homes were destroyed, and hundreds of people were rescued from a series of mudslides and mudflows that hit following heavy rains that drenched areas burned over earlier that summer.<sup>133</sup> Mudslides were a serious

threat in Eastern Washington following the 2014 and 2015 wildfires, and destroyed irrigation systems, roads, and bridges.

One aspect of post-fire flooding is that it can be predicted. King County would likely have weeks to months to prepare and plan for flooding events resulting from a major fire. The Department of Ecology maintains a post-fire flooding calculator to estimate runoff and prepare communities for flooding. In Montecito, for example, emergency managers had already evacuated thousands of people and it was those who chose to not heed the warnings that were most likely to be impacted by the mudslides.

### Vulnerability Characteristics and Previous Occurrences

King County communities are rarely threatened by major wildfires, though roadside brush fires can still threaten even the most urbanized areas.<sup>134</sup><sup>135</sup> This has meant that land use and building codes in King County are not adapted to current and future wildfire risk. As the climate changes, there is a greater likelihood that high temperature and dry conditions will be present along with the already-existing topographic, wind, and fuel conditions necessary to support a large fire

Smoke has received the bulk of recent attention in King County due to multiple years of wildfire smoke in the Puget Sound region from wildfires in British Columbia, Oregon, and Eastern Washington. Air quality deteriorated to hazardous conditions in some parts of King County in 2017 and 2018. Recent studies of wildfire smoke exposure in Washington found a significant relationship between exposure to PM<sub>2.5</sub> from wildfire smoke and an increase in emergency room and outpatient visits for asthma. Especially impacted were those with pediatric asthma and other childhood respiratory and chest symptoms, as well as Chronic Obstructive Pulmonary Disease across all age groups, and all respiratory outcomes.<sup>136</sup> Smoke will likely be an ongoing concern for the region and may represent a “new normal” though it will not occur every year.

Post-fire flooding is a serious threat to King County. A fire in one of the foothills communities could cause major mudflows and devastating flooding in communities in the watershed impacted by the fire and through which rivers and creeks pass. Communities with existing flood risk, such as along the Snoqualmie River, are especially vulnerable. Damage to homes caused by debris flows is typically not covered by regular homeowner’s insurance.

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<sup>132</sup> Washington State Emergency Management. 2018. Washington State Enhanced Hazard Mitigation Plan Risk Assessment. Pp. 493-495.

<sup>133</sup> Queally, James, Etehad, Melissa, and Brittney Mejia. Jan 10, 2018. Death toll rises to 17 in Montecito; 100 homes destroyed by mudslides. *The Los Angeles Times*. Accessed online on 6/18/19 from <https://www.latimes.com/local/lanow/la-me-ln-montecito-storm-mudflow-20180110-htmlstory.html>.

<sup>134</sup> Headwater Economics. 2018. Communities Across the US Are Experiencing Threats from Wildfires. Accessed online on 6/18/19 from <https://headwaterseconomics.org/dataviz/communities-wildfire-threat/>.

<sup>135</sup> KIRO 7 News Staff. July 27, 2011. Brush fires shut down portion of SR 509. *KIRO 7*. Accessed online on 8/27/19 from <https://www.kiro7.com/news/local/brush-fires-shut-down-portion-of-sr-509/970676697>.

<sup>136</sup> For more information, see Washington State Department of Health/Chelan-Douglas, Grant, Kittitas and Okanogan Counties (2015), Surveillance Investigation of the Cardiopulmonary Health Effects of the 2012 Wildfires in North Central Washington State; Gan, R. W., B. Ford, W. Lassman, G. Pfister, A. Vaidyanathan, E. Fischer, J. Volckens, J. R.



## Scenario Drivers<sup>137138</sup>

### Wildland-Urban Interface Fire



Although fires are currently rare in Western Washington, they are not unheard of and are expected to increase as climate change leads to warmer temperatures. Prolonged summer heat, combined with high density forests and areas of poor forest health, is increasing fire risk at the same time that people are building more and more into the wildland-urban interface. The building patterns in these areas are not in accordance with FireWise principles and many communities have limited ingress and egress routes.

### Smoke



In 2017, and especially 2018, smoke from wildfires inundated Seattle, causing unhealthy air quality. This was due to wind patterns that blew smoke from fires in British Columbia, Oregon, and Eastern Washington. Warmer summers will increase the number of fires and with more fires, more smoky days are likely.<sup>139</sup>

*Source: Greg Gilbert, Seattle Times*

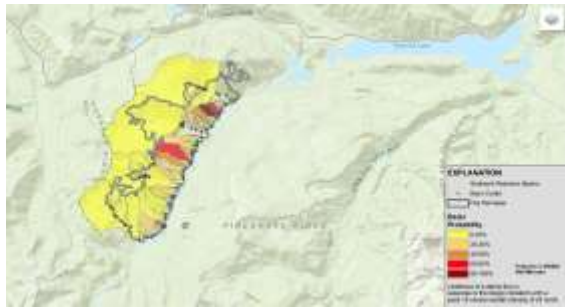
<sup>137</sup> King County Department of Natural Resources and Parks. Landslide Hazards Program website. Accessed online on 6/7/19 from <https://www.kingcounty.gov/services/environment/water-and-land/flooding/maps/river-landslide-hazards/landslide-types.aspx#Debris>.

<sup>138</sup> Washington State Geologic Survey. Landslide Hazards Program website. Accessed online on 6/7/19 from <https://www.dnr.wa.gov/programs-and-services/geology/geologic-hazards/landslides#types-of-landslides.8>

<sup>139</sup> Gilbert, Greg. August 14, 2018. Smoky Seattle summers: expect more of them, scientists say. *The Seattle Times*. Accessed online on 6/19/19 from <https://www.seattletimes.com/seattle-news/smoky-seattle-summer-expect-more-of-them-scientists-say/>.



## Post-fire flooding and debris flows



Wildfires burn vegetation on steep slopes, not only destabilizing the slopes but also making the soil hydrophobic in high-intensity fires. This can lead to large debris flows and mudslides when heavy rains occur that damage infrastructure and communities downstream for several years after a fire. USGS can conduct assessments on burned areas to determine the likelihood of major debris flows from a burned area.<sup>140</sup>

## Priority Vulnerabilities

Structures built in interface or intermix areas	Structures built in interface or intermix areas are more susceptible to fires, including from spotting and embers ahead of a fire. This is especially true for buildings with less than 100 feet of defensible space.
Foothills and interface communities	Communities in or around areas at a higher risk of fire, such as those in the foothills of the Cascades, are more susceptible to fire.
Communities in or near the floodplain, downstream of potential burn areas	Major wildfires can cause the soil to become hydrophobic. When rains come, large quantities of water and debris and rush down hillsides and destroy homes and infrastructure while causing flooding in downstream communities.
Communities built without multiple ingress and egress routes	Communities with a single ingress and egress route are much more difficult to protect and evacuate. Roads that are less than 24 feet wide, especially those less than 20 feet wide, and those driveways without a turnaround are highest risk.
Buildings built with flammable materials and with vegetation close to the structure	Buildings not meeting FireWise principles, including defensible space, are most at risk to wildfire. This includes proximity of dense brush or timber, flammable composition of structure roof, and siding.
Communities on slopes or hills	Fires tend to burn up slopes and ridges, endangering structures in those areas. Buildings less than 30 feet from a slope of greater than 30% grade are most vulnerable.

<sup>140</sup> USGS. 2018. Miriam Fire Preliminary Hazard Assessment. Accessed online on 6/19/19 from [https://landslides.usgs.gov/hazards/postfire\\_debrisflow/detail.php?objectid=224](https://landslides.usgs.gov/hazards/postfire_debrisflow/detail.php?objectid=224).

Areas with more frequent severe fire weather days and winds	Fire weather, including low humidity and wind, is a major predictor for when ignitions, which are common, will spread and become a major fire. Areas prone to this weather are expected to expand due to climate change.
Areas greater than five miles from a fire station and with limited water source availability	Buildings more than five miles away from fire services and with limited pressurized fire hydrant access are more vulnerable.

### Priority Impact Areas

King County residents	King County residents are most likely to experience fire impacts from smoke. Smoke can cause respiratory issues and prevent people from taking part in outdoor activities. There are limited populations exposed to wildfire hazard in interface areas, though this risk is growing due to climate change and new development.
Vulnerable populations	Populations suffering from respiratory ailments are at the greatest risk from wildfire since smoke from fire. People with existing heart and lung diseases, older adults, children and pregnant women are especially at risk of smoke-related health problems.
Property	The level of exposure of property and potential impacts to property from wildfire is not yet known in detail. The communities with the highest levels of exposure include Snoqualmie, North Bend, and unincorporated areas of the county in the foothills of the Cascades. King County is working on a better estimate of overall risk to property and will update this plan with that information when it is available. Likely impacts to property include smoke damage to total loss of facilities. Communities built with many homes close together and constructed of flammable materials can be completely burned in a short time, as seen in Fort McMurray, Canada, Paradise California, and Santa Rosa, California.
The economy	At present, there is relatively little economic impact from wildfires in most of King County. The fires are predominately a risk in the more rural parts of the county. There is some impact from smoke and fire to transportation systems; however, it is likely to be limited and temporary. The largest impacts are likely to be indirect, including losses in work days because of poor air quality, loss of capital required for suppression efforts, interrupted access, and losses in tourist income.
The environment	While fires are often beneficial to the landscape when regular and not intense, a major wildfire can be damaging in the near term. Fires can pollute water systems and destroy old growth habitat. They can burn over springs and increase evaporation. Following extreme fires, hydrophobic soils make it difficult for plants to regrow in and the runoff over these soils increases the turbidity of local streams, endangering fish and other water animal populations.

Health systems	Exposure to fine particulate matter (parts per million 2.5) is a significant health concern, because the small size of the particle allows people to inhale it deep in the lungs where the particles can directly enter the blood stream. The effects of smoke exposure range from eye and respiratory tract irritation to more serious health problems including reduced lung function, bronchitis, exacerbation of asthma and heart failure, and premature death. <sup>141</sup> During extreme smoke pollution events, public health systems are likely to be overburdened by populations suffering respiratory distress.
Government operations (continuity of operations)	Most King County operations and facilities are in the more urban areas of the county and unlikely to be directly impacted by wildfires. Smoke, however, can cause an increase in employee absenteeism as employees may need to stay home to avoid smoke exposure. Another risk is that a wildfire might occupy most of the region's firefighting capabilities, leaving less capability to continue regular structure fire and emergency medical missions.
Responders	Growing numbers of wildfires will increase risk to firefighters. Firefighters in the Puget Sound mostly respond to structure fires. With an increase in wildland or WUI fires, firefighting becomes more complex and dangerous. Also, communities without proper ingress/egress routes further increase risk to firefighters who may be called upon to attempt evacuations in such communities. According to the Washington State Enhanced Hazard Mitigation Plan, there are less than five first responder facilities exposed to wildfire. <sup>142</sup>
Infrastructure systems	<ul style="list-style-type: none"> <li>• Energy: Washington's transmission lines run through wildland areas. Wildfires in King County could damage or destroy these systems, although brush is usually kept clear of the largest transmission facilities. Rural and other interface power lines would be burned in any fire, as has been seen in numerous communities in Eastern Washington. Utilities in California are increasingly powering down transmission systems during "red flag" fire conditions, affecting energy customers.</li> <li>• Water/Wastewater: Many water reservoirs are in forested areas and could be impacted by wildfire that may burn power supplies to pump stations or the pump stations themselves. Furthermore, post-fire flooding could damage or pollute reservoirs.</li> <li>• Transportation: Fire can cause road closures due to visibility concerns. A greater risk, however, is post-fire flooding and debris flows that can damage or destroy roads and bridges downstream or downslope from a burned area after a rain. Additionally, SeaTac Airport was forced to cancel flights in 2018 due to poor visibility during smoke events.</li> </ul>

<sup>141</sup> Washington State Emergency Management. 2018. Washington State Enhanced Hazard Mitigation Plan Risk Assessment. Pp. 493-495.

<sup>142</sup> Washington State Emergency Management. 2018. Washington State Enhanced Hazard Mitigation Plan: Wildfire Risk Assessment. Page 533.

	<ul style="list-style-type: none"><li>• Communications: Cellular communications sites can lose power or be damaged by wildfire. During these events, it may be necessary to deploy cellular on wheels capabilities.</li></ul>
Public confidence in jurisdiction's governance and capabilities	Wildfire hazards have gained renewed importance in recent years due to the smoke problems of 2017 and 2018. Numerous articles in the Seattle Times and other media describe a "new normal" of smoke and fire danger in the Northwest. State and local jurisdictions have been working to prepare public information messaging due to health concerns and public interest. Government will need to be proactive in managing this hazard in order to maintain public confidence.

# Hazard Mitigation Strategies

The primary focus of this plan update was the development of comprehensive, operationally viable hazard mitigation strategies and the establishment of a capability to supervise and promote their implementation. Plan strategies were developed using the following structure:



Hazard mitigation strategies were developed by each participating jurisdiction, supported by a series of workshops, described in the planning partner engagement section of the introduction. The workshops were hosted by King County Emergency Management and included state and FEMA staff associated with the RiskMAP program.

The half-day workshop series took participants from developing risk problem statements (December 2018), through identifying community assets and strategies to protect those assets (July 2019), to funding projects (August 2019). Using problem statements developed in the first workshop, participants identified assets and then developed strategies that could protect their assets in workshop 2. Participants were also guided through a strategy prioritization exercise using the King County method described below. They left the second workshop with a list of strategies drafted and prioritized. For the third workshop, participants learned about potential funding sources and how to seek funding for high-priority strategies and eligible projects that they could not fund internally.

For those unable to attend workshops in-person, the planning team provided handouts and met in-person over through Skype to walk jurisdictions through the same process. Unless indicated otherwise, this is the method planning partners used to develop and prioritize hazard mitigation strategies.

Each planning partner also convened those internal stakeholders who were responsible for projects or programs that supported or implemented mitigation along with those stakeholders with funding available or funding needs. In King County, the primary hazard mitigation agencies include:

- Department of Natural Resources and Parks – Water and Land Resources
- Department of Natural Resources and Parks – Wastewater Treatment
- Department of Local Services – Permitting
- Department of Local Services – Roads
- King County Information Technology
- Department of Executive Services - King County International Airport
- Department of Executive Services – Facilities Management Division
- Public Health Seattle – King County

The planning team met with each department individually, with each developing and submitting a list of potential hazard mitigation strategies and projects.

Departments attended the July Mitigation Strategy Workshop and August Mitigation Funding Workshop along with the local jurisdiction partners.

### Mitigation Plan Goals:

Goals are broad policy statements of the community's vision for the future. They help describe the contribution each strategy makes toward major objectives that reach beyond any individual department or discipline. In alignment of this and with the Plan's purpose, King County's Regional Hazard Mitigation Steering Committee adopted King County's Determinants of Equity<sup>143</sup> as Mitigation Plan Goals:

### Mitigation Plan Goals - 14 Determinants of Equity

1. Access to Affordable, Healthy Food
2. Access to Health and Human Services
3. Access to Parks and Natural Resources
4. Access to Safe and Efficient Transportation
5. Affordable, Safe, Quality Housing
6. Community and Public Safety
7. Early Childhood Development
8. Economic Development
9. Equitable Law and Justice System
10. Equity in Government Practices
11. Family Wage Jobs and Job Training
12. Healthy Built and Natural Environments
13. Quality Education

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<sup>143</sup> Office of the King County Executive. 2016. Equity and Social Justice Strategic Plan. Accessed online on 7/24/19 from <https://kingcounty.gov/elected/executive/equity-social-justice/strategic-plan.aspx>.



#### 14. Strong, Vibrant Neighborhoods

##### Supplemental Goals:

- 15. Resilient and safe high and significant-hazard dams
- 16. Proactive and innovative floodplain management to reduce Repetitive Loss and Severe Repetitive Loss properties

Mitigation strategies will be categorized according to these 16 factors.

#### Mitigation Plan Strategies

Mitigation Plan Strategies will be developed based on threats to essential assets and capabilities from hazards within cities and unincorporated areas of King County. In the past these have included strategies for risks such as land movement and flood impacts and projects such as bridge seismic retrofits and generators for critical facilities. For this plan, hazard mitigation strategies are sets of coordinated actions that, taken together, address a risk or vulnerability. They are comprehensive, long-term, and designed to be regularly updated as actions are completed.

The updated strategy format will be used going forward in order to better support long-term tracking of mitigation actions and strategies. The updated strategy template is displayed below.

Lead Points of Contact (Title)	Partner Points of Contact (Title) <i>Who else outside your jurisdiction benefits from the strategy or will help implement the strategy?</i>	Hazards Mitigated / Goals Addressed	Funding Sources and Estimated Costs
Strategy Vision/Objective <i>Long-term objective and vision for the strategy</i>			
Mitigation Strategy <i>Describe the program/proposed program</i>			
2-Year Objectives	5-Year Objectives		Long-Term Objectives

### Implementation Plan/ Actions

*This can provide a timeline, indicate partners, discuss implementation stages, etc. Use this to discuss how the strategy/program will be implemented over the long term.*

### Performance Measures

This template will be built into a database where strategies can be entered, updated, and projects can be prioritized consistently and effectively. The goal is for strategies to remain in place through future plan updates, while implementation plan actions are changed.

## Mitigation Plan Projects

Mitigation Plan Projects represent the specific work to be done and actions to be taken to mitigate a risk or hazard. Candidate projects will be developed and considered for and by each participating jurisdiction, with a process to engage the public in the prioritization of projects. Projects will be prioritized using the scoring method established by the Steering Committee to ensure alignment with the Plan Strategies and Goals and in keeping with the following values:

- Equity, Social Justice, and Vulnerability
- Collaborative
- Adaptation and Sustainability
- Multiple-Benefit
- Effectiveness
- Urgent
- Shovel-Ready

## Prioritizing Hazard Mitigation Projects

King County developed a prioritization process based on criteria taken from national best practices<sup>144</sup> and priorities identified by the King County Executive. These criteria are used to prioritize projects within strategies. Strategies are also prioritized in this way to identify those areas of emphasis for KCEM and the mitigation steering committee, though this may not impact which strategies are implemented since many depend on exclusive funding sources. The below criteria will be used to establish priorities. These priorities will be applied to projects annually for submission to the FEMA BRIC program.

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<sup>144</sup> Washington, District of Columbia Homeland Security and Emergency Management Agency. 2018. District Hazard Mitigation Plan, Discussion Draft.

King County uses the below matrix, scoring each factor from 0 (unsatisfactory) to 4 (outstanding) with the option of a score of -4 (actively harms the factor). Identifying projects that harm, and giving harmful factors more weight in the formula, is designed to encourage project proponents to modify their proposed design to better resolve any issues.

- -4 Project actively harms or is detrimental to this factor.
- 0 Unsatisfactory for this factor
- 1 Minimal level of standards for this factor
- 2 Satisfactory level of standards for this factor
- 3 High level of standards for this factor
- 4 Outstanding or beyond expectations for this factor.

Strategy:				
Factors for Consideration	Project 1	Project 2	Project 3	Project 4
Equity, Social Justice, and Vulnerability (project is designed to benefit, account for, and include vulnerable populations, especially those in the community most likely to suffer harm from a disaster and those likely to take longest to recover after a disaster)				
Collaborative (project is supported by multiple jurisdictions or agencies)				
Multiple-Benefit (project has benefits beyond hazard risk reduction, including environmental, social, or economic benefits)				
Adaptation and Sustainability (project helps people, property, and the environment become more resilient to the effects of climate change, regional growth, and development)				
Effectiveness (project is designed to attain the best-possible benefit-cost ratio)				

Urgent (project is urgently needed to reduce risk to lives and property)				
Shovel-Ready (project is largely ready to go, with few remaining roadblocks that could derail it)				
Total Scores				

Process Note: Once a jurisdiction has prioritized projects within that jurisdiction, those projects will be advanced to the regional plan. If ever there is competition between projects advanced from different jurisdictions, the RHMP Steering Committee, consisting of representatives from county departments and jurisdiction partners, will establish the order of priorities based on the values identified above. The Steering Committee will also organize priority projects with corresponding strategies. It should be noted that while prioritized projects will be included in the plan, they may not all receive funding. The Steering Committee may also seek to promote a diversity of projects so that all plan goals receive some benefits. In the case of a tie between projects during scoring, the higher prioritization may go to the less-represented mitigation strategy.

In addition to regular ranking of mitigation projects, the steering committee ranked mitigation strategies using the above tool to identify the highest priority strategy within each department and then the highest priority strategies for the county overall. These priorities are reported in the mitigation strategy section of this plan.

### Crosswalk with the Strategic Climate Action Plan

Several strategies appear in some form in both the SCAP and this plan. This was done to ensure multiple avenues of implementation and monitoring and to help relevant actions gain a higher profile with other departments. Below are strategies that appear in some form in both plans.

Regional Hazard Mitigation Plan Strategy	Strategic Climate Action Plan Action
Wildfire Preparedness and Risk Reduction	Wildfire Preparedness and Risk Reduction
Accelerate Floodplain Acquisitions	Accelerate Floodplain Acquisitions
Public Information Flood Activities	Increase Technical Assistance to Property Owners for Flood Risk Reduction
Flood Risk Mapping	Flood Risk Mapping

Reduce Flood Impacts to King County Roads	Maintain Quick Response Budget for Emergency Repairs
Stormwater and Surface Water Risk Reduction	Stormwater and Surface Water Risk Reduction
Climate Integration Training	Engage Partners on Climate Preparedness Opportunities
Sea-Level Rise Resilience in Wastewater Facilities	Sea-Level Rise Resilience in Wastewater Facilities

### Ongoing Plan Maintenance and Strategy Updates

King County leads the mitigation plan monitoring and update process and schedules annual plan check-ins and bi-annual mitigation strategy updates. Updates on mitigation projects are solicited by the county for inclusion in the countywide annual report. As part of participating in the 2020 update to the Regional Hazard Mitigation Plan, every jurisdiction agrees to convene their internal planning team at least annually. Partners will convene at least biannually to update hazard mitigation strategies. For the 2020 plan, progress updates will be due in 2022 and 2024, in advance of plan expiration in 2025.

In addition to the biannual strategy updates and annual planning check-ins, mitigation strategies that address flooding will be reviewed, revised, and updated annually. Special focus is warranted for flood hazards since flooding has historically been the most damaging hazard and the majority of Federal Disaster Declarations including the county are due to flooding.

Given the emphasis on plan integration described in the introduction, plan check-ins for all planning partners will include updates on integrating comprehensive, capital improvement, and other local and regional plans with hazard mitigation plans and data. This effort is already beginning with the integration of hazard risk and vulnerability information into the 2020 update of the countywide planning processes.

As part of leading a countywide planning effort, King County Emergency Management will send to planning partner any federal notices of funding opportunity for the Hazard Mitigation Assistance Grant Program. Proposals from partners will be assessed according the prioritization process identified in this plan and the county will, where possible, support those partners submitting grant proposals. This will be a key strategy to implement the plan.

The next plan update is expected to be due in April 2025. All jurisdictions will submit letters of intent by 2023, at least two years prior to plan expiration. The county will lead the next regional planning effort, beginning at least 18 months before the expiration of the 2020 plan.

To update and maintain the mitigation strategies, KC EM has worked with the King County Risk Management Services department to develop a reporting tool that will allow for easier updates on 2 and 5-year objective progress. These updates will be collected electronically and feed into a program that can track progress over time for each mitigation strategy. The strategy progress can then be reported out.

Alternatively, progress made on strategies can be organized according to mitigation plan goals. This will be done to show how projects undertaken by agencies and jurisdictions are supporting the 14 Determinants of Equity. Data parsed both in terms of the mitigation plan goals and by strategy will be reported to the County Executive and Council biannually in the annual report of the department.

In addition to the updates for mitigation strategies, the expected publication of data from several programs may trigger an update.

- Publication of the Department of Homeland Security Regional Resiliency Assessment Program report
- Publication of the countywide landslide susceptibility map from Washington Department of Natural Resources
- Publication of the Wildland Urban Interface wildfire risk map from Washington Department of Natural Resources
- Publication of tsunami inundation data from Washington Department of Natural Resources

Introduction

Add a strategy

Assess projects

Review

Submit

Reset form

Jurisdiction:

Strategy name:

Lead contacts:

Partner contacts:

**Hazards**

- ☐ Avalanche
- ☐ Civil disturbance
- ☐ Cyber incident
- ☐ Dam Failure
- ☐ Earthquake
- ☐ Flood
- ☐ Hazardous materials
- ☐ Health incident
- ☐ Landslide
- ☐ Severe weather
- ☐ Terrorism
- ☐ Tsunami
- ☐ Volcano
- ☐ Wildfire

**Goals**

- ☐ Affordable, healthy food
- ☐ Affordable, safe, quality housing
- ☐ Community and public safety
- ☐ Early childhood development
- ☐ Economic development
- ☐ Equitable law and justice system
- ☐ Equity in government practices
- ☐ Family wage jobs and job training
- ☐ Health and human services
- ☐ Healthy built and natural environments
- ☐ Parks and natural resources
- ☐ Proactive and innovative floodplain management
- ☐ Quality education
- ☐ Resilient and safe high and significant-hazard dams
- ☐ Safe and efficient transportation
- ☐ Strong, vibrant neighborhoods

Vision/purpose:

Description:

2-year objectives:

5-year objectives:

Long term objectives:

Performance measures:

**Projects within this strategy**

Name/description	Owner	Timeline	Score	Status

**Funding**

Source	Amount (\$)	Type



Introduction
Add a strategy
Assess projects
Review

Jurisdiction:

Strategy:

Project:

Submit

Reset form

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Assessment

Equity, social justice, and vulnerability	Designed to benefit, account for, and include vulnerable populations, especially those in the community most likely to suffer harm from a disaster and those likely to take longest to recover after a disaster
Collaboration	Supported by multiple jurisdictions, agencies, or the impacted community
Multiple-benefit	Benefits beyond hazard risk reduction, including environmental, social, or economic benefits
Adaptability and sustainability	Helps people, property, and the environment become more resilient to the effects of climate change, regional growth, and development
Effectiveness	Designed to attain the best-possible benefit-cost ratio
Urgency	Urgently needed to reduce risk to lives and property
Shovel-readiness	Largely ready to go, with few remaining roadblocks that could derail it

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Total score:

Scoring

Determination	Meaning	Score
Outstanding	Outstanding or beyond expectations for this factor	4
High	High level of standards for this factor	3
Satisfactory	Satisfactory level of standards for this factor	2
Minimal	Minimal level of standards for this factor	1
Unsatisfactory	Unsatisfactory for this factor	0
Detrimental	Project actively harms or is detrimental to this factor	-4

## Plan Approval and Adoption

The King County Regional Hazard Mitigation Plan is submitted first to Washington State Emergency Management for review and then to FEMA for final review and preliminary approval. Each jurisdiction, along with the base plan, must meet all FEMA requirements outlined in the FEMA Local Hazard Mitigation Plan Review Guide. If requirements are found to not be met, the jurisdiction involved must revise the plan and resubmit. Once preliminary approval is secured, FEMA will send a notice of Approval – Pending Adoption.

The RHMP is adopted by each participating jurisdiction, primarily through a resolution passed by the council or commission responsible. The King County Council adopted this plan on **DATE**, following notice of approval, pending adoption from FEMA and Washington State Emergency Management. This plan is effective 5/1/2020. It will expire on 4/30/2025.

## Mitigation Strategy Status Updates from the 2015 Plan

The format for hazard mitigation strategies has been completely changed in the 2020 plan update. All actions previously identified have been removed and/or incorporated into new mitigation strategies. The updated strategy format will better support tracking and implementation of mitigation strategies and their constituent actions. Strategies that are preparedness focused have been removed, as well as those that are ongoing in nature and do not have specific targets or responsible entities.

The following tables are taken from the 2018 annual progress report for the 2015 King County Regional Hazard Mitigation Plan. This list only includes strategies submitted by King County departments and countywide strategies. Individual jurisdiction action progress reports are included in each annex. The new statuses for strategies include:

- Removed – Strategy is not carried forward into the new plan
- Complete – Strategy is complete and not carried forward into the new plan
- Updated – Strategy is updated and carried forward into the new mitigation plan.

## CURRENT PROGRESS ON 2015 ACTION PLAN INITIATIVES

Progress (Yes/No)	Update Timeline	Status	Comment (Describe progress or changed priority)	2018 Status
CW-1—Continue to participate in and support the “Resilient King County” initiative.				
Yes	Long-Term	Removed	King County is continuing work towards developing a Regional Recovery Framework. Recent efforts to vet content with King County’s Department Directors and Executive Office have been made to start to formulate a governance structure.	Ongoing
CW-2—Continue to maintain a website that will house the regional hazard mitigation plan, its progress reports and all components of the plan’s maintenance strategy to provide the planning partners and public ongoing access to the plan and its implementation.				
Yes	Long Term	Removed	King County’s Regional Hazard Mitigation plan and all updated documents will continue to be posted to the website.	Ongoing
CW-3—Continue to leverage/support/enhance ongoing, regional public education and awareness programs (such as “Take Winter by Storm” and “Make it Through”) as a method to educate the public on risk, risk reduction and community resilience.				
Yes	Long Term	Removed	We continue to enhance public education campaigns and have now added climate resilience as part of our educational presentations.	Ongoing
CW-4—Continue to support the use, development and enhancement of a regional alert and notification system.				
Yes	Short Term	Removed	King County deployed a new Regional Alert and Notification System. Many King County departments and cities have signed on.	Complete
CW-5—Strive to capture time-sensitive, perishable data—such as high-water marks, extent and location of hazard, and loss information—following hazard events to support future updates to the risk assessment.				
Yes	Long Term	Removed	KC DNRP has updated landslide hazard maps (see DNRP – WLR 3 & DNRP – WLR 4)	Ongoing
CW-6—Encourage signatories for the regional coordination framework for disasters and planned events.				
Yes	Long Term	Removed	New signatories were added in 2016.	Ongoing
CW-7—Continue ongoing communication and coordination in the implementation of the King County Regional Hazard Mitigation Plan and the 2013 King County Flood Hazard Management Plan.				

Yes	Long Term	Removed	Ongoing communication and coordination was completed through the linkage process of Lake Forest Park and Kenmore, grants coordination for various applications, and ongoing communication for progress reporting.	Ongoing
DNRP-SWD-1—Seismic Design Standards. Continue to design and build facilities to meet or exceed seismic standards, including redundant essential equipment. Apply current seismic standards to all renovation or replacement of existing facilities and/or equipment.				
Yes	Short-term	Removed	Design standards exist and we will continue to design and build facilities to meet or exceed seismic standards, including redundant essential equipment.  Apply current seismic standards to all renovation or replacement of existing facilities and/or equipment.	Complete
DNRP-SWD-2—Vulnerability Assessment of Cedar Hills Landfills Structures. Conduct a vulnerability assessment of buildings at the Cedar Hills Landfill to ascertain readiness.				
Yes	Long-term	Removed	Structural integrity to be addressed through seismic design standards; to be removed as part of standard work. Additional work completed to reduce vulnerability at the landfill includes: completed Emergency Action Plan, Dam Break Analysis, Potential Inundation Area Mapping for the Contaminated Stormwater (CSW) Pond dam and the SW Stormwater Pond dam (both state registered dams at Cedar Hills Regional Landfill). The SCADA system is being updated to monitor and automate operation adjustments for pumping at the CSW facility. The area 8 stockpile slope was regraded Q3 2018 in response to a Q4 2017 slope failure (a.k.a., landslide or land movement) and to mitigate future failure prior to the rainy season. Coordination between SWD and OEM enhanced, including use of mass notification system for incident response, support and community notification.	Complete
DNRP-WLR-1—Flood Insurance Program. Continue to maintain compliance and good standing under the National Flood Insurance Program. This will be accomplished through the implementation of floodplain management programs, at a minimum, will meet the minimum requirements of the NFIP, which include the following:				
<ul style="list-style-type: none"> <li>• Enforcing the adopted flood damage prevention ordinance.</li> <li>• Participating in floodplain identification and mapping updates.</li> <li>• Providing public assistance and information on floodplain requirements and impacts.</li> </ul>				
Yes	Long-term	Removed	Met minimum requirements of the NFIP by providing public assistance and information on	Ongoing

floodplain requirements, enforcing the adopted flood damage reduction ordinance and participating in floodplain mapping updates. Maintain a CRS Class 2 rating, which verifies that King County meets and exceeds FEMA NFIP minimum requirements.			
DNRP-WLR-2—Landslide Hazard Coordination. Form an interdepartmental landslide hazard committee that includes DNRP, DPER, DOT, and OEM. The committee will address broad policy issues, including capital projects, communication, code changes, etc.			
No	Long-term	Updated	Form an interdepartmental landslide hazard committee that includes DNRP, DPER, DOT and OEM. The committee will address broad policy issues, including capital projects, communication, code changes, etc. Ongoing
DNRP-WLR-3—Proposed Hazard Mapping Phase I. Update the current landslide hazard map with information that has been collected to date.			
Yes	Short-term	Removed	Low priority now that map is complete. Complete  Status: Complete for areas within major river corridors and Vashon-Maury Island.  Comment: A Phase 1 map was completed in October 2014. Phase I mapping along river corridors was completed by Water Land Resources Division as the service provider to the King County Flood Control District and Phase 1 mapping for Vashon-Maury Island was provided by KC DPER. Areas outside of major river corridors were not included in this map.
DNRP-WLR-4—Proposed Hazard Mapping Phase II. Create a geo-database with detailed information on landslide types, run out, landslide dams, etc. Database will be searchable and updatable as new information is acquired.			
Yes	Short-term	Removed	Phase II mapping along river corridors was completed by Water Land Resources Division as the service provider to the King County Flood Control District (KCFCD). Areas outside of the major river corridors (including Vashon-Maury Island) are not included in the geo-database. This mapping along river corridors includes five general landslide types, each of these were mapped separately to illustrate potential hazard areas. This mapping has been completed along with a supporting technical report, database and a user- Complete

friendly web tool. It is anticipated that this mapping will be publicly available in August 2016. This mapping will be available in a GIS format. No suitable methodology was identified to predict future landslide runout beyond area of current landslide debris deposition. Therefore, neither such landslide runout, nor the resulting formation of landslide dams was mapped. At this time funding has not been secured for ongoing database management or further updates to the river corridor landslide mapping information.

DPER completed a separate landslide hazard mapping project covering unincorporated King County largely outside of the forest production zone. This was an expansion of the Phase 1 mapping and was needed to identify areas for further geotechnical investigation during building and land use permit application reviews. This mapping does not distinguish between different landslide processes. The DPER mapping is complete to current specifications and is presently undergoing internal review. DPER's map of potential landslide hazards will be available in a GIS format. It will be updated at appropriate intervals as needed following receipt of new data.

Landslide hazards in incorporated areas outside of major river corridors are not included in the Phase I or Phase II products. At this time no work is funded or planned to conduct landslide hazard mapping for incorporated areas that are outside of the major river corridors.

DNRP-WLR-5—Flood Protection Facility Maintenance. Maintain and repair damaged structural elements for King County's extensive inventory of flood protection facilities.

Yes	Long-term	Updated	<p>County staff completed 421 inspections on 332 levees and revetments during the reporting period. Of these, 143 were routine inspections and 279 were post-flood inspections following the 2015-2016 flood season.</p> <p>Resulting in identification of damages to flood protection facilities and repairs or emergency management plan.</p>	Ongoing
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Maintenance of more than 70 sites included irrigation, signage, hazard tree mitigation, debris removal, planting, mulching, mowing and installation of a device to prevent beavers from blocking two large culverts which could result in flooding homes and roads in the North Bend area.

Resulting in reduced potential for flooding.

DNRP-WLR-6—River Corridor Restoration. Remove, slope back, or set back County-owned flood protection facilities and other structural features to allow for improved riparian habitat, greater channel diversity and migration, reclaimed flood storage and enhanced open space or recreational/ interpretive uses.

Yes	Long-term	Updated	Completed projects allowing for river corridor restoration include the Sinnema Quaale Revetment project on the Snoqualmie River. This revetment repair was completed in the summer of 2016 and has significantly decreased the risks to the Snoqualmie Valley Trail, regionally significant fiber optic lines and SR203. The Countyline to A Street levee setback on the White River is currently under construction. Additional setback projects are planned for construction in 2017.	Ongoing
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DNRP-WLR-7—Flood Hazard Mitigation. Acquire repetitively damaged homes, purchase underdeveloped land to prevent future development in flood prone areas, and, where cost-effective and feasible, elevate residential homes that sustain recurring deep, low-velocity flooding.

Yes	Long-term	Updated	Non-structural mitigation efforts are ongoing in flood prone areas. Eleven at-risk homes were elevated in the Snoqualmie basin during the reporting period; another 13 home elevations are underway. Elevating homes eliminates flood damage to living space, resulting in a more resilient community. Acquisition of the last at-risk parcel in the San Souci neighborhood along the Tolt River completed 20 years of effort to acquire 18 parcels from willing landowners. These actions have completely eliminated flood risks to the entire neighborhood and eliminated emergency monitoring and response to the neighborhood.	Ongoing
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DNRP-WLR-8—Critical Facility Retrofit. Retrofit the Black River Pump Station by updating the fuel pumps to meet seismic requirements. Currently, the fuel supply tanks for King County flood facilities cannot withstand a moderate to major quake.

Yes	Long-term	Updated	<p>Recent improvements include:</p> <ul style="list-style-type: none"> <li>• Replacing the single-walled fuel system with double-walled tanks and lines to handle all diesel fuel in accordance with current code requirements</li> <li>• Replacing the pumphouse roof</li> <li>• Installing safety rails on the roof</li> </ul> <p>Sediment had accumulated in the pump inlet bays, hindering operation of pump screen systems. Accumulated sediment was emptied from the bays and inlet apron in 2016 to allow continued operation of the screens and pumps. This improves the certainty of flood protection the station provides too much of Renton and parts of Tukwila and Kent.</p> <p>Staff have completed update of Emergency Action Plans for 10 state registered dams in compliance with Washington Dam Safety Office. Improvements to these plans include automated notification applying King County Alert and King County Inform emergency notification platforms; upgrades to dam break analysis and Potential Inundation Area mapping; and enhanced coordination between operations and emergency planning.</p>	Ongoing
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DNRP-WLR-9—Flood Hazard Reduction Programs. Conduct activities that are vital to the mitigation of the natural hazards impacting King County, such as hazard identification, warning, information dissemination and public outreach.

Yes	Long-term	Updated	<p>Expansion of the King County Flood Warning System to include the South Fork Skykomish River. A four-phase warning system is being developed in time for the 2016–2017 flood season, following review and approval by the District. This system is expected to provide flood warnings to people who live, work or travel through the town of Skykomish and the surrounding area.</p>	Ongoing
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In October, the annual flood warning brochure was mailed to 19,222 addresses in the King County river floodplain.

Significant outreach efforts during the reporting period include preparation for flood season, outreach about multiple construction projects, as well as outreach about floodplain planning, technical studies and maps, and other public engagement efforts.

DNRP-WLR-10—Critical Facility Upgrade. Continue to update flood warning telemetry and gauging, computers, software applications, emergency power, and other response facilities.

Yes	Long-term	Updated	Updates to the King County Flood App for iOS, Android, and Windows phones were completed for release by October 2015. All King County websites were migrated to a new "mobile responsive" template which adapts to a wide range of screen sizes, from small smartphone displays to big screen desktop displays. In addition, improvements were made to the back-end systems that manage the flood data used on the websites, apps and automated phone systems.	Ongoing
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DNRP-WTD-1— Seismic Design Standards. Continue to design and build facilities to meet or exceed seismic standards, including essential equipment. Apply current seismic standards to all renovation or replacement of existing facilities and/or equipment.

Yes	Long-term	Updated	This is an ongoing process- we apply current seismic standards to all renovation and/or replacement of existing facilities or equipment.	Ongoing
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DNRP-WTD-2—Vulnerability Assessments. Conduct vulnerability assessments of WTD treatment plant facilities and conveyance system structures for flooding, earthquakes, large-scale power outages, and hazardous material spills into the conveyance system (accidental or deliberate, i.e. terrorist action). The assessments should include the following:

- Review existing earthquake vulnerability assessments and identify facilities and structures that need further assessments.
- Review existing emergency power generation capacities at treatment plants, offsite facilities and interceptors (pipelines) to identify vulnerabilities and response & restoration protocol enhancements.
- Review existing spill response procedures and protocols for hazardous materials spills (both accidental and intentional releases) that impact flows into the WTD system. Update and coordinate emergency procedures with key fire departments and the Office of Emergency Management.

Yes	Short-term	Removed	Request for Proposal issued on 7/12/2016	Ongoing
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DNRP-WTD-3—Modification of Existing Facilities. Use the data gathered by the earthquake vulnerability assessments to identify capital projects that increase the resistance of the division's structures and conveyances to damage or that allow a rapid recovery from damage. Projects may include seismic bracing of equipment and piping, removal of z-beam structures, access road reinforcement for the West Point Treatment Plant, or seismic upgrade of underwater interceptors.

No	Long-term	Updated	This task is driven by the results of the above vulnerability assessments which have yet to be conducted. See item 2 above	Ongoing
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DNRP-WTD-4—Sea Level Rise Vulnerability Assessments. Implement cost-effective measures to address, through capital improvement and asset management programs, the vulnerability of 20 facilities at risk of saltwater inflow. The facilities were identified by a WTD analysis of the wastewater system to identify facilities at risk for saltwater inflow from future sea level rise, existing and predicted high tides, and storm surges.

Yes	Long-term	Updated		Ongoing
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DNRP-WTD-5—Control System/ Cyber Security Vulnerability Assessment and Procedure Audit. Implement the Ovation project—a multi-year, multi-million-dollar upgrade of the Wastewater Treatment Division's legacy control systems. WTD is in the process of updating its control systems. Vulnerability assessments are designed into the Ovation project. When the system is operational, a security audit would be conducted to ensure that policies and procedures are in place to protect the system.

No	Long-term	Updated	This assessment will be conducted when the system is operational	Ongoing
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DNRP-WTD-6—Emergency Communications Vulnerability Assessment. Perform an assessment to determine the number of radios necessary to support operational readiness in the event of a widespread telecommunications failure. Currently all key operational facilities and offsite operation and maintenance vehicles are equipped with 800 MHz radios, constituting WTD's core emergency communications method. The analog equipment currently deployed is first generation and is being sunsetted as the system is converted to a digital format. All the division's analog radios will need to be replaced in the next 3 to 5 years. Perform a further assessment of the reliability and deployment of other communications devices: cell phones, smart phones, iPads, text messaging, and the emergency notification system (MyState/AlertSense).

No	Long-term	Updated	Ongoing
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DNRP-WTD-7—GIS Emergency Response Mapping and Real-Time Flow Data. Update the WTD/DNRP Emergency Response map with the current priority roads, bridges, earthquake liquefaction, inundation and landslide zones and gas/petroleum pipelines, under-laid with WTD facilities and conveyance lines and emergency outfalls to facilitate emergency response and continuity of operations. Make this information available through a password-protected website for select users. Explore connecting the map to real-time flow data.

Yes	Short-term	Updated	A GIS emergency mapping site is now operational on the WTD intranet that shows facilities and conveyance system. Working on moving it to an internet site so that it can be accessed 24/7 by off duty personnel.	Ongoing
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DNRP-WTD-8—Emergency Event Management System. Determine the best method for WTD to manage and share emergency response and continuity of operations activities across the division's five treatment plants and the division headquarters in the King Street Center. Determine if the Regional Information System can fulfill this function and, if not, what alternative systems are available (WebEOC, CodeRed, etc.).

No	Long-term	Updated	Tested the KC OEM SharePoint site during the CSZ exercise. Assessing the need for a separate WTD system	Ongoing
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DNRP-WTD-9—Emergency Response/ Damage Assessment/FEMA Cost Tracking. To ensure maximum FEMA reimbursement for disaster repair/mitigation, implement a system to capture and track emergency response activities and expenses from the beginning of incidents through damage assessment and restoration. Use this tracking system for all out-of-the-ordinary emergency events. Include labor, equipment, mileage, supplies, expendables, and outside contracting associated with response and repair.

No	Short-term	Updated	Ongoing
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DOT-1—Updated response plans to address terrorism preparedness, including the following:				
<ul style="list-style-type: none"> <li>• Improve existing systems to address new technologies that are available for early weapons-of-mass-destruction detection.</li> <li>• Leverage existing resources and partnerships (Securitas, King County Sheriff's Office, Seattle Police Department, Seattle Fire Department) to train and exercise together for continuity during real-world events.</li> </ul>				
Yes	Long-term	Removed		Ongoing
DOT-2—Update messaging, response plans, and procedures to address winter weather, including the following:				
<ul style="list-style-type: none"> <li>• Outreach to vulnerable and at-risk populations for transportation for individuals who need to get to life-saving medical appointments (dialysis, chemotherapy).</li> <li>• Coordination with healthcare and transportation partners to ensure access to medical care.</li> </ul>				
Yes	Long-term	Removed		Complete
DOT-3—Update and improve plans to address continuity of transportation services, provision of medical care, and infrastructure resiliency, including the following:				
<ul style="list-style-type: none"> <li>• Plans and procedures for workforce continuity and service provision.</li> <li>• Coordination with local partners on evacuation and responder routes, lifeline routes, and transportation routes.</li> <li>• Technical systems and IT infrastructure (e.g. computer programs, SCADA systems).</li> </ul>				
Yes	Long-term	Removed		Ongoing
DOT-4—Install security cameras on public buses to deter crime associated with civil unrest and terrorist acts.				
Yes	Short-term	Removed	Metro will have at or near 100% of their fleet equipped with cameras by the end of 2018.	Complete
DPER-1—Continue inspection of existing and new construction.				
Yes	Long-term	Updated	Inspection to ensure code compliance of both new and existing building and sites are conducted for all permit work.	Ongoing
DPER-2—Provide plan reviews for noted construction.				
Yes	Long-term	Updated	Inspection to ensure code compliance of both new and existing building and sites are conducted for all permit work.	Ongoing
DPER-3—Work with schools and fire service public educators to deliver public safety messages.				
Yes	Long-term	Updated	Operational (annual) fire safety inspection of schools was initiated this past year after several years of inaction.	Ongoing



FMD-1—Replace Alder Tower, Alder Wing and Youth Detention Facility with a new modern juvenile justice center meeting all seismic standards. Planning is underway for the new, voter-approved \$210 million Children and Family Justice Center. Completion of the new facility is expected in 2019.				
Yes	Long-term	Removed	New facility is now expected in 2019 rather than 2018. Complete	
FMD-2—Mitigate structural damage at King County Facilities. This initiative also involves training to determine structural damage during and after hazard events.				
Yes	Long-term	Updated	The Facilities Management Division has undertaken replacement of some fire protection systems which as a result, will reduce fire damage during hazard events.	Ongoing
FMD-3—Mitigate non-structural facility damage at King County facilities. This initiative also involves training to determine non-structural damage during and after hazard events.				
Was an action taken?	Short-term	Updated	The Facilities Management Division recently received a report about serious deficiencies at the King County Courthouse. We will be updating the response to this issue outside of the cycle of this report.	Ongoing
KCIT-1—Enterprise Server Optimization Project. Implement a standard virtual environment at the King County Data Center to set the foundation for the King County Public Cloud Services to expand infrastructure service offerings.				
Yes	Short-term	Removed	Complete	
KCIT-2—King County TV High-Definition Upgrade. Replace obsolete station infrastructure with industry standard high-definition and digital equipment, allowing for delivery of the highest level of service to the citizens of King County.				
Yes	Short-term	Removed	Complete	
KCIT-3—Countywide Telephone System Replacement. Replace obsolete telephony infrastructure and telephone systems with a modern and feature-rich communications solution.				
Yes	Short-term	Removed	Complete by end of 2010.	Ongoing
KCIT-4—Business Empowerment and User Mobility. Improve the King County wide area network to meet business requirements and provide a solid foundation for growth within a resilient and stable network.				
Yes	Short-term	Removed	Complete	
KCIT-5—Administration Building Rewire. Upgrade network cabling in King County Administration Building to meet infrastructure standards, provide a more robust network connectivity to the services provided at the facility, and take advantage of technological advancements.				

Yes	Short-term	Removed		Complete
PH-1— Inform the public on risk-reduction techniques for a communicable disease event. “Stop Germs, Stay Healthy” public education campaign increases awareness of healthy behaviors, including hand washing and “cover your cough”.				
Yes	Short-term	Removed	Public Health promotes infection control prevention every day as well as during outbreaks and flu season. Current focus is on fact sheets with pictograms for outbreaks such as hepatitis A and measles as well as guidelines for encampments and homeless service providers. Also actively using social media and blogs to promote messages.	Ongoing
PH-2—Update response plans to address emerging infectious disease outbreaks, including the following: <ul style="list-style-type: none"> <li>• The allocation of resources (antivirals, vaccine, personal protective equipment) from the strategic national stockpile.</li> <li>• Improvements to surveillance systems to address new technologies</li> <li>• Leverage existing private and public partnerships (CBO, healthcare, pharmacies) to serve as medication centers and increasing access to medications for hard-to-reach communities.</li> <li>• Risk communications and messaging, including use of social media.</li> </ul>				
Yes	Short-term	Removed	A number of response plans were updated including medical countermeasures, equity response plan, risk communication plan, and workforce mobilization plan. Tested new systems for surveillance and plans during hepatitis A and measles outbreaks, including easy to understand visual display of cases and vaccination efforts.	Completed
PH-3—Update response plans and procedures to address winter weather, extreme heat, and other climate-related events including the following: <ul style="list-style-type: none"> <li>• Outreach to vulnerable and at-risk populations for carbon monoxide poisoning prevention.</li> <li>• Transportation for individuals who need to get to life-saving medical appointments (dialysis, chemotherapy).</li> <li>• Coordination with healthcare providers and NW Healthcare Response Network to ensure access to medical care.</li> <li>• Coordination with shelter providers for first aid teams and access for people to re-charge medical equipment.</li> </ul>				
Yes	Short-term	Removed	Consolidated weather events into one extreme weather plan, updated winter weather transportation plan and added wildfire smoke protocols. Tested winter weather plans, including medical appointment protocol during 2019 snow events.	Completed

OEM-1—Inform the public on personal and community preparedness actions they can take to lessen their need for immediate response following a disaster. “Take Winter by Storm” and “What to Do to Make It Through” are two outreach campaigns designed to get the message across to the whole community. These campaigns include trainings, presentations, and tools to facilitate increased community preparedness.

Yes	Long-term	Removed	Strategy is ongoing by nature and preparedness-focused. Removed.	Ongoing
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OEM-2—Create a program to facilitate training for small businesses to increase their resilience to all hazards. Training content would include employee preparedness, business continuity, and recovery planning. Methods of training would include workshops, tools, and one-on-one help.

Yes	Short-term	Removed	Initial steps to create Business EOC and conduct pilot test were taken in June during Cascadia Rising. As a result of early coordination with Seattle and King County, 7 companies representing more than 150,000 employees participated and were able to make faster operational decisions that could protect company resources and staff in a real event. Examples include early evacuation notifications, avoiding traffic disruptions, and setting up alternate modes of communication. Continuing to work with City of Seattle, WAEMD, and FEMA on building a Regional BEOC model.	Ongoing
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OEM-3—Manage and facilitate the Resilient King County initiative, a countywide planning process for crafting a comprehensive long-term recovery strategy following an earthquake or major catastrophe. Develop the Resilient King County final report and the long-term recovery plan.

Yes	Short-term	Updated	Conducted facilitated discussion with Executive Leadership Team as part of Cascadia Rising Exercise. Will vet plan content over summer and fall 2016.	Ongoing
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OEM-4—Take advantage of technological and procedural improvements in regional alert and warning systems to provide the most effective, efficient, and cost-effective messaging to residents, businesses, and government, especially during emergencies.

Yes	Short-term	Removed	Completed launch for new Alert & Notification system in May 2016. As a result, King County not only has the ability to provide alerts to all 2.1 million residents but also, 16 new cities have signed up and have direct ability to message their residents for local events. This allows a reduction in hazard impact as people will have more time to prepare themselves and their property by receiving alerts during an emergency.	Complete
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OEM-5—Continue to update and improve the Comprehensive Emergency Management Plan (CEMP) and the Continuity of Operations Plan.				
Yes	Short-term	Removed	The CEMP has been updated in 2018/2019.	Complete
OEM-6—Integrate the hazard mitigation plan into other plans, ordinances or programs to dictate land uses within the jurisdiction.				
Yes	Short-term	Updated	Regional Hazard Mitigation Plan has been incorporated into the King County Strategic Climate Action Plan. Will also serve as a reference for recovery.	Ongoing
OEM-7—Continue to support the countywide initiatives in this plan.				
Yes	Short-term	Removed		Ongoing
OEM-8—Coordinate and actively participate in the plan maintenance strategy of this plan.				
Yes	Short-term	Updated	County is implementing additional support for grant administration and outreach to promote mitigation.	Ongoing
OEM-9—Continue to encourage community participation in incentive-based programs such as CRS, FireWise, and StormReady.				
Yes	Short-term	Removed		Ongoing

## 2020 King County Hazard Mitigation Strategies

King County identified the following strategies through meetings among county departments. These strategies were scored by each department using the prioritization criteria outlined earlier in this section. The highest priority from each department is highlighted below. From the list of top priorities for each department the highest countywide priorities were selected. These are:

- Integrate equity and social justice into planning, outreach, mitigation, response, and recovery
- Integrate hazards and vulnerability information into comprehensive planning
- Establish a resilient seismic transportation lifeline

STRATEGY	PRIORITY (SCORE)	LEAD AGENCY	KEY OUTCOMES
Reduce Flood Impacts to Unincorporated King County Road System	18	DLS - Roads	Lower road damage from repeated flooding, especially in the Snoqualmie Valley.

Increase Seismic Resilience of Bridges in Unincorporated King County	16	DLS - Roads	Seismic retrofits to King County bridges, especially those supporting the transportation seismic lifeline.
Stormwater Outfall Erosion Hazard Inventory	18	DNPR	Hazard inventory of stormwater outfalls and mapping of those areas in GIS.
Resilience in Design and Build of Critical Water Treatment and Conveyance Facilities	23	DNRP	Improvements, retrofits, and new construction of water treatment facilities that meets seismic resilience needs.
Landslide, Erosion, and Sedimentation Event Mapping	19	DNRP	Mapping of hazard areas and establishment of GIS layers.
Sea Level Rise Resilience in Wastewater Facilities	18	DNRP	Measures to move or reduce risk to wastewater facilities in areas projected to be impacted by sea-level rise.
Stormwater and Surface Water Risk Reduction	18	DNRP	Retrofits to endangered stormwater facilities. Focus on those areas at greatest risk of failure.
Control System Security and Performance	16	DNRP	Protection of wastewater system from cyber-attacks.
GIS Emergency Response Mapping and Real-Time Flow Data	15	DNRP	Real time GIS updates to critical facility information.
Emergency Communications Enhancements	12	DNRP	Improvements to, and resilience of, emergency communications tools.
Emergency Event Management System	12	DNRP	Improvements to WebEOC, including training on it.
Flood Warning Program	18	DNRP - Flood	Flood warning, including public information about warning system.
Post-Flood Recovery Efforts	19	DNRP - Flood	Resilient rebuilding following a flood disaster.

Home Elevations	18	DNRP - Flood	Elevations of homes out of base flood elevation when acquisition is not feasible.
Home Acquisitions and Relocations	19	DNRP - Flood	Prioritize acquisition as a tool of risk reduction and take advantage of post-disaster acquisition opportunities.
Protect and Restore Natural Floodplain Functions	17	DNRP - Flood	Take advantage of natural systems to reduce flood risk and restore flood risk areas to their natural state.
Flood Risk Mapping	16	DNRP - Flood	Improve and update flood risk maps, accounting for climate change.
Public Information Flood Activities	16	DNRP - Flood	Conduct outreach around flood hazard information.
Flood Insurance Promotion	16	DNRP - Flood	Promote flood insurance to all homeowners, renters, and business owners.
Enforce Higher Floodplain Management Regulations	13	DNRP - Flood	Enforce King County's higher standards to prevent the creation of new flood risk.
Manage Flood Protection Facilities	4	DNRP - Flood	Manage flood protection facilities to ensure they will not fail during a major flood or earthquake.
Seismic Evaluation of King County Courthouse and Maleng Regional Justice Center	16	FMD	Evaluate the vulnerability of major King County justice facilities and develop a strategy to address deficiencies.
Integrate ESJ into Mitigation, Response, and Recovery Activities	25	KCEM	Fully account for equity and social justice in all planning and activities to help ensure that disasters do not increase inequity.
Seismic Lifeline Route Resilience	23	KCEM	Establish transportation seismic lifelines and begin retrofitting vulnerable segments to a standard that will enable effective response



			and recovery following an earthquake.
Integrate Hazard Mitigation and Comprehensive Planning	21	KCEM	Integrate hazards and vulnerability information into comprehensive planning policies, mapping, and related activities to prevent the creation of new risk through development in high hazard areas.
Engage Community Organizations in Emergency Management	20	KCEM	Leverage existing community capabilities and engage with communities to promote emergency preparedness and catalogue potential needs.
Climate Integration Training	18	KCEM	Train local jurisdictions on how to integrate climate change information into planning, projects, and emergency management.
Disaster Skills Risk Reduction Training	18	KCEM	Train communities on what to do in a disaster and how to protect themselves and their families.
Dam Failure Risk and Impact Reduction	16	KCEM	Identify and remove or rehabilitate high hazard dams and conduct outreach on dam safety for good condition dams that will not be removed.
Wildfire Preparedness and Risk Reduction	15	KCEM	Convene partners engaged in wildfire planning activities to coordinate community outreach and reactions to new mapping and potential building codes.
Hazard Mitigation Assistance Grant Support	15	KCEM	Support local jurisdictions who have little experience in developing applications for FEMA HMA.
Public Assistance Grant Support	15	KCEM	Support local jurisdictions and county agencies with PA following a disaster declaration and expand the use of PA Mitigation funds.
Language Accessible Video Emergency Messaging	26	PHSKC	Develop video and other emergency messaging that is accessible to non-English speakers

			and those who are blind or hearing impaired.
King County Facilities Indoor Air Quality Monitoring Network	16	PHSKC	Monitor and mitigate air quality in King County facilities.
Medical Gas Seismic Detection & Emergency Shut Off	10	PHSKC	Install automatic gas detection and shutoff systems for hospitals and medical centers.

## Reduce Flood Impacts to the Unincorporated King County Road System

<b>Lead</b> Jennifer Knauer, King County Department of Local Services, Road Services Division	<b>Partners</b> King County Flood Control District Cities	<b>Hazards Mitigated / Goals Addressed</b> Flood Goal 4, 6	<b>Funding Sources and Estimated Costs</b> \$500,000 (Snoqualmie Valley study) Additional design, construction costs TBD
<b>Vision</b> Reduce the impacts of major river flooding to the unincorporated King County Road system within the Snoqualmie Valley and other major river valleys			
<b>Description</b>  The Snoqualmie Valley is located approximately 8-10 miles east of Seattle, Washington and chronic localized and larger-scale flooding regularly impacts and closes roads within the floodplain. During major flood events, King County has identified that countywide, eleven roads are frequently closed, of which ten are located in the Snoqualmie River Basin.  During major flood events, cross-Snoqualmie Valley routes are not passable and approximately 15,000+ residents are cut off from emergency services and accessing other critical destinations during a flood event. When cross-valley road closures occur, they impact over 25,000 drivers per day. There is a need for a permanent flood tolerant cross-valley route, in part due to growth in eastern King County cities and increasing traffic volumes on unincorporated King County roads. In addition to selecting, designing and constructing one cross-valley flood tolerant route, there is a vital need for improved resiliency across other unincorporated King County roads in flood prone portions of the Snoqualmie Valley, as well as other unincorporated King County floodplain locations. A joint study is proposed to be completed by the King County Road Services Division and the King County Flood Control District. The purpose of the study is to evaluate a subset of primary cross-valley routes for the purpose of identifying a cost-effective option that can be built to withstand major flood events and provide east-west access across the valley during major flood events. Improving the flood resiliency of existing county roads, as well as designing and constructing a flood tolerant cross-Snoqualmie Valley route will be complex and costly. King County Road Services Division continues to struggle to meet its preservation service goals for unincorporated King County roads and bridges, due to current and future forecast financial constraints. The activities identified through this strategy are unfunded needs and a funding strategy will need to be prepared and successfully implemented.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>• Fund cross-valley study</li><li>• Scope cross-valley study</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>• Complete cross-valley study</li><li>• Complete planning level cost estimates for study</li><li>• Pursue grant opportunities</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>• Obtain grant funds to design and build a flood tolerant cross-valley route</li><li>• Construct the route</li></ul>	
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>• Fund study to evaluate options to assess which major roadway across the Snoqualmie River Valley may be improved to withstand chronic river flooding.</li><li>• Initiate and complete the study</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>• Study completion</li><li>• Route selected, as informed by the study</li></ul>			

## Increase Seismic Resilience of Bridges in Unincorporated King County

<b>Lead</b> Jennifer Knauer, King County Department of Local Services, Roads Division	<b>Partners</b> Cities KC EM WSDOT PHSKC	<b>Hazards Mitigated / Goals Addressed</b> Earthquake Goal 4, 6	<b>Funding Sources and Estimated Costs</b> \$500,000 (study costs) TBD design and construction costs FEMA BRIC Grants
<b>Vision</b> Improved seismic stability for unincorporated King County lifeline route bridges			
<b>Description</b> Evaluate the seismic stability of unincorporated King County lifeline route bridges and complete seismic retrofits as informed by the results of the study. Seismic improvements to unincorporated King County lifeline route bridges were completed from 1995 through 2008, to retrofit these bridges to level 2 standards, the standard adopted by the King County Council that reflected the contemporary standards of that time. Subsequent to completion of these retrofits, seismic evaluation standards have changed. This strategy involves evaluating all unincorporated King County lifeline bridge routes to a retrofit level 3 (highest level), which reflects the current evaluation standard. Bridges retrofitted to a seismic level 3 would likely withstand a seismic event and still be in serviceable status. Outcomes from this strategy includes a prioritized list of lifeline bridge seismic retrofit needs and total program cost estimates. This strategy also involves securing the funding and completing the seismic retrofits identified within the prioritized needs list. King County Road Services Division continues to struggle to meet its preservation service goals for unincorporated King County roads and bridges due to current and future forecast funding constraints. The activities identified through this strategy are unfunded needs and a funding strategy will need to be prepared and successfully implemented.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Fund UKC bridge seismic assessment study</li><li>Complete seismic assessment study</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Secure capital funds</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Complete seismic upgrades to UKC lifeline route bridges</li></ul>	
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>Secure funds for the study</li><li>Complete the study and produce prioritized list of lifeline route bridge seismic retrofit needs and costs</li><li>Prepare funding strategy</li><li>Secure capital funds in support of seismic retrofits</li><li>Complete seismic retrofits</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>Study completed</li><li>Funding strategy prepared and successfully implemented</li><li>Bridge seismic retrofits completed</li></ul>			

## Stormwater Outfall Erosion Hazard Inventory

Lead DNRP Water and Land Resources Division	Partners N/A	Hazards Mitigated / Goals Addressed Goal 6 Goal 12	Funding Sources and Estimated Costs SWM Fee; FCD Grant; FEMA Hazard Mitigation
<p><b>Vision</b></p> <p>To minimize risk to public safety, properties, and water quality/aquatic health associated with landslides, severe erosion, and sediment deposition caused or threatened by discharges from stormwater system outfalls, both public and private. There are hundreds of stormwater system outfalls throughout unincorporated King County that discharge onto slopes or into ravines that are prone to landslides or severe erosion, or where sediment deposition is a hazard downstream. Many of these are known from past events but are not inventoried in any organized way. Many others are not known without an inventory effort to identify them.</p>			
<p><b>Description</b></p> <ol style="list-style-type: none"> <li>1. Establish a GIS mapping layer/database to inventory locations where the discharges from stormwater system outfalls have caused or pose a risk of causing landslides, severe erosion, and/or sediment deposition impacts downstream. Include in the inventory a description of the landslide and erosion processes at play if known or determined through geotechnical evaluation. Include potential causal agents such as slope, soil composition, drainage area, and discharge rates. Include descriptions of observed or potential impacts to structures, facilities, roads, driveways, water quality, and fish habitat. Include a description of the potential mitigation improvement (e.g., tightline, channel stabilization, settling facility, etc.) and its approximate cost.</li> <li>2. Populate the GIS database with known incidents of erosive problems downstream of outfalls. If additional information is needed on an incident, conduct a field investigation to collect it. In addition to known incidents, review existing stormwater system maps, landslide hazard area maps, erosion hazard area maps, and steep slope hazard area maps to identify outfalls that are potentially at risk of causing erosive problems downstream. Conduct field investigations of these outfalls and their drainage path downstream to determine the nature of any hazards that might exist. If hazards do exist, inventory the location and record the information mentioned above in the GIS database.</li> <li>3. Use the GIS inventory information to identify and prioritize hazard mitigation projects for feasibility analysis to determine an updated cost and other information needed for ranking against other competing projects. This information can also be used to provide technical assistance to affected property owners if funding is not readily available for a mitigation project. In addition, the information would be beneficial to setting mitigation requirements during the County's permit review of new development projects upstream of problematic outfalls.</li> </ol> <p>At this time, funding has not been appropriated for a program that would implement this mitigation strategy. WLRD Stormwater Services is currently developing a strategic plan that will consider this along with other along with other program ideas for minimizing risk and optimizing stormwater management.</p>			
<p><b>2-Year Objectives</b></p> <ul style="list-style-type: none"> <li>• Complete Stormwater Services strategic plan to determine support for this program.</li> </ul>	<p><b>5-Year Objectives</b></p> <p>If there is support for the program in the strategic plan, seek funding for its implementation.</p>	<p><b>Long-Term Objectives</b></p> <ul style="list-style-type: none"> <li>• N/A</li> </ul>	

**Implementation Plan/Actions**

- Establish GIS database as described under mitigation strategy.
- Populate GIS database with outfall locations known to be a problem based on past incidents.
- Populate database with outfall locations that could be a problem based on hazards that exist downstream either mapped or determined in the field.
- Use the GIS database to identify and prioritize mitigation projects for feasibility analysis to determine an updated cost and other information needed for ranking the project against other competing projects.
- Implement the highest priority projects as funding becomes available. Until funding becomes available, implement stop gap measures (e.g., sandbagging) if needed to minimize severity of hazard.
- Where funding is not readily available for a mitigation project, offer technical assistance to affected property owners.

**Performance Measure**

- Number of problematic outfalls inventoried
- Number of problematic outfalls fixed
- Number of property owners to which technical assistance was provided for private solutions



## Resilience in Design and Build of Critical Water Treatment and Conveyance Facilities

<b>Lead</b> DNRP Water Treatment Division	<b>Partners</b> Strategic Climate Action Plan	<b>Hazards Mitigated / Goals Addressed</b> Earthquake Goal 12	<b>Funding Sources and Estimated Costs</b> Capital Budget, Revenue Backed.
<b>Vision</b> WTD Treatment Plant Facilities and Conveyance system structures are protected against identified potential vulnerabilities, including but not limited to flooding, earthquakes, large-scale power outages and hazardous materials spills into the conveyance system (whether those spills are accidental or deliberate, e.g. terrorist action).			
<b>Description</b> Design, build, and retrofit facilities to meet or exceed seismic standards, including essential equipment. Apply current seismic standards to all renovation or replacement of existing facilities and/or equipment. In April 2018 the division completed a Resiliency and Vulnerability Review of its entire conveyance system to identify critical structures and facilities. The project which was conducted by an engineering consultant conducted initial structural earthquake assessments of the key facilities. The report included recommendations for mitigation projects in order of priority. Work is underway on multiple projects.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>• Vulnerability assessment review.</li><li>• Emergency power systems review.</li><li>• Complete retrofit of 3 facilities identified as most critical/vulnerable.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>• Implement changes identified in the reviews conducted in the 2-year window.</li><li>• Update to spill response procedures is completed.</li><li>• Complete retrofit of 6 additional facilities in order of priority/vulnerability.</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>• Facilities that are resilient and able to withstand damage from earthquakes or other hazards</li></ul>	
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>• Review existing earthquake vulnerability assessments and identify facilities and structures that need further assessments.</li><li>• Review existing emergency power generation capacities at treatment plants, offsite facilities and interceptors (pipelines) to identify vulnerabilities and response &amp; restoration protocol enhancements.</li><li>• Review existing spill response procedures and protocols for hazardous materials spills (both accidental and intentional releases) that impact flows into the WTD system. Update and coordinate emergency procedures with key fire departments and the Office of Emergency Management.</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>• % of buildings, pipelines and equipment that are built to seismic resilience standards.</li><li>• % of identified vulnerabilities and plan priorities addressed with improvements and resolutions.</li><li>• % of retrofit projects planned that are completed.</li></ul>			

## Landslide, Erosion, and Sedimentation Event Mapping

<b>Lead</b> DNRP Water and Land Resources Division	<b>Partners</b> Cooperating agencies	<b>Hazards Mitigated / Goals Addressed</b> Goal 4 Goal 6 Goal 12	<b>Funding Sources and Estimated Costs</b> SWM Fee; FCD Grant; FEMA Hazard Mitigation
<b>Vision</b> Develop a GIS mapping layer to establish a record of observed landslide, erosion, and sedimentation events. Include in the record a description of landslide and erosion processes if available from geotechnical evaluation. Identify landslide, erosion, and sedimentation events caused by stormwater discharge. Use this information to identify and prioritize corrections and mitigations to reduce events. These corrections and mitigations would be prioritized as part of the overall WLRD Stormwater Services strategic plan (currently development) to ensure the highest risk areas are addressed first. At this time, funding has not been secured for implementation of a corrective program for stormwater discharges that cause or contribute to landslides, erosion, and sedimentation events.			
<b>Description</b> Mapping of landslide, and high erosion areas and sedimentation events provides current information for development review and infrastructure planning, and utility protection measures to be implemented. Reconnaissance has identified multiple sites of stream ravine slope destabilization due to stormwater discharge from both public and private stormwater conveyance systems. Multiple measures are readily available to relocate discharge outfall, dissipate flow erosion potential, and implement flow control measures to reduce landslide risk and channel erosion. Sediment discharge and debris flow incidences cause increasing cost of sediment management and property damage and environmental impact to receiving stream habitat. This effort will also reduce inform the business risk exposure of assets that drain to locations impacted by past events. This could result in and identify proper use of different maintenance techniques, effective inspection/maintenance intervals, and the priority of improvement projects needed seek to avoid emergency repairs.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Develop mapping to include landslide prone areas, event tracking and include highly erosive process. Identify impact areas and vulnerability to stormwater discharges.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Develop program to correct stormwater discharges causing landside activation and high erosion processes. Provide assistance to private system owners to correct stormwater discharges to unstable slopes in high impact areas</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Reduce progressive degradation of streams, wetlands and lake habitats and reduced conveyance and flood protection capacity resulting from sediment deposition.</li></ul>	
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>Establish ArcGIS mapping of landslide and erosion hazard areas that identify documented incidences, type of landslide or erosion processes and impact zones.</li><li>Prioritize local systems with high impacts to community, public infrastructure, and environment.</li><li>Identify corrective actions and mitigation strategies to reduce impacts and emergency response services provided by King County.</li><li>These actions present opportunities to improve system resilience and capacity buffering from the impacts of climate change variability.</li></ul>			

**Performance Measure**

- Mapping area completed in relation to unincorporated area.
- Identification and prioritization of problematic outfalls
- Strategy to address individual sites.
- Technical assistance to citizens to implement corrective actions

## Stormwater and Surface Water Infrastructure Risk Reduction

Lead DNRP Water and Land Resources Division	Partners N/A	Hazards Mitigated / Goals Addressed Goal 6 Goal 12	Funding Sources and Estimated Costs SWM Fee; FCD Grant; FEMA Hazard Mitigation
<p><b>Vision</b></p> <p>To minimize risk to public safety, properties, and water quality/aquatic health resulting from:</p> <ol style="list-style-type: none"> <li>1) The failure of existing stormwater and surface water infrastructure due to aging. Growing numbers of stormwater and surface water infrastructure assets operated by or under the purview of the Water and Land Resources Division (WLRD) are at or approaching the end of their effective life where structural failure could cause flooding, erosion, sedimentation, and/or fish habitat damage.</li> <li>2) More frequent overflow or functional impairment of existing stormwater and surface water infrastructure due to expected increases in rainfall intensities over the next 50 years from climate change. This too could cause flooding, erosion, sedimentation, and/or habitat damage.</li> <li>3) The lack of stormwater control infrastructure for managing runoff from lands that were developed before stormwater controls were required on new developments. Over two thirds of the developed landscape in King County was built before modern stormwater controls were required on new developments. This lack of runoff quantity and quality control has been linked to degraded water quality and aquatic health in numerous streams and other water bodies throughout King County as documented by a network of monitoring stations. It may also contribute to existing flooding, erosion, sedimentation, and/or habitat damage.</li> </ol>			
<p><b>Description</b></p> <p>WLRD is planning to do the following to achieve the vision/objective stated above:</p> <ol style="list-style-type: none"> <li>1) Proactively manage existing infrastructure through inspections, maintenance, risk assessments, and repair/replacement of the highest risk infrastructure components before they fail to avoid the high cost of emergency repairs and the damages or injuries that can result from component failure. This proactive management program is already in place for WLRD-operated infrastructure assets but needs further policy development for assets managed by private parties. WLRD Stormwater Services is currently developing a strategic plan that should address this policy development need.</li> <li>2) Develop a methodology and standards for predicting and designing to future runoff quantities that will be generated by the increased rainfall intensities expected from climate change. To ensure new infrastructure is resilient, this methodology and standards will be incorporated into the County's stormwater regulations for new development and redevelopment. It will also be used by the County to assess the need for and design of future infrastructure improvements to reduce risk. Development of this methodology and standards is a priority of the County's Strategic Climate Action Plan (SCAP) and has been started but additional funding will be needed to finish it.</li> <li>3) Build new and modify existing stormwater control infrastructure to mitigate for the lack of runoff quantity and quality controls on older developed lands. Projects that do this are called "stormwater retrofits" and several pilot projects are currently underway at various locations across King County. WLRD Stormwater Services is currently developing a strategic plan and retrofit prioritization framework that will give direction to future planning and implementation of stormwater retrofits. A formal planning program to identify, prioritize, and steward future retrofits is currently unfunded.</li> </ol>			

<p><b>2-Year Objectives</b></p> <ul style="list-style-type: none"> <li>• Implement actions to reduce risk on 48 high risk facility assets and continue inspections, maintenance, and risk assessments on remaining inventory of WLRD facility assets. Complete Stormwater Services strategic plan to identify policy direction for assets managed by private parties.</li> <li>• Seek funding to develop methodology/standards</li> </ul>	<p><b>5-Year Objectives</b></p> <ul style="list-style-type: none"> <li>• Implement actions to reduce risk on 120 high risk facility assets and continue inspections, maintenance, and risk assessments on remaining inventory of facility assets.</li> <li>• Develop methodology/standards</li> </ul>	<p><b>Long-Term Objectives</b></p> <ul style="list-style-type: none"> <li>• Implement actions to reduce risk on 192 high risk facility assets by 2027 and continue inspections, maintenance, and risk assessments on remaining inventory of facility assets. Implement actions to reduce risk on any newly identified high risk facility assets.</li> <li>• Incorporate new standards into stormwater regulation.</li> </ul>
<p><b>Implementation Plan/Actions</b></p> <ul style="list-style-type: none"> <li>• Implement actions to reduce risk on high risk facility assets.</li> <li>• Seek funding to further develop a methodology and standards for predicting and designing to future runoff quantities generated by the increased rainfall intensities expected from climate change.</li> <li>• Continue progress on existing pilot projects to inform future stormwater retrofits. Complete the Stormwater Services strategic plan and retrofit prioritization framework.</li> <li>• Complete development of the methodology and standards described at left and vet with elected officials and community stakeholders (e.g., developers, NGOs, tribes, etc.)</li> <li>• Obtain funding for and begin implementing a formal planning program to identify, prioritize, and steward future retrofits.</li> <li>• Incorporate the new methodology and standards into the County's stormwater regulations for new development and redevelopment. Conduct planning efforts to identify and prioritize predicted infrastructure problems using the new methodology and standards. This can and should be merged with the planning program described below for stormwater retrofits. Implement highest priority projects to address predicted infrastructure problems.</li> <li>• Conduct planning efforts to identify, prioritize, and steward stormwater retrofits. This can and should be merged with the efforts mentioned above for addressing predicted infrastructure problems resulting from climate change. Implement highest priority retrofits.</li> </ul>		
<p><b>Performance Measure</b></p> <ul style="list-style-type: none"> <li>• High risk facility assets mitigated.</li> <li>• Climate change infrastructure problems solved</li> <li>• Acres of developed land retrofitted with stormwater controls</li> </ul>		

## Sea Level Rise Resilience in Wastewater Facilities

<b>Lead</b> DNRP WTD	<b>Partners</b> PHSKC	<b>Hazards Mitigated / Goals Addressed</b> Sea Level Rise (Flooding) Goal 4, 12	<b>Funding Sources and Estimated Costs</b> Capital Budget
<b>Vision</b> Waterfront wastewater treatment facilities and road networks that will be affected by the rise of sea level due to global warming are built and enhanced to improve system resilience to these impacts.			
<b>Description</b> Developing and implementing adaptation strategies for cost-effective measures to address, through capital improvement and asset management programs, the vulnerability of 24 major and 380 minor facilities and 52 miles of conveyance at risk of saltwater inflow and/or inundation. The facilities were identified by a recent update to the WTD analysis of the wastewater system to identify facilities at risk for saltwater inflow and inundation from future sea level rise, existing and predicted high tides, and storm surges. This update was based on recent (2018) local and probabilistic sea level rise projections developed by network of governmental and non-governmental organizations and universities. A parallel effort is necessary for roadways in unincorporated King County, especially on Vashon Island and with ferry docks that service the islands. This will be addressed through the KC Roads strategy.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Work is ongoing</li></ul>		<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Work is ongoing</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Facilities that are resilient and able to remain operational as the sea level rises</li></ul>
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>The facilities were identified by a recent update to the WTD analysis of the wastewater system to identify facilities at risk for saltwater inflow and inundation from future sea level rise, existing and predicted high tides, and storm surges.</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>% of identified projects to improve resilience to sea-level rise completed.</li></ul>			



## Stormwater and Surface Water Infrastructure Risk Reduction

Lead DNRP Water and Land Resources Division	Partners N/A	Hazards Mitigated / Goals Addressed Goal 6 Goal 12	Funding Sources and Estimated Costs SWM Fee; FCD Grant; FEMA Hazard Mitigation
<p><b>Vision</b></p> <p>To minimize risk to public safety, properties, and water quality/aquatic health resulting from:</p> <ol style="list-style-type: none"> <li>4) The failure of existing stormwater and surface water infrastructure due to aging. Growing numbers of stormwater and surface water infrastructure assets operated by or under the purview of the Water and Land Resources Division (WLRD) are at or approaching the end of their effective life where structural failure could cause flooding, erosion, sedimentation, and/or fish habitat damage.</li> <li>5) More frequent overflow or functional impairment of existing stormwater and surface water infrastructure due to expected increases in rainfall intensities over the next 50 years from climate change. This too could cause flooding, erosion, sedimentation, and/or habitat damage.</li> <li>6) The lack of stormwater control infrastructure for managing runoff from lands that were developed before stormwater controls were required on new developments. Over two thirds of the developed landscape in King County was built before modern stormwater controls were required on new developments. This lack of runoff quantity and quality control has been linked to degraded water quality and aquatic health in numerous streams and other water bodies throughout King County as documented by a network of monitoring stations. It may also contribute to existing flooding, erosion, sedimentation, and/or habitat damage.</li> </ol>			
<p><b>Description</b></p> <p>WLRD is planning to do the following to achieve the vision/objective stated above:</p> <ol style="list-style-type: none"> <li>4) Proactively manage existing infrastructure through inspections, maintenance, risk assessments, and repair/replacement of the highest risk infrastructure components before they fail to avoid the high cost of emergency repairs and the damages or injuries that can result from component failure. This proactive management program is already in place for WLRD-operated infrastructure assets but needs further policy development for assets managed by private parties. WLRD Stormwater Services is currently developing a strategic plan that should address this policy development need.</li> <li>5) Develop a methodology and standards for predicting and designing to future runoff quantities that will be generated by the increased rainfall intensities expected from climate change. To ensure new infrastructure is resilient, this methodology and standards will be incorporated into the County's stormwater regulations for new development and redevelopment. It will also be used by the County to assess the need for and design of future infrastructure improvements to reduce risk. Development of this methodology and standards is a priority of the County's Strategic Climate Action Plan (SCAP) and has been started but additional funding will be needed to finish it.</li> <li>6) Build new and modify existing stormwater control infrastructure to mitigate for the lack of runoff quantity and quality controls on older developed lands. Projects that do this are called "stormwater retrofits" and several pilot projects are currently underway at various locations across King County. WLRD Stormwater Services is currently developing a strategic plan and retrofit prioritization framework that will give direction to future planning and implementation of stormwater retrofits. A formal planning program to identify, prioritize, and steward future retrofits is currently unfunded.</li> </ol>			

<p><b>2-Year Objectives</b></p> <ul style="list-style-type: none"> <li>• Implement actions to reduce risk on 48 high risk facility assets and continue inspections, maintenance, and risk assessments on remaining inventory of WLRD facility assets. Complete Stormwater Services strategic plan to identify policy direction for assets managed by private parties.</li> <li>• Seek funding to develop methodology/standards</li> </ul>	<p><b>5-Year Objectives</b></p> <ul style="list-style-type: none"> <li>• Implement actions to reduce risk on 120 high risk facility assets and continue inspections, maintenance, and risk assessments on remaining inventory of facility assets.</li> <li>• Develop methodology/standards</li> </ul>	<p><b>Long-Term Objectives</b></p> <ul style="list-style-type: none"> <li>• Implement actions to reduce risk on 192 high risk facility assets by 2027 and continue inspections, maintenance, and risk assessments on remaining inventory of facility assets. Implement actions to reduce risk on any newly identified high risk facility assets.</li> <li>• Incorporate new standards into stormwater regulation.</li> </ul>
<p><b>Implementation Plan/Actions</b></p> <ul style="list-style-type: none"> <li>• Implement actions to reduce risk on high risk facility assets.</li> <li>• Seek funding to further develop a methodology and standards for predicting and designing to future runoff quantities generated by the increased rainfall intensities expected from climate change.</li> <li>• Continue progress on existing pilot projects to inform future stormwater retrofits. Complete the Stormwater Services strategic plan and retrofit prioritization framework.</li> <li>• Complete development of the methodology and standards described at left and vet with elected officials and community stakeholders (e.g., developers, NGOs, tribes, etc.)</li> <li>• Obtain funding for and begin implementing a formal planning program to identify, prioritize, and steward future retrofits.</li> <li>• Incorporate the new methodology and standards into the County’s stormwater regulations for new development and redevelopment. Conduct planning efforts to identify and prioritize predicted infrastructure problems using the new methodology and standards. This can and should be merged with the planning program described below for stormwater retrofits. Implement highest priority projects to address predicted infrastructure problems.</li> <li>• Conduct planning efforts to identify, prioritize, and steward stormwater retrofits. This can and should be merged with the efforts mentioned above for addressing predicted infrastructure problems resulting from climate change. Implement highest priority retrofits.</li> </ul>		
<p><b>Performance Measure</b></p> <ul style="list-style-type: none"> <li>• High risk facility assets mitigated.</li> <li>• Climate change infrastructure problems solved</li> <li>• Acres of developed land retrofitted with stormwater controls</li> </ul>		

## Control System Security and Performance

<b>Lead</b> DNRP Water Treatment Division	<b>Partners</b> N/A	<b>Hazards Mitigated / Goals Addressed</b> Cyber Incident Goal 12	<b>Funding Sources and Estimated Costs</b> Capital Budget General Fund
<b>Vision</b> The operational control system for Wastewater Treatment Operations is secure from cyber-attack or system failure.			
<b>Description</b> The wastewater treatment system is operated from three control centers which monitor the facilities and conveyance system that flows to the treatment plants. The Ovation project is a multi-year, multi-million-dollar upgrade of the Wastewater Treatment Division’s legacy control systems. WTD is in the process of updating its control systems. Vulnerability assessments are designed into the Ovation project. When the system is operational, a security audit would be conducted to ensure that policies and procedures are in place to protect the system			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Project is staged to include in the 2-year timeframe upgrades to system controls in order of priority based on assessed vulnerability.</li><li>Upgraded systems will be tested in this time frame.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>All control systems are upgraded and have passed security testing.</li><li>Completion of project.</li></ul>		<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>A secure system.</li></ul>
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>This is a multi-year multi-million-dollar project that is being staged by addressing the most vulnerable systems first and working through the system.</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>% of QA/QC system security tests passed.</li></ul>			

## GIS Emergency Response Mapping and Real-Time Flow Data

<b>Lead</b> DNRP Water Treatment Division	<b>Partners</b> KCIT-Geographic Information Systems (GIS) King County Roads Services Division King County Office of Emergency Management Public Health SKC	<b>Hazards Mitigated / Goals Addressed</b> All Goal 6	<b>Funding Sources and Estimated Costs</b> Operating Budget
<b>Vision</b> Critical information conveyed in the WTD/DNRP Emergency response map is available and updated in real time.			
<b>Description</b> Update the King County facilities Emergency Response maps with the current priority roads, bridges, earthquake liquefaction, inundation and landslide zones and gas/petroleum pipelines, under-laid with King County facilities and conveyance lines and emergency outfalls to facilitate emergency response and continuity of operations. Make this information available through a password-protected website for select users. Explore connecting the map to real-time flow data.  A GIS emergency mapping site is now operational on the WTD intranet that shows facilities and conveyance system. Working on moving it to an internet site so that it can be accessed 24/7 by off duty personnel.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Fully deploy the system where it can be accessed remotely without having to log into the KC computer system.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>System is tested and use in activations.</li><li>Necessary modifications are made.</li><li>Project completion</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Emergency mapping is reliable and accessible.</li></ul>	
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>Work is ongoing and includes:</li><li>Work with KCIT to consider improvements that include integration with real-time flow data, integration with Roads Emergency updates and migration of mapping tool from intranet to password secured Internet site.</li><li>Testing to ensure access and timeliness and accuracy of information conveyed.</li><li>Use in emergency activations.</li><li>Socialize process and tools with partners such as Public Health Seattle and King County to aid in environmental health emergency response.</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>% of successful attempts to securely access the mapping tool.</li><li>Ratio of accuracy and timeliness as compared to real life in real time.</li></ul>			

## Emergency Communications Enhancements

<b>Lead</b> Allen Alston	<b>Partners</b> PSERN Project  King County Radio Services/KCIT	<b>Hazards Mitigated / Goals Addressed</b> All Goal 6	<b>Funding Sources and Estimated Costs</b> Operating Budget
<b>Vision</b> Ability to effectively communicate in large scale emergency situations where the telecommunications may be disrupted.			
<b>Description</b> The division performed an assessment to determine the number of KC 800 MHz radios necessary to support operational readiness in the event of a widespread telecommunications failure. Currently all key operational facilities and offsite operation and maintenance vehicles are equipped with 800 MHz radios, constituting WTD’s core emergency communications method. A regional replacement project is underway to replace the entire 800 MHz system. It is managed by a regional agency Puget Sound Emergency Radio Network. Inventories have been provided to PSERN. The King County Office of Emergency Management has deployed a communications tool called KCInform. It has been incorporated into the division’s operational procedures			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>• Deploy the new radios.</li><li>• Train and test the radios and other emergency communications.</li><li>• Analyze benefits and costs of FirstNet</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>• Continue training and testing of communications to ensure maximum communications reliability in emergencies.</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>• Redundant emergency communications are reliable.</li></ul>	
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>• Deploy the new radio equipment and incorporate into the day to day communications protocols.</li><li>• Regularly test radios and other emergency communications methods, including KCInform and FirstNet (if used).</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>• % of successful communications systems tests.</li></ul>			

## Emergency Event Management System

<b>Lead</b> DNRP Water Treatment Division	<b>Partners</b> King County Office of Emergency Management  King County Information Technology (KCIT)	<b>Hazards Mitigated / Goals Addressed</b> All Goal 6	<b>Funding Sources and Estimated Costs</b> Operating Budget
<b>Vision</b> WTD manages and shares emergency response and continuity of operations activities across the division’s five treatment plants and the division headquarters in the King Street Center using WEBEOC and other systems as necessary.			
<b>Description</b> Assess WEBEOC’s ability to manage information and communication within the division and with its 34 component agencies, and especially the discrete tracking of multiple incidents. Continue working with the WEBEOC team, KCIT and others as necessary to explore alternative or additional solutions if WEBEOC can’t meet all requirements.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>• Test current system for a variety of scenarios.</li><li>• Identify and work through questions and gaps identified.</li><li>• Consider alternatives where WEBEOC doesn’t fulfill requirements.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>• Deploy an operational system or systems.</li><li>• Document, train to and test the system(s).</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>• There is a single system or integrated systems (whether manual or not) sufficient to manage emergency events.</li></ul>	
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>• Test use of WEBEOC for a variety of scenarios with multiple contributors.</li><li>• Identify and work through questions and gaps.</li><li>• Consider alternatives where WEBEOC doesn’t fulfill requirements.</li><li>• Document progress and final systems approach.</li><li>• Communicate systems approach to users and stakeholders.</li><li>• Develop and deliver trainings on the use of the system(s).</li><li>• Test the system(s).</li><li>• Continuously improve the system(s).</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>• Post-test system performance ratings.</li><li>• Post use (activations) system performance ratings.</li></ul>			



## Flood Warning Program

<b>Lead Points of Contact</b> King County River & Floodplain Management Section, Office of Emergency Management	<b>Partner Points of Contact</b> Cities and special purpose districts, US Army Corps of Engineers, NOAA, FEMA Region 10	<b>Hazards Mitigated / Goals Addressed</b> Flood Goal 5, 6	<b>Funding Sources and Estimated Costs</b> Existing resources
<b>Strategy Vision/Objective</b> When flooding is imminent, having a robust notification system helps people who live, work, or travel through floodprone areas prepare themselves and their property for the impacts of flooding. It can also mean fewer flood losses and less damage.			
<b>Mitigation Strategy</b> The River and Floodplain Management Section operates the Flood Warning Program, which includes a Flood Warning Center that opens when river systems reach specified flows or heights. The Flood Warning Center gives people that live, work, or travel through floodprone areas early notifications and the opportunity to call in and receive information about ongoing flooding issues. The Center also coordinates with local first responders, the Office of Emergency Management, the US Army Corps of Engineers, and other stakeholders to ensure the region is as ready as possible to respond to flooding problems.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Improved outreach efforts.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Annual exercises are conducted to prepare the region for flooding.</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Smooth operation of the Flood Warning Program and integration with local communities’ programs.</li></ul>	
<b>Implementation Plan/Actions</b> <b>Implementation Plan/Actions</b> <ol style="list-style-type: none"><li>Continue monitoring the status of streamgages to ensure they are collecting data accurately. Streamgages provide the underlying data that are used as the basis for Flood Alert notifications and openings of the Flood Warning Center.</li><li>Review on an annual basis the various components of the Flood Warning Program and make improvements where necessary.</li><li>Conduct an annual flood response exercise with other agencies to ensure the region is prepared for flood response and recovery actions necessary. Write up an after-action report.</li><li>Improve public outreach materials such as flood inundation maps and online interactive map applications that show the inundation areas of the four flood phases.</li></ol>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>Subscribers to the Flood Alert app.</li><li>CRS points for Activity 610.</li></ul>			

## Post-Flood Recovery Efforts

<b>Lead Points of Contact</b> DNRP Water and Land Resources Division; King County Office of Emergency Management; King County Permitting Division	<b>Partner Points of Contact</b> King County Flood Control District; FEMA Region 10; Washington Department of Ecology; Washington Division of Emergency Management	<b>Hazards Mitigated / Goals Addressed</b> Flood Goal 3, 5, 12, 14	<b>Funding Sources and Estimated Costs</b> King County Flood Control District; FEMA Hazard Mitigation Assistance Grants; Increased Cost of Compliance; FEMA Public Assistance Section 406 Mitigation
<b>Strategy Vision/Objective</b> After a major flood event, there are many opportunities to rebuild in a more resilient way. Being prepared to rapidly address them is key to realizing those opportunities. Many mitigation grants, including the FEMA Hazard Mitigation Assistance grants, can take over 5 years from obligation to a property owner having their house acquired. King County is uniquely positioned to utilize local resources to complete mitigation projects much quicker to help property owners with flood-damaged property.			
<b>Mitigation Strategy</b> While many other flood mitigation strategies referenced in the Hazard Mitigation Plan will be used to reduce future flood risk, a separate mitigation strategy for post-flood actions is necessary. Property owners are often more willing to sell and consider mitigation efforts after a flood. Additionally, conducting substantial damage determinations quickly is important for flood insurance policyholders to be able to access Increased Cost of Compliance coverage funds for rebuilding. King County needs to be prepared before a flood occurs to move mitigation efforts forward quickly. This strategy should also consider the permitting environment after a major flood and consider short-term rebuilding moratoriums, permit assistance, and substantial damage letters for Increased Cost of Compliance claims. Additionally, an update to the comprehensive plan may be needed to address long-term recovery efforts.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Communications plan prepared.</li><li>Substantial damage strategy prepared and deployable.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Substantial damage assessments have either taken place or have been practiced.</li><li>Communication plan reviewed.</li></ul>		<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Successful mitigation efforts occur after major flood events.</li></ul>
<b>Implementation Plan/Actions</b> <ol style="list-style-type: none"><li>Prepare communications plan prior to a flood event for reaching affected property owner to inform them of mitigation grant opportunities to purchase their damaged property or elevate their home.</li><li>Ready a set of funds to deploy quickly after a major flood event.</li><li>Create a deployable substantial damage inspection strategy and team, and prepare the team to rapidly conduct substantial damage determinations after a flood event or other wide-spread natural disaster.</li><li>Inspect flood protection facilities and other public infrastructure to ensure public safety is protected and to also identify opportunities for applying for FEMA Public Assistance Section 406 mitigation funding.</li></ol>			
<b>Performance Measures</b> <ul style="list-style-type: none"><li>Property owners engaged after flood event.</li><li>Employees trained on substantial damage assessments.</li></ul>			

## Home Elevations

<b>Lead Points of Contact</b> King County River & Floodplain Management Section; Permitting Division	<b>Partner Points of Contact</b> King County Flood Control District, FEMA Region 10; Washington Department of Ecology, Washington Division of Emergency Management	<b>Hazards Mitigated / Goals Addressed</b> Flood Goal 5, 6	<b>Funding Sources and Estimated Costs</b> King County Flood Control District; FEMA Hazard Mitigation Assistance grants
<b>Vision</b> Elevating floodprone homes is an important tool in making buildings safer from flooding. The buildings will be better able to withstand inundation and a family's, or occupant's belongings will be well above the expected level of the 1% annual chance flood. The result will be less risk to people, pets, and property as floodwater remains below the finished floor of elevated homes.			
<b>Description</b> Home elevations are appropriate in areas where floodwaters are slow moving and relatively shallow, offer significant warning time, and are not subject to channel migration hazards. In areas of flash floods, fast-moving floodwaters, and channel migration, the most appropriate mitigation strategy is acquisition. King County and the King County Flood Control District have a robust home elevation grant program for properties in the Snoqualmie River basin that has elevated nearly 80 homes. Elevation projects, however, are complex and require significant public investments from the County, Flood Control District, or FEMA. Typically, home elevations cost over \$200,000. Current standards require homes to be elevated to the higher of 3 feet above the 1% annual chance flood elevation and 1 foot above the 0.2% annual chance flood elevation. Most homeowners prefer to elevate on enclosed foundations like a crawlspace or full story enclosure. This technique, when done with proper flood openings, can be a safe alternative, but can lead to negative consequences such as future owners converting the lower level to finished living space, thus reducing the benefit of the home elevation. Elevating on post or piling foundation techniques lessens the likelihood of lower level conversion, although to some, results in a visually less desirable home. There is a balance that the public elevation grant program needs to weigh between producing homes that people think look nice and homes that are likely to remain safe from flooding for 50 years.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"> <li>Have code compliance strategy implemented.</li> </ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"> <li>Home elevations grants are awarded outside of the Snoqualmie Valley.</li> </ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"> <li>All homes in shallow and slow-moving floodplains are elevated at least 3 feet above the 1% annual chance flood elevation.</li> </ul>	

**Implementation Plan/Actions**

1. Continue requiring home elevations to have the lowest floor elevated to 3 feet above the 1% annual chance flood elevation or 1 foot above the 0.2% annual chance flood elevation. Continue requiring a nonconversion agreement to protect the lower enclosed levels from being converted to living space.
2. Create a strategy to address potential code compliance issues that make elevated structures more dangerous, including addressing:
  - a. Potential to convert enclosed lower level into living space.
  - b. Potential to install noncompliant utilities in lower level.
  - c. Potential to block flood openings.
  - d. Potential to rent out lower level.
3. Complete home elevations in appropriate floodprone areas outside of the Snoqualmie Valley, including in coastal floodplain areas.
4. Encourage grantees to elevate using post or piling foundation techniques rather than full story enclosures.

**Performance Measure**

- Repetitive loss properties elevated.
- Reduced flood insurance claims.
- Number of homes successfully and compliantly elevated.

## Home Acquisitions and Relocations

<b>Lead Points of Contact</b> King County River & Floodplain Management Section; Ecological Restoration and Engineering Services Section	<b>Partner Points of Contact</b> Snoqualmie Watershed Forum, Snohomish Basin Salmon Recovery Forum, WRIA 9 Watershed Ecosystem Forum, WRIA 8 Salmon Recovery Council, Puget Sound Partnership, King County Flood Control District	<b>Hazards Mitigated / Goals Addressed</b> Flood Goal 5, 6	<b>Funding Sources and Estimated Costs</b> King County Flood Control District, FEMA Hazard Mitigation Assistance grants, Salmon Recovery Board Grants, Floodplains by Design
<b>Strategy Vision/Objective</b> Acquiring floodprone properties, removing buildings, and restoring the property to a natural state is the most effective strategy to reduce flood risk in perpetuity. Fewer families living in floodprone areas and fewer businesses operating in floodprone areas so the region recovers quicker after a major flood.			
<b>Mitigation Strategy</b> Property acquisitions have been a tool that King County has employed for many decades to reduce flood risk. Acquisitions are done on a willing seller basis and result in the demolition or removal of the building from the property. Sometimes the seller moves the house to a location outside of the floodplain. Acquisitions are mostly fee simple purchases. While acquisition is the most effective tool to eliminate flood risk, many people perceive downsides, including that acquisitions mean lost tax revenue and that a checkerboard approach leaves neighborhood with missing pieces. Wherever possible, a neighborhood or area-specific strategy is the best approach. Acquisitions also offer many additional benefits including enhanced natural floodplain functions, floodwater storage, and recreation potential. Because of multiple benefits, acquisitions can be done by various agencies for different primary purposes. Some are done for ecological restoration or salmon habitat protection while others are done primarily for flood risk reduction. An area of new opportunity for flood risk reduction acquisitions is along the unincorporated coast on Vashon-Maury Island. Very few have been completed for flood risk reduction purposes, but as sea levels rise and coastal flooding worsens, King County needs to be prepared for coastal shoreline acquisitions.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Develop prioritized acquisition list.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Complete acquisitions in coastal areas.</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Acquire as many floodprone properties as possible.</li></ul>	
<b>Implementation Plan/Actions</b> <ol style="list-style-type: none"><li>Continue proactively purchasing floodprone properties for the purpose of flood risk reduction.</li><li>Accelerate coastal floodplain acquisitions.</li><li>Create and maintain a prioritized acquisition list so that properties can be purchased whenever the opportunity arises.</li><li>Consider other tools to purchase land over time or future development rights, such as a program where a property owner receives an upfront payment with an agreement that the County will fully purchase the property if it's flooded or the owner seeks to sell.\</li><li>Purchase and remove infrastructure as part of neighborhood-level acquisitions.</li></ol>			
<b>Performance Measures</b> ions per year. l hazard areas owned by private landowners with buildings. <ul style="list-style-type: none"><li>Repetitive loss properties mitigated.</li></ul>			

## Protect and Restore Natural Floodplain Functions

<b>Lead Points of Contact</b> DNRP Water and Land Resources Division	<b>Partner Points of Contact</b> Snoqualmie Watershed Forum, Snohomish Basin Salmon Recovery Forum, WRIA 9 Watershed Ecosystem Forum, WRIA 8 Salmon Recovery Council, Puget Sound Partnership, King County Flood Control District	<b>Hazards Mitigated / Goals Addressed</b> Flood Goal 3, 12	<b>Funding Sources and Estimated Costs</b> FEMA Hazard Mitigation Assistance Grants, Floodplains by Design, King County Flood Control District
<b>Vision</b> Flooding is a natural process. Rivers and coastlines evolve and change because of flooding. Encouraging the protection and restoration of natural functions of floodplains is key in creating healthy and resilient systems.			
<b>Description</b> The natural functions of floodplains include storing floodwater and lowering flood heights and velocities, all of which reduces flood risk. Natural coastlines attenuate waves distribute sediment and large wood on beaches, and allow coastal erosion, all of which reduce coastal wave energy on properties in the floodplain. King County has a robust focus on protecting and restoring natural floodplain functions, but progress still needs to be made to accelerate progress and connect restoration projects to flood risk reduction projects. Additionally, upland forested areas provide a source of natural functions that reduces fast runoff, manages sediment flow, and protects water quality. These upland areas should be considered vital parts of natural floodplain functions.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"> <li>Incorporate floodplain connectivity and aquatic habitat improvements in majority of flood risk reduction projects in the county.</li> </ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"> <li>Double the amount of spending on floodplain restoration and protection by leveraging local funding to obtain state and federal grants.</li> </ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"> <li>Every floodplain project achieves multiple benefits such as endangered species habitat, salmon rearing habitat, water quality improvements, climate resilience, agricultural resilience, and flood risk reduction.</li> </ul>	



**Implementation Plan/Actions**

1. Proactively acquire floodprone properties to utilize for future restoration projects.
2. Complete restoration projects that reconnect rivers to their floodplains, remove bank armoring, create side channels, reconnect oxbows, and encourage natural features such as beaver dams and large wood in channels for increased flood storage and fish habitat. These projects will create places for flood storage, which will reduce downstream flood heights and provide habitat for endangered species.
3. Restore coastal shorelines by removing bulkheads wherever possible, creating pocket estuary habitats, and allowing erosion to nourish beaches. Softening shorelines and creating estuaries will result in reduced wave energy and fewer negative coastal flooding impacts.
4. Incorporate beaver habitat in restoration projects to provide flood storage and keep instream water cooler.
5. Continue enforcing regulations that stop negative impacts on habitat and encourage net ecological benefit. Shoreline management, critical area, and floodplain management regulations that adhere to FEMA's Biological Opinion are among the regulations that seek to improve natural floodplain functions.

**Performance Measure**

- Acres of floodplain reconnected and/or restored.
- Large wood per mile in large rivers.
- Linear feet of bulkhead removed; and coastal shoreline restored
- Demonstrated losses avoided by increasing flood storage
- Chinook, coho, and steelhead population numbers, including annual adult spawner returns and juvenile outmigrants.

## Flood Risk Mapping

<b>Lead Points of Contact</b> DNRP Water & Land Resources Division; DLS Permitting Division	<b>Partner Points of Contact</b> FEMA Region X, Washington Department of Ecology, US Army Corps of Engineers	<b>Hazards Mitigated / Goals Addressed</b> Flood, Dam Failure Goal 3, 5, 6, 12, 14	<b>Funding Sources and Estimated Costs</b> FEMA Cooperating Technical Partners Program; King County Flood Control District
<b>Vision</b> Having updated flood risk data helps government agencies, property owners, and other stakeholders make better risk-informed decisions. High quality flood data also more accurately ties regulations to reducing flood risk.			
<b>Mitigation Strategy</b> While updating flood risk maps is an ongoing activity to take into account landscape and hydrology changes, there are many flood hazards that need robust data and maps: <ol style="list-style-type: none"> <li>1. Floodplain maps – update the Flood Insurance Rate Maps used for regulatory and mitigation planning purposes, including updating the South Fork Skykomish River and various streams that only have approximate Zone A flood zones with no base flood elevation information. Additionally, King County should work with incorporated urban communities to better study, understand, and map urban flood risk.</li> <li>2. Climate-influenced flood risk maps – King County and the University of Washington have been collaborating on downscaling global climate models to generate river-basin scale hydrology data based on the effects of climate change scenarios. King County can also evaluate other climate-influenced changes in hydrology such as low summer flows, less snowpack, and other effects to incorporate into maps showing climate-influenced flood risk. These data will be used to generate maps of predicted changes in flood risk that can be used for planning and regulatory purposes.</li> <li>3. Sea level rise flood risk maps – as part of the coastal flood hazard study, maps were produced showing the effect on base flood elevation of a 2-foot rise in sea level around Vashon-Maury Island. This study shows the broader effects of sea level rise on flood risk. These maps should be updated with different sea level rise scenarios and also the resulting increased flood risk landward of the edge of the 1% annual chance mapped floodplain should be considered.</li> <li>4. Channel migration zone maps – currently 8 river sections have been mapped on the South Fork Skykomish, Tolt, Cedar, South Fork Snoqualmie, Middle Fork Snoqualmie, North Fork Snoqualmie, Green, and Raging Rivers. In addition to continually updating these maps, new river sections need to be studied and mapped, including the Lower Snoqualmie. Channel migration zone maps will help property owners best understand the risk from channel avulsion and help keep more development safe.</li> <li>5. Dam failure maps – every owner of a high hazard dam with the potential in a dam failure for loss of life or structures must develop a dam inundation map as part of the Emergency Action Plan. However, many of these inundation maps are out of date and are not accessible to the public.</li> </ol> Levee failure maps – King County will, where possible, study levee failure impacts and produce maps that show areas of levee failure risk. The data and maps should be made available to the public so people who live and work behind levees have an understanding of their flood risk.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"> <li>• Complete detailed flood study on streams with approximate Zone A floodplains.</li> <li>• Complete levee breach analysis.</li> </ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"> <li>• Identify a timeline for updated Flood Insurance Rate Maps with FEMA Region 10.</li> </ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"> <li>• Flood Insurance Rate Map and other regulatory flood data</li> </ul>	

<ul style="list-style-type: none"> <li>• Create plan for integrating flood maps and downscaled climate model data.</li> <li>• Begin sea level rise scenario mapping for coastal shorelines.</li> </ul>	<ul style="list-style-type: none"> <li>• Establish plan for using climate-influenced flood risk data for planning and regulatory purposes.</li> </ul>	<p>will be updated on a regular basis.</p> <ul style="list-style-type: none"> <li>• Highest quality flood risk data that incorporates effects of climate change.</li> </ul>
<b>Implementation Plan/Actions</b> <ol style="list-style-type: none"> <li>1. Update Flood Insurance Rate Maps to utilize better flood risk data, including the South Fork Skykomish River and streams with Zone A maps. Also identify a strategy and timeline for updating other streams/rivers that need updated flood risk data.</li> <li>2. Create climate-influenced flood risk maps that can be used for planning purposes.</li> <li>3. Create sea level rise flood risk maps for various sea level rise scenarios to be used for planning and regulatory purposes.</li> <li>4. Continue updating channel migration zone maps.</li> <li>5. Release dam failure maps where appropriate and provide technical assistance to high hazard dam owners to complete updated inundation maps.</li> <li>6. Complete levee failure maps and release them to the public where appropriate.</li> </ol>		
<b>Performance Measures</b> <ul style="list-style-type: none"> <li>• Stream miles and linear feet of shoreline with updated flood risk, channel migration, and climate-influenced flood risk data.</li> <li>• Properties covered by updated flood risk, channel migration, and climate-influenced flood risk data.</li> <li>• Number of dams with updated inundation maps that are publicly available.</li> <li>• Linear feet of levees with failure analyses publicly available.</li> </ul>		

## Public Information Flood Activities

<b>Lead Points of Contact</b> King County River & Floodplain Management Section, Office of Emergency Management	<b>Partner Points of Contact</b> FEMA Region 10; Washington Department of Ecology; Washington Division of Emergency Management; King County Flood Control District	<b>Hazards Mitigated / Goals Addressed</b> Flood Goal 5, 6	<b>Funding Sources and Estimated Costs</b> Existing resources
<b>Vision</b> Flooding is a complicated hazard to understand and a responsibility of floodplain management agencies is to help people understand it well enough to prepare themselves. A more informed public means property owners who make decisions based on flood risk and fewer unexpected losses during flooding.			
<b>Description</b> Effective outreach efforts are a key piece of comprehensive floodplain management. Letters sent annually, outreach events, project-specific meetings, and providing technical assistance are all components of effective outreach. Repetition of messages and continued outreach activities are also important to ensuring that messages are delivered. Engaging as many types of communication mediums as possible will also ensure that outreach efforts are effective.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>New initiatives are implemented.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Documentation that more floodprone residents are engaged.</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>An informed public that is prepared for the effects of major flooding.</li></ul>	
<b>Implementation Plan/Actions</b> The following activities should be conducted on an annual basis as a way to make the public more aware of flood hazards and risks: <ol style="list-style-type: none"><li>Flood brochure – sent to every property owner in the floodplain.</li><li>Repetitive loss letter – sent to properties with known repeated losses.</li><li>Realtor, insurance agent, and other stakeholder outreach – workshops, meetings, or other outreach to professionals who need flood risk information.</li><li>News media outreach – coordinated effort to share stories about flood risk with the news media.</li><li>Annual event – separate or coordinated event every year that focuses on flood risk .</li></ol> The following activities are not annual occurrences, but should be maintained to help facilitate the availability of flood risk information: <ol style="list-style-type: none"><li>Videos demonstrating flood risk, flood preparedness, and property protection measures that can be taken.</li><li>Technical assistance to property owners on reducing flood risk on their property, including home elevation support and small actions to reduce localized flood risk.</li><li>Maintaining a robust website, including an interactive map, with flood preparedness, mitigation, regulation, and other flood risk information. The website will be updated at least annually and the interactive map will incorporate new data when available.</li></ol> <ul style="list-style-type: none"><li>Floodplain management permitting bulletins will be created to help permit applicants understand the regulations and their purpose.</li></ul>			
<b>Performance Measures</b> <ul style="list-style-type: none"><li>Number of stakeholder groups reached</li><li>CRS points for outreach and public information activities</li></ul>			

## Flood Insurance Promotion

Lead Points of Contact	Partner Points of Contact	Hazards Mitigated / Goals Addressed	Funding Sources and Estimated Costs
King County River & Floodplain Management Section	Floodprone cities; FEMA Region 10, insurance agents, landlords, realtors, mortgage lenders	Flood Goal 5, 12, 14	Existing sources
<b>Strategy Vision/Objective</b> Flood insurance is the most important financial protection tool for a family against flood damage. Promoting flood insurance is important to help property owners and renters be prepared for flooding and reduce their financial risk.			
<b>Mitigation Strategy</b> Since homeowners and renter's insurance policies do not cover flood damage, helping people understand that flood insurance is the best financial protection tool is an important strategy. Homeowners with a federally-backed mortgage are required to have flood insurance, so those who are required most likely have a policy. Renters and those who own their houses free and clear are far less likely to actively purchase a flood insurance policy. If their homes and apartments are flooded, they may have to drain savings to pay for the damage. Of all of the families that live in floodplains in King County, over 50% are renters, 14% own their house without a mortgage, and 35% own with a mortgage. Families living in floodplains are much more likely to be renters than those outside of the floodplain (only 40% of families outside of floodplains rent). Additionally, people of color living in the floodplain are even more likely to rent. Census data shows that 83% of African American families and 90% of Native Hawaiian or Pacific Islander families living in the floodplain are renters. So, promoting flood insurance should be primarily targeted toward renters and those who own their house outright. The strategy should also strive to incorporate concepts of equity and social justice in the approach and content of outreach.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"> <li>Outreach plan developed via stakeholder committee.</li> <li>Technical assistance contact identified.</li> </ul>	<b>2-Year Objectives</b> <ul style="list-style-type: none"> <li>Outreach plan developed via stakeholder committee.</li> <li>Technical assistance contact identified.</li> </ul>	<b>2-Year Objectives</b> <ul style="list-style-type: none"> <li>Outreach plan developed via stakeholder committee.</li> <li>Technical assistance contact identified.</li> </ul>	
<b>Implementation Plan/Actions</b> <ol style="list-style-type: none"> <li>Identify and convene stakeholder committee to help assess problem and create strategy for promoting flood insurance.</li> <li>Develop and implement outreach plan that targets renters/tenants and those who own their home with no mortgage.</li> <li>Identify a flood insurance technical assistance contact for King County residents and businesses to be able to ask questions.</li> </ol>			
<b>Performance Measures</b> <ul style="list-style-type: none"> <li>Number of flood insurance policies in force and percentage of covered buildings.</li> <li>CRS points for Activity 370.</li> </ul>			

## Enforce Higher Floodplain Management Regulations

<b>Lead Points of Contact</b> DLS Permitting Division; DNRP Water & Land Resources Division	<b>Partner Points of Contact</b> FEMA Region X, Washington Department of Ecology	<b>Hazards Mitigated / Goals Addressed</b> Flood Goal 5, 12, 14	<b>Funding Sources and Estimated Costs</b> Minimal, on-going <ul style="list-style-type: none"><li>Permit fees</li><li>Existing resources</li></ul>
<b>Vision</b> Higher floodplain management regulations play an important role in ensuring future development in floodplains is as safe from flood risk as possible. For example, requiring that new buildings have their lowest floor elevated 3 feet above the 1% annual chance flood elevation means fewer flood losses and safer buildings. While instituting a regulation prohibiting development in floodprone areas would ultimately reduce future flood risk potential, the flood portion stakeholder committee decided not to include a development prohibition mitigation action due to likely political and community opposition.			
<b>Description</b> The King County Comprehensive Plan sets out a policy that regulations should follow the concept of “no adverse impact,” such that any particular development must not cause any effect to worsen flooding on another property owner. The key higher standards that do this include a requirement that all development in the entire floodplain meet a zero-rise requirement and a compensatory storage requirement for fill and other materials. This approach reduces any potential flood risk from new development. King County also has higher regulations that protect new or substantially improved buildings, including a requirement that the lowest floor be elevated to 3 feet above the 1% annual chance flood elevation.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Demonstrate that King County is enforcing its higher standards by showing full compliance with the FEMA floodplain management audit.</li><li>Establish stakeholder committee to review potential higher standards to include in King County Code.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Submit to King County Council flood code amendments that include other higher standards.</li></ul>		<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Ensuring all potential development in floodplains meet flood-safe standards.</li></ul>
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>King County agencies will continue to fully enforce the higher regulations currently in King County Code.</li><li>King County will consider the following higher standards in future updates of the King County Code and will establish a stakeholder committee to evaluate the following:<ul style="list-style-type: none"><li>Prohibiting hazardous materials storage in the regulated flood hazard area to lessen potential health impacts from flooding.</li><li>Requiring non-conversion agreement for structures built on crawlspaces or full-story enclosures to ensure fewer structures converted to unsafe and noncompliant conditions.</li><li>Requiring building restriction agreements for properties that are removed from the floodplain via a Letter of Map Amendment to ensure freeboard standards are extended to properties surrounded by or close to the edge of the mapped floodplain.</li></ul></li></ul>			



- Establishing a cumulative or lower substantial improvement requirement to encourage more homes to be elevated.
  - Extending 1% annual chance flood requirements to the edges of the 0.2% annual chance floodplain to account for higher flooding events and the potential for increasing flood risks due to climate change.
  - Adopting standards to regulate development in areas likely to face increasing flood risks due to sea level rise to protect against future flood risk.
  - Establishing coastal high hazard area regulations that require permit applicants to demonstrate that their proposed action will not cause adverse impacts on other property owners, including the potential for wave energy reflection on to neighboring shoreline properties.
- The Floodplain Management Plan update will consider higher regulatory standards.
  - Adopt the latest version of the International Building Codes.

**Performance Measure**

- Fewer and less extensive flood damage during a major flooding event.
- More points in the FEMA Community Rating System category for higher regulatory standards.

## Manage Flood Protection Facilities

<b>Lead Points of Contact</b> DNRP Water and Land Resources Division; King County Flood Control District	<b>Partner Points of Contact</b> US Army Corps of Engineers, local governments, levee and dam owners	<b>Hazards Mitigated / Goals Addressed</b> Flood, Earthquake Goal 5, 12	<b>Funding Sources and Estimated Costs</b> King County Flood Control District; Floodplains by Design
<b>Strategy Vision/Objective</b> Flood protection facilities should be managed in a way that foremostly considers residual flood risk. Alternative management practices should also incorporate improving natural floodplain functions.			
<b>Mitigation Strategy</b> Flood protection facilities include levees and revetments that provide some degree of flood and erosion protection depending on their design and maintenance. All flood protection facilities leave residual risk behind them and above their protection level. In certain areas of King County, flood protection facilities have reduced flood damage, but they have also facilitated growth in homes, warehouses, and businesses built behind them. The expanded neighborhoods and business activities are then more at risk of a 0.2% annual chance flood event or flooding from a levee failure, and if climate change increases the severity of flooding events, then the flood risk will grow. Thus, it is important for existing flood protection facilities to be managed well to protect property owners, but also for King County to where possible reduce areas that need to be protected with expensive flood protection facilities.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Updated Floodplain Management Plan that reflects these priorities.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Flood protection facilities are managed in way that considers multiple benefits.</li><li>Fewer people face residual flood risk from being behind a flood protection facility.</li></ul>		<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Flood protection facilities are minimally needed for communities to be resilient.</li></ul>
<b>Implementation Plan/Actions</b> The following are strategies supported by the King County Flood Hazard Management Plan that should continue: <ol style="list-style-type: none"><li>Where possible, King County should remove flood protection facilities and allow rivers to reconnect to their floodplains.</li><li>If flood protection facilities cannot be removed, King County should consider setting the facilities back to allow floodplain storage.</li><li>Utilize bioengineering in repairs, enhancements, or temporary measures. Bioengineering incorporates live plants and large wood in an effort to reduce flood velocities while protecting aspects of flood protection facilities.</li><li>Create criteria for when these flood protection facility alternatives would be utilized.</li><li>Create criteria based on King County Code and the Flood Hazard Management Plan for the conditions to construct a new flood protection facility or a new dam.</li><li>Ensure levees and dams are designed for earthquakes and are inspected immediately one. Flood protection facilities should also be continually managed considering seismic risks.</li></ol>			
<b>Performance Measures</b> <ul style="list-style-type: none"><li>Number of properties and buildings in the levee-protected areas.</li><li>Linear feet of flood protection facilities set back or removed.</li><li>Flood protection facilities damaged by earthquakes.</li></ul>			

## Seismic Evaluation of King County Courthouse and Maleng Regional Justice Center

<b>Lead</b> Aaron Bert, Deputy Director Jim Burt, Capital Projects Section Manager	<b>Partners</b> N/A	<b>Hazards Mitigated / Goals Addressed</b> Goal 6 Goal 9	<b>Funding Sources and Estimated Costs</b> FEMA PDM, KC Capital Budget, \$200,000
<b>Vision</b> Seismic evaluation of the King County Courthouse and Maleng Regional Justice Center, per the current standards of FEMA-178 and ASCE 41-13, Seismic Evaluation and Retrofit of Existing Buildings. An updated assessment of building risks is needed for further seismic hazard mitigation planning and seismic retrofit, to protect and mitigate against potential loss of life, loss of asset, and loss of essential function capabilities during and immediately after an earthquake event.			
<b>Description</b> King County last completed a seismic hazard assessment of its essential facilities in 1993, based on building codes and seismic hazard protection data available at that time. Since then, earthquakes have produced unexpected and major infrastructure damage and loss of life from relatively small seismic events and have contributed to new data supporting major revisions to seismic mitigation strategies and building codes.  An ASCE 41-13 seismic evaluation is the first step toward earthquake hazard mitigation. Evaluation findings will be used to plan, design, fund and construct needed seismic retrofit projects.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Seismic evaluations, per the current standards of FEMA-178 and ASCE 41-13, Seismic Evaluation and Retrofit of Existing Buildings.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Identify funding for planning, design and construction of all needed seismic retrofit measures.</li></ul>		<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Seismic retrofit to meet or exceed current standards of protection.</li></ul>
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>Pre-Application submitted to Washington Emergency Management Division for a 2020 FEMA Pre-Disaster Mitigation grant for Advance Assistance.</li><li>Draft and release RFP for complete building seismic evaluation.</li><li>Based on evaluation findings and available funding, plan and budget building retrofit work and/or apply for future FEMA Building Resilient Infrastructure &amp; Communities to fund seismic retrofit.</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>Achievement of Pre-Disaster Mitigation Advance Assistance grant, or feedback from WA EMD on strength of application, achievement of assessment in 2 years, achievement of retrofit project funding in 5 years.</li></ul>			

## Integrate ESJ into Mitigation, Response, and Recovery Activities

<b>Lead</b> Preparedness Senior Manager	<b>Partners</b> Office of Equity and Social Justice, Public Health SKC	<b>Hazards Mitigated / Goals Addressed</b> All Hazards Goal 2, 6, 10, 14	<b>Funding Sources and Estimated Costs</b> Existing Funding
<b>Vision</b> King County Emergency Management considers impacts and benefits to populations more likely to suffer damage or long recovery times during disaster mitigation, response, and recovery activities.			
<b>Description</b> Vulnerable populations, defined here as those more likely to suffer losses during disasters and recover more slowly afterward, should be a primary focus of an emergency management program. This is fully consistent with our charge of identifying and addressing the greatest sources of vulnerability. As part of this strategy, King County Emergency Management will identify vulnerable areas and develop action plans to ensure that populations more likely to suffer damage are prioritized in accordance with need. This includes prioritized mitigation projects to reduce risks, identification and prioritization of resources during response, and additional support and assistance to increase resilience and reduce recovery times after a disaster.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Develop a geospatial tool to ensure that resources are distributed equitably and according to need.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Implement prioritized mitigation strategies benefitting populations more vulnerable to hazards.</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Emergency management activities are prioritized according to a comprehensive understanding of vulnerability and need.</li></ul>	
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>Expand identification sources of population vulnerability and likely impacts to vulnerable populations from different hazards.</li><li>Use identified priority languages to expand outreach and notification capabilities.</li><li>Compile a database of infrastructure vulnerability/inequity for use in mitigation, response, and recovery planning activities by working with KC GIS.</li><li>Increase outreach in priority areas with vulnerable populations by engaging with community partners through the preparedness program. Potentially mimic Seattle’s Ambassadors program.</li><li>Include insurance information in preparedness outreach.</li><li>Build a geospatial tool to track impacts and resource delivery during disaster response activities and develop ESJ objectives for EOC operations.</li><li>Develop SOPs for use during activations that ensure staff consider population vulnerability with or without requests from communities. Consider creating an ESJ-specific position or ESJ-specific position responsibilities for work within the EOC.</li><li>Work with county agency partners to prioritize projects that reduce risk in areas with vulnerable populations (as defined in this plan), including through planning efforts such as subarea plans.</li><li>Develop an infrastructure equity map.</li><li>Develop a hazard vulnerability component map to use in comprehensive planning.</li><li>Crosswalk climate risk and population vulnerability with SCAP actions.</li></ul>			

**Performance Measure**

- # mitigation projects specifically benefitting vulnerable communities/populations
- KCEM did/did not identify potential needs in vulnerable communities, regardless of resource requests received from those communities.

## Seismic Lifeline Route Resilience

<b>Lead</b> KC EM	<b>Partners</b> DLS PHSKC FMD DNRP	<b>Hazards Mitigated / Goals Addressed</b> Earthquake / Goal 4	<b>Funding Sources and Estimated Costs</b> Capital Budget FEMA HMA General Fund
<b>Vision</b> King County is able to conduct life-safety response and recovery operations throughout the county following a catastrophic Cascadia Subduction Zone or Seattle Fault earthquake.			
<b>Description</b> Following a major earthquake, at least three-quarters of all state-managed bridges will be inoperable for at least one-three months. This threatens the ability of responders to conduct life safety operations, for life saving resources to be distributed, and for communities to begin to transition to recovery. This strategy will build on state and federal assessments of transportation vulnerability to identify regional lifeline routes for King County and prioritize vulnerable segments for mitigation investments.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Convene a multiagency committee to develop a strategy</li><li>Identify potential lifeline routes and route vulnerabilities.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Develop a prioritized list of lifeline routes and submit to the Executive and Council</li></ul>		<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Develop, maintain, and expand the resilient transportation lifeline.</li></ul>
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>KC EM will work with WSDOT, DLS, and others to review the completed RRAP for critical transportation and to identify potential seismic lifeline routes. Work with UW to verify RRAP results.</li><li>Based on identified lifeline routes, identify necessary mitigation to protect and expand those routes.</li><li>Prioritize investments based in part on population vulnerability and likelihood of self-sustaining for a longer period of time.</li><li>Continue this effort through the strategy identified by King County Roads to retrofit seismically-vulnerable bridges.</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>Lifeline routes are identified</li><li># projects completed to strengthen the seismic lifeline routes</li></ul>			



## Integrate Hazard Mitigation and Comprehensive Planning

<b>Lead</b> KC EM	<b>Partners</b> Office of the Executive DLS PSRC	<b>Hazards Mitigated / Goals Addressed</b> All / Goal 12 Goal 14	<b>Funding Sources and Estimated Costs</b> FEMA HMA Grants
<b>Vision</b> Comprehensive planning and regional initiatives like Vision 2050 account for hazard risk and the role that development patterns and climate change play in increasing hazard risk. These plans adopt policies and land use patterns designed to limit hazard risk.			
<b>Description</b> The most cost-effective mitigation measures are those that prevent the creation of risk through codes and development standards. At present, hazards are barely mentioned in most countywide/region wide planning documents. This strategy seeks to increase the integration between mitigation, response, and recovery concerns and major land-use policies and plans, including the Growth Management Act, PSRC Visions, and the Comprehensive Plan.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>• Provide comments on Vision 2050 updates.</li><li>• Provide feedback on 2020 Comp Plan policies</li></ul>		<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>• Fully participate in the next major update of the comprehensive plan, ensuring hazard risk and risk reduction is represented throughout.</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>• Integrate hazards into desired planning and development outcomes.</li></ul>
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>• Work with planning agencies to identify a list of areas where hazard information would be helpful in designing good policies.</li><li>• Socialize the concept of integrating hazard mitigation and comprehensive planning by attending regional meetings around the GMA and Comprehensive Plan as well as of City Manager and Planning Director groups.</li><li>• Look into developing a land-use tool platform similar to Colorado’s planningforhazards.com page and that identifies tools that can be used to reduce hazard risk, such as purchase of development rights.</li><li>• Add hazard mitigation policies and strategies to the King County countywide planning policies to be updated in 2020.</li><li>• Integrate concepts of social vulnerability into comprehensive planning efforts in order to promote the use of comprehensive planning to both reduce hazard risk and build equity.</li><li>• Participate in WA Commerce and FEMA-led activities on how to consider hazards in comprehensive planning.</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>• # of countywide planning policies addressing natural and manmade hazards.</li></ul>			

## Engage Community Organizations in Emergency Management

<b>Lead</b> KC EM	<b>Partners</b> Public Health SKC	<b>Hazards Mitigated / Goals Addressed</b> All / Goal 12 Goal 14	<b>Funding Sources and Estimated Costs</b> FEMA HMA Grants
<b>Vision</b> <p>Increase the participation of communities to identify local preparedness priorities and opportunities to do hazard mitigation, risk prevention, and community preparedness activities through the creation of “community resiliency networks” using a model similar to the Public Health community health networks. Use feedback from these community groups to influence response planning and prioritization, including for catastrophic response and recovery planning.</p>			
<b>Description</b> <p>Emergency planning typically underutilizes existing community capabilities and undervalues the resilience built into many communities, especially those that are marginally represented or of lower-income. Examples from around the country point out that a partnership with individuals and organizations from these communities can result in better emergency management, reduced risk, aid in more rapid recovery, and even improve day-to-day quality of life indicators. King County Emergency Management will partner with other agencies to work more closely with communities to identify opportunities to strengthen the 14 Determinants of Equity through mitigation, establish response needs, recovery priorities, and account for community capabilities that can be valuable during disasters.</p>			
<b>2-Year Objectives</b> <ul style="list-style-type: none"> <li>Bring together agencies to identify potential community partners for emergency management.</li> <li>Complete a community capability map.</li> <li>Complete an infrastructure equity map.</li> </ul>		<b>5-Year Objectives</b> <ul style="list-style-type: none"> <li>Establish community priorities for each mission area and ensure those priorities are executed through plans and actions.</li> </ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"> <li>Sustain a community equity in emergency management coalition.</li> </ul>
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"> <li>Develop tools to identify areas of inequity in emergency management, including for outreach, language support, and the quality of public infrastructure and services that may be damaged during a disaster.</li> <li>Investigate developing a community equity committee for emergency management similar to those used by King County Parks and Metro.</li> <li>Work with Public Health SKC and other agency partners to expand the Trusted Partners Network identify potential community organization partners with whom KC EM could engage to learn more about capabilities and gaps.</li> <li>Record community-identified mitigation and preparedness priorities and invest in them.</li> </ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"> <li>King County Emergency Management has prioritized/carried out # of community-identified actions.</li> </ul>			

## Climate Integration Training

<b>Lead</b> KC EM	<b>Partners</b> DNRP Local Jurisdictions	<b>Hazards Mitigated / Goals Addressed</b> All Hazards	<b>Funding Sources and Estimated Costs</b> Existing Staff Time
<b>Vision</b> All jurisdictions consider climate and climate-induced hazard impacts in their planning.			
<b>Description</b> The King County Hazard Regional Hazard Mitigation Plan provides a framework for local and regional action to reduce the impacts of natural and human-caused hazards in King County. Many of the natural hazards covered in the Plan, including flooding, wildfire, and landslides, are exacerbated by climate change. Building from work initiated in the 2019-20 Plan update, the Office of Emergency Management will host trainings with partner jurisdictions on incorporating climate change into hazard mitigation. The trainings will include information on how climate change affects natural hazards in King County; how to evaluate and adjust hazard mitigation strategies to account for climate impacts, including the potential for disproportionate impacts on frontline communities; and best practices for sharing information about climate risks with the public.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Develop training plan/curriculum</li><li>Conduct training</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Host periodic trainings and integrate climate considerations into classes or seminars on wildfires, severe weather, and planning.</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>N/A</li></ul>	
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>Work with SCAP team to develop climate planning training curriculum.</li><li>Identify and schedule opportunities to host climate trainings for King County and constituent jurisdictions.</li><li>Host trainings during mitigation plan update meetings, winter weather seminars, wildfire seminars, and other related opportunities that bring local and county staff together to discuss hazards that are impacted by climate change.</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li># trainings hosted</li></ul>			

## Disaster Skills Risk Reduction Training

<b>Lead</b> KCEM Public Outreach Program Manager	<b>Partners</b> Community Outreach Workgroup Zone Coordinators King County Libraries PHSKC	<b>Hazards Mitigated / Goals Addressed</b> All Hazards Goal 6 Goal 14	<b>Funding Sources and Estimated Costs</b> EMPG, UASI, SHSP
<b>Vision</b> King County Emergency Management delivers the county’s disaster education, and provides year-round free training and education to county employees, residents, and organizations/businesses via several programs and activities aimed at promoting personal and community risk reduction.			
<b>Description</b> Disaster Skills Risk Reduction Training will provide education on natural and man-made hazards that are present and could occur in King County and ways to mitigate and reduce impacts in addition to increase community disaster preparedness, self-sufficiency, and protection of property.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Complete one Basic Disaster Skills Trainings (General Preparedness/Risk Reduction) within each jurisdictions/unincorporated area in King County.</li><li>Train at least 1,500 residents through Basic Disaster Skills Trainings and MYN Facilitator Trainings.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Complete Advanced Disaster Skills Trainings (Fire Safety &amp; Bleeding Control) within each jurisdictions/unincorporated area in King County.</li><li>Train at least 2,500 residents in advanced skills such as fire extinguisher and bleeding control</li><li>Train at least 50 individuals to serve as instructors for their respective organization, community, department, or jurisdiction.</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Maintain consistent outreach to high-risk communities.</li><li>Maintain consistent advanced disaster skills risk reduction trainings.</li></ul>	
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>Hold two trainings a month at the King County Libraries or with local jurisdictions</li><li>Connect with the Seattle King County Public Health Ethnic-centric boards and ESJ newsletter for trusted partners to support sharing events and training opportunities.</li><li>Hold four quarterly workshops for public educators to provide continuing education for community engagement specialists and public education and outreach coordinators.</li><li>Modify outreach efforts to mirror need so that 80% of outreach goes to the 20% of the population at highest risk.</li><li>Look into partnering with public health to teach post-disaster environmental health risk reduction skills, including emergency drinking water, toxin exposure reduction, etc.</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>Using sign-in sheets, keep track of how many individuals are attending Basic and Advanced trainings</li><li>Social Media hits</li><li>Ethnic social media connections</li></ul>			

## Dam Failure Risk and Impact Reduction

<b>Lead</b> KC EM Dam Safety Program Coordinator	<b>Partners</b> DNRP, WLRD DNRP, Rivers WA Depot of Ecology, Dam Safety Office WRIA 8 WRIA 7 Salmon Recovery Funding Board Tribes Local Jurisdictions	<b>Hazards Mitigated / Goals Addressed</b> Dam Failure / Goal 5 Goal 6 Goal 12 Goal 14 Supplemental Goal 15	<b>Funding Sources and Estimated Costs</b> FEMA Rehabilitation of High Hazard Potential Dam Grant Program King County Flood Control District FMA PDM Various Salmon & Environment Recovery Grants
<b>Vision</b> Lower the risk and impacts of dam failure in King County.			
<b>Description</b> Washington State Dam Safety Office will identify high and significant hazard dams that are in poor condition. King County will gather information from other sources about low hazard dams of interest. King County will assist in seeking alternative funding structures to lower the risk of failure. Additionally, King County will seek alternative funding structures to decommission identified dams that threaten environmental resources. Lastly, resources will be sought to strengthen the integrity and security of high and significant hazard dams in the County that are not feasible to remove.			
<b>2-Year Objectives</b> Identify dams in King County that are assessed to be in poor condition by the Washington State DSO and identify funding structures to mitigate their risk. Begin dam removal projects.	<b>5-Year Objectives</b> Eliminate the risk associated with all dams in the County assessed to be in poor condition by the Washington State DSO.		<b>Long-Term Objectives</b> Decommission dams that have outlived their functional use, but still remain operational and pose a threat to the County.
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>Washington State DSO will identify poor condition dams in the County and rely them to KCEM.</li><li>KCEM will work with DNRP, local jurisdictions, and tribes to identify potential funding/mitigation strategies.</li><li>Ensure vulnerable populations are accounted for in outreach and risk assessments.</li><li>Where applicable, KCEM will assist in grant application development and administration.</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>Number of mitigation actions for high hazard and significant dams that are in poor condition dams.</li><li>Number of dams removed.</li><li>Number of dams with lowered hazard classification through mitigation actions.</li></ul>			

## Wildfire Preparedness and Risk Reduction

<b>Lead</b> KC EM, Hazard Mitigation	<b>Partners</b> DNRP, WLRD, DNRP, Parks, DLS, Permitting KC Fire Districts, WA DNR, King Conservation District, Tribes, USFS, KC Climate Preparedness Public Health Seattle-KC	<b>Hazards Mitigated / Goals Addressed</b> Wildfire / Goal 3 Goal 5 Goal 12	<b>Funding Sources and Estimated Costs</b> Existing Resources
<b>Vision</b> As King County grows, and awareness of climate change-driven wildfire risk grows, King County has a coordinated strategy to support individuals and local jurisdictions in identifying and managing wildfire risk, including risk to property and public health.			
<b>Description</b> Partner with King County communities, fire districts, and other organizations to develop an integrated King County strategy for wildfire. The strategy will review current efforts to address wildfire risk in King County and develop recommendations for addressing identified gaps and opportunities. These recommendations will be carried out through a coordinated Firewise technical assistance program, likely led by DNRP. This effort will be coordinated with a SCAP action seeking a similar outcome. This strategy will be based in part on the results of WA DNR effort to map the Wildland Urban Interface in King County.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>• Convene a multiagency committee to develop a strategy</li><li>• Request funding for outreach</li></ul>		<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>• Implement the strategy through coordinated technical assistance between the county and local communities</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>• Maintain consistent outreach to potentially-impacted communities.</li></ul>
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>• KC EM will work with DNRP, WLRD and the Climate Preparedness team to identify partners.</li><li>• Continue to partner with WA DNR and DLS to map WUI areas – ultimately use this map to target strategy priorities.</li><li>• Socialize results of WUI mapping efforts with comprehensive plan staff and look into planning policies that could limit density or development in fire-prone areas.</li><li>• Convene multiagency committee once WA DNR WUI maps are closer to being finalized</li><li>• Identify existing preparedness actions and gaps, including areas that are/are not receiving Firewise outreach and support.</li><li>• Develop wildfire preparedness and mitigation coordination strategy and socialize it.</li><li>• DNRP to request \$150k funding for an additional FTE to support Firewise efforts.</li><li>• Look into model codes, ordinances, or other strategies to promote in addition to Firewise.</li><li>• Host an annual tabletop at the wildfire workshop held each year by KCEM.</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>• KC EM was successful/not successful in convening <i>all</i> the necessary partners to establish a unified strategy for community wildfire preparedness and risk reduction.</li></ul>			



## Hazard Mitigation Assistance Grant Support

<b>Lead</b> KC EM	<b>Partners</b> WA EMD Local Jurisdictions	<b>Hazards Mitigated / Goals Addressed</b> All / Goal 10	<b>Funding Sources and Estimated Costs</b> FEMA HMA Grants
<b>Vision</b> Hazard Mitigation Assistance grants go to the communities and projects most needed and more effective at reducing risk, regardless of a community’s internal capacity to administer federal grants.			
<b>Description</b> With the passage of the Disaster Recovery Reform Act (DRRA) in 2018, the amount of federal grant funding for hazard mitigation will top \$300-700 million annually, at least a 3-fold increase over historical averages. For 2019, grants of up to \$4 million, federal cost-share, will be available. The experience-barrier to seeking these grants has prevented jurisdictions and county departments from applying. King County Emergency Management is establishing a grant assistance program to lower these barriers by providing support in administering FEMA grants.  To pay for this service, King County will leverage local management costs, provided to grant recipients.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>• Publish assistance guidelines and implement at least one test case.</li></ul>		<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>• Expand local capacity to administer grants.</li><li>• Expand KC EM capacity to support on application development</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>• Communities that need grants consistently are able to seek them, regardless of internal capacity.</li></ul>
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>• Administer FEMA grants - King County will administer grants, to include submitting reimbursements and documentation, completing quarterly reports, and managing grant kickoff and closeout.</li><li>• Provide application technical assistance - King County will, as time allows, provide support and technical assistance in developing applications. Jurisdictions will take the lead in application development. King County may provide more support in the future.</li><li>• Establish a process to collect documentation and reimburse expenditures - King County will establish a process to identify and track expenditures, and collect documentation necessary for submission to FEMA and the State. King County will work with partners to ensure this process is clear and straightforward.</li><li>• Develop an interlocal agreement process - King County will develop and establish an internal sub-award agreement process that lays out expectations for both parties in successfully administering the grants and completing mitigation projects.</li><li>• Look into other fund sources post-disaster and accelerate projects like flooded home buyouts before rebuilding occurs.</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>• # Grants administered on behalf of other agencies/communities.</li></ul>			

## Public Assistance Grant Support

<b>Lead</b> KCEM Business & Finance Officer	<b>Partners</b> King County Public Assistance Team membership	<b>Hazards Mitigated / Goals Addressed</b> All	<b>Funding Sources and Estimated Costs</b> FEMA 406 Mitigation
<b>Vision</b> Post-Disaster Recovery following a Presidentially Declared Disaster will include taking full advantage of the utilization of 406 Hazard Mitigation funding made available exclusively to eligible agencies within a qualifying jurisdiction.			
<b>Description</b> The federal Public Assistance (PA) Disaster Recovery Grant Program supports governmental and government-type agencies recovery from major disaster declared by the President. While billions of PA grants are provided and provide significant support to recovering agencies; mitigating future occurrences of similar nature supports and strengthens resiliency on a long-term basis. The recognition of this is carried out through the provision of 406 Hazard Mitigation funds which are only available to agencies to mitigate damages suffered from a Presidentially Declared Disaster. These funds are added to Project Worksheets for PA Grant funds. King County Emergency Management serves as the County’s Applicant Agent for PA and oversees the disaster financial recovery efforts for King County government agencies. This strategy seeks to increase the number of 406 Hazard Mitigation projects added to Public Worksheets to increase King County government resilience in all county agencies.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>• Provide the KC PA Team (KCPAT) education and outreach on the 406 Hazard Mitigation Grant Program.</li><li>• 50% of all impacted eligible KC government agencies will identify at least one mitigation project for each PA PWs to mitigate/ prevent/eliminate future damage directly attributable to the declared disaster.</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>• 75% of all impacted eligible KC government agencies will identify at least one mitigation project for each PA Project Worksheet to mitigate/prevent/eliminate future damage directly attributable to the declared disaster.</li></ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>• 95% of all impacted eligible KC government agencies will identify at least one mitigation project for each PA Project Worksheet to mitigate/prevent/eliminate the damage directly attributable to the declared disaster.</li></ul>	
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>• Prepare training materials on 406 Hazard Mitigation Program</li><li>• Conduct trainings for the King County Public Assistance Team</li><li>• DNRP will train operations and engineering staff in the assessment of earthquake damaged facilities. A WTD specific ATC- 20 class will be conducted in early 2020 for operations and engineering staff. Response guides and ATC-20 placards for post-earthquake inspection and FEMA cost tracking forms are being placed in all offsite facilities.</li><li>• Develop a KCPAT Disaster Recovery Financial Management Plan</li><li>• Develop KCPAT Disaster Recovery Profiles</li><li>• Represent and support each KCPAT agency during post-disaster recovery process</li></ul>			

- Work with each impacted agency during a declared disaster to identify eligible 406 HM project(s)

**Performance Measure**

- # of KCPAT members receiving training/outreach
- # of 406 Hazard Mitigation Projects funded
- % of Impacted King County government agencies receiving a 406 Hazard Mitigation Project
- Identify local cost-share opportunities, including the flood control district.

## Language Accessible Video Emergency Messaging

<b>Lead</b> Risk Communications Specialist Public Health Seattle & King County, Office of the Director	<b>Partners</b>  King County OEM	<b>Hazards Mitigated / Goals Addressed</b> All-Hazards Goal 6	<b>Funding Sources and Estimated Costs</b>  \$100,000 +
<b>Vision</b> Increase the inventory of pre-scripted and translated language accessible materials for public health emergencies to aid in the rapid dissemination of public information and warning for all-hazards. Using audio-video media, increase the reach of emergency messaging for individuals with English as a second-language and persons who use American Sign Language (ASL).			
<b>Description</b> 28.5% of King County citizens are speakers of a non-English language and in some local language communities, there is also a low rate of literacy in the spoken language. This mitigation strategy aims to develop language accessible materials in an audio-video format to assist in public information and warning for known hazards within King County. By providing emergency messaging in an audio-video format, King County will be able to provide equitable access to culturally appropriate emergency messaging for individuals who do not read (in English or in their spoken language) and individuals with language access needs (including individuals who speak American Sign Language). This mitigation strategy will aid in the rapid dissemination via web and social media of critical life-safety/risk reduction emergency messaging to all persons present in King County in the event of an emergency.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>Secure videographer</li><li>Secure and train ASL interpreter service and spokespeople from language communities</li><li>Develop language accessible emergency messaging using audio-video format</li><li>Conduct trial runs for language accessible emergency messaging</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>Implement language accessible emergency messaging for public use</li><li>Conduct public awareness campaign to socialize language accessible emergency messaging</li></ul>		<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>Reduce delays in issuing language accessible/translated emergency messaging</li></ul>
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>Identify, script, and translate/transcreate emergency messaging for key hazards</li><li>Issue request for proposals for content videographer and interpreter services (including American Sign Language)</li><li>Film and produce language accessible emergency messaging content</li><li>Engage communities in review and testing of language accessible emergency messaging</li><li>Implement language accessible emergency messaging for public use and dissemination</li><li>Conduct public awareness campaign to socialize language accessible emergency messaging</li><li>Develop a social media strategy to support the accessible video tools.</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>Time for issuance/public broadcasting of language accessible emergency messaging during emergency activation(s)</li></ul>			

## King County Facilities Indoor Air Quality Monitoring Network

<b>Lead</b> Environmental Health Emergency Response Planner Public Health – Seattle & King County	<b>Partners</b> King County Facilities Maintenance Division	<b>Hazards Mitigated / Goals Addressed</b> Wildfire Smoke Goal 2, 12	<b>Funding Sources and Estimated Costs</b> \$100,000
<b>Vision</b> Develop and implement network of indoor air quality monitoring devices in King County operated facilities to ensure the health and safety of King County employees during periods of poor air quality due to wildfire smoke inundation.			
<b>Description</b> Procure and deploy 280 Dylos DC1100 true laser particle counters (indoor air quality monitors) across 28 facilities owned and/or managed by King County to aid in continuity of operation decision making during periods of poor air quality during wildfire smoke events. Indoor air quality network would enable the county to make informed decisions regarding the health and safety of employees working in county owned/managed facilities and base facility closure decisions along established state recommended action thresholds for PM2.5 levels. The Dylos DC1100 systems are portable units that run at an estimated cost of \$260.99 per unit and have the capability of relaying recorded PM levels to a central computer for active indoor air quality monitoring via integrated system telemetry.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"> <li>• Procurement of Dylos DC1100 indoor air quality monitors</li> <li>• Deployment of Dylos DC 1100 indoor air quality monitors across 28 king county owned/managed facilities</li> <li>• Establishment of centralized computer telemetry system for active monitoring of indoor air quality network</li> <li>• Increase situational awareness regarding indoor air quality of King County facilities during wildfire smoke events</li> </ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"> <li>• Assess indoor air quality performance of King County facilities during wildfire smoke events</li> <li>• Identify mitigation strategies to further improve indoor air quality of King County facilities during wildfire smoke events</li> <li>• Improve the overall indoor air quality performance of King County facilities during wildfire smoke events</li> </ul>	<b>Long-Term Objectives</b> <ul style="list-style-type: none"> <li>• Increase situational awareness regarding indoor air quality of King County facilities during wildfire smoke events</li> <li>• Increase the overall air quality performance of King County facilities during wildfire smoke events to aid in maintaining continuity of operations during periods of poor air quality</li> </ul>	

**Implementation Plan/Actions**

- Procurement of Dylos DC1100 indoor air quality monitors
- Deployment of Dylos DC1100 indoor air quality monitors across 28 King County Facilities
- Establish centralized computer telemetry system for active monitoring of indoor air quality monitoring network
- Assess the performance of each King County facility during periods of poor air quality due to wildfire smoke
- Determine if facility closures are warranted based upon state recommended air quality action thresholds during periods of wildfire smoke inundation
- Identify subsequent indoor air quality mitigation recommendations for improving facility performance during wildfire smoke events

**Performance Measure**

- Prioritization of facilities warranting further indoor air quality mitigation actions to improve performance during periods of poor outdoor air quality
- Development of indoor air quality mitigation recommendations for prioritized facilities



## Medical Gas Seismic Detection & Emergency Shut Off

<b>Lead</b> PHSKC – Environmental Health Services Division, Community Environmental Health Section	<b>Partners</b> Harborview Medical Center	<b>Hazards Mitigated / Goals Addressed</b> Earthquake Goal 2, 12	<b>Funding Sources and Estimated Costs</b> ≤\$500,000
<b>Vision</b> Reduce the disruption to level 1 trauma centers in King County following the event of a large earthquake by retrofitting level 1 trauma centers with medical gas seismic detection and emergency shut off systems.			
<b>Description</b> Harborview Medical Center is the only level 1 trauma center within King County and the State of Washington. In the event of a large earthquake impacting the Puget Sound region, disruptions to medical gas piping and delivery systems can significantly increase the recovery time to resume operations. This strategy proposes retrofitting the medical gas piping and delivery systems with early warning seismic detection and emergency shut off valves in order to increase the capability of rapid restoration of medical services following the event of a large earthquake in order to expedite the restoration of life saving operational capacity.			
<b>2-Year Objectives</b> <ul style="list-style-type: none"><li>• Fund feasibility study</li><li>• Select consultants to complete study</li></ul>	<b>5-Year Objectives</b> <ul style="list-style-type: none"><li>• Update medical gas piping and plumbing code to require seismic detection and emergency shut off valves for Level 1 trauma centers.</li></ul>		<b>Long-Term Objectives</b> <ul style="list-style-type: none"><li>• Expedite the restoration of critical life-saving operational capacity for trauma centers with a level 1 designation.</li></ul>
<b>Implementation Plan/Actions</b> <ul style="list-style-type: none"><li>• Allocate funding to conduct a feasibility study for seismic detection and emergency shut off valve upgrades for level 1 trauma centers in King County</li><li>• Issue Request for Proposal to contract conduct of feasibility study</li><li>• Biased upon findings of feasibility study, update medical gas piping and plumbing code to require seismic detection and emergency shut off valves for medical gases for level 1 trauma centers.</li></ul>			
<b>Performance Measure</b> <ul style="list-style-type: none"><li>• Completion of a feasibility study assessing cost-benefit outcome for seismic detection and emergency shut off valve system upgrades</li><li>• Update medical gas piping and plumbing code to require seismic detection and emergency shut off valves for level 1 trauma centers.</li></ul>			

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**RESOLUTION NO. \_\_\_\_\_ (2020)**

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BOTHELL, WASHINGTON ADOPTING THE KING COUNTY REGIONAL HAZARD MITIGATION PLAN UPDATE AND CITY OF BOTHELL HAZARD MITIGATION PLAN ANNEX

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WHEREAS, all of Bothell has exposure to natural hazards that increase the risk to life, property, environment and the City's economy; and

WHEREAS, pro-active mitigation of known hazards before a disaster can reduce or eliminate long-term risk to life and property; and

WHEREAS, the Disaster Mitigation Act of 2000 (Public Law 106-390) established new requirements for pre- and post-disaster hazard mitigation programs; and

WHEREAS, a coalition of King County, Cities, Towns, and Special Purpose Districts with like planning objectives has been formed to pool resources and create consistent mitigation strategies within the King County planning area; and

WHEREAS, the coalition has completed a planning process that engages the public, assesses the risk and vulnerability to the impacts of natural hazards, develops a mitigation strategy consistent with a set of uniform goals and objectives, and creates a plan for implementing, evaluating and revising this strategy.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BOTHELL, WASHINGTON, DOES RESOLVE AS FOLLOWS:

Section 1. Adopts in its entirety, the City of Bothell's Annex to the King County Regional Hazard Mitigation Plan (KCRHMP).

Section 2. Will use the adopted and approved portions of the KCRHMP to guide pre- and post-disaster mitigation of hazards identified.

Section 3. Will coordinate the strategies identified in the KCRHMP with other planning programs and mechanisms under its jurisdictional authority.

Section 4. Will help to promote and support the mitigation successes of all RHMP planning partners.

Section 5. The City Clerk is authorized to make necessary corrections to this resolution including, but not limited to, the correction of scrivener's/clerical errors, references, resolution numbering, section/subsection numbers, and any references thereto.

PASSED this \_\_\_\_\_ day of \_\_\_\_\_, 2020.

APPROVED:

\_\_\_\_\_  
LIAM OLSEN  
MAYOR

ATTEST/AUTHENTICATED:

\_\_\_\_\_  
LAURA HATHAWAY  
CITY CLERK

FILED WITH THE CITY CLERK: \_\_\_\_\_  
PASSED BY THE CITY COUNCIL: \_\_\_\_\_  
RESOLUTION NO.: \_\_\_\_\_ (2020)



## City of Bothell™

### City Council Agenda Bill AB # 20-060

**TO:** Mayor Olsen and Members of the Bothell City Council

**FROM:** Erin Leonhart, Director of Public Works  
Khin Gyi, Senior Capital Project Engineer, Public Works

**DATE:** June 2, 2020

**SUBJECT:** Approval of Supplemental Agreement No. 6 with Jacobs Engineering for Construction Engineering for the Non-Motorized Bridge at the Park at Bothell Landing

**POLICY CONSIDERATION:** The City Council previously provided policy direction on this matter. If this item is approved, staff is implementing the direction given by the City Council.

HISTORY:	DATE ACTION	
	DATE	ACTION
	NOVEMBER 03, 2015	Professional services agreement with Jacobs Engineering Group, Inc., in the amount of \$237,689, for project design, approved by Council.
	FEBRUARY 24, 2016	Public open house presented the 30% project design.
	DECEMBER 16, 2016	Public open house presented the 90% project design.
	DECEMBER 15, 2016	Supplemental Agreement No. 1, with Jacobs Engineering, Inc., in the amount of \$30,519, for Final Design services, approved by City Manager.
	DECEMBER 12, 2017	Supplemental Agreement No. 2, with Jacobs Engineering, Inc., time extension only for Final Design services, approved by City Manager.
	NOVEMBER 27, 2018	Supplemental Agreement No. 3, with Jacobs Engineering, Inc., in the amount of \$30,547, for Final Design services, approved by Council.
	JULY 16, 2019	Supplemental Agreement No. 4, with Jacobs Engineering, Inc., in the amount of \$8,723, for Final Design services, approved by Council.
	OCTOBER 15, 2019	Council approved the Construction Contract, with Road Construction Northwest, Inc., in the amount of \$1,767,030.
	NOVEMBER 19, 2019	Supplemental Agreement No. 5, with Jacobs Engineering, Inc., in the amount of \$50,481, for Final Design services, approved by Council.

The Non-Motorized Bridge at the Park at Bothell Landing project consists of replacing the pedestrian bridge over the Sammamish River, at the Park at Bothell Landing. Inspections indicate that the existing bridge has reached the end of its useful life. The new bridge will be wider and located east of the existing bridge with a 12-foot wide deck that meets current structural and Americans with Disabilities Act (ADA) standards (Attachment 2). The bridge will allow for a fully accessible shared-use, non-motorized path for commuters, bicyclists, and pedestrians.

**DISCUSSION:** This supplemental agreement provides for construction engineering services in the amount of \$24,268 to assist the City with providing Archeological Monitoring and responding to comments received recently from the Department of Natural Resources. Staff determined these costs are fair and reasonable for the estimated scope of work.

The contract amount is accounted for within the Capital Budget for the project. The Contractor was given Notice to Proceed on December 2<sup>nd</sup>, 2019. Installation of deep shaft foundations began in January and was completed in March. The remainder of the work for bridge footings is ongoing with a continued requirement for Archaeological monitoring. Contract work was suspended for three weeks in April to implement necessary measures to the global pandemic. Construction resumed on April 27, 2020 to continue installation of bridge abutments and block walls. The wooden bridge is currently being fabricated off site and scheduled for delivery in mid-August.

**FISCAL IMPACTS:** The total project cost is estimated to be \$2,650,000 and is being funded by a \$1,175,000 grant awarded by the Puget Sound Regional Council Congestion Mitigation and Air Quality Program (PSRC-CMAQ), a \$1,080,000 grant from the Recreation and Conservation Office (RCO) \$147,000 from the Washington State Department of Commerce, and \$248,000 in King County Levy Proposition 1 and 2 funds. The \$147,000 Department of Commerce funding was not anticipated at the time of adoption of the project budget as outlined in the 2019-2025 Capital Facilities Plan. So, while the original project cost has increased by \$50,000, the Department of Commerce funding covers this increase and reduces the amount of King County Levy funds needed by \$97,000.

**ATTACHMENTS:**

Att-1.	Vicinity Map
Att-2.	Site Plan and Elevation
Att-3.	Proposed Supplemental Agreement No. 6



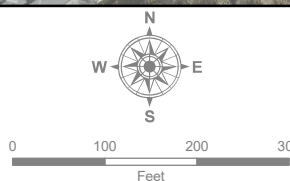
<b>RECOMMENDED ACTION:</b>	Approve Contract Supplement No. 6, in substantially the same form as presented, with Jacobs Engineering, Inc. in the amount of \$24,268 for construction engineering services for the Non-Motorized Bridge at the Park at Bothell Landing project.
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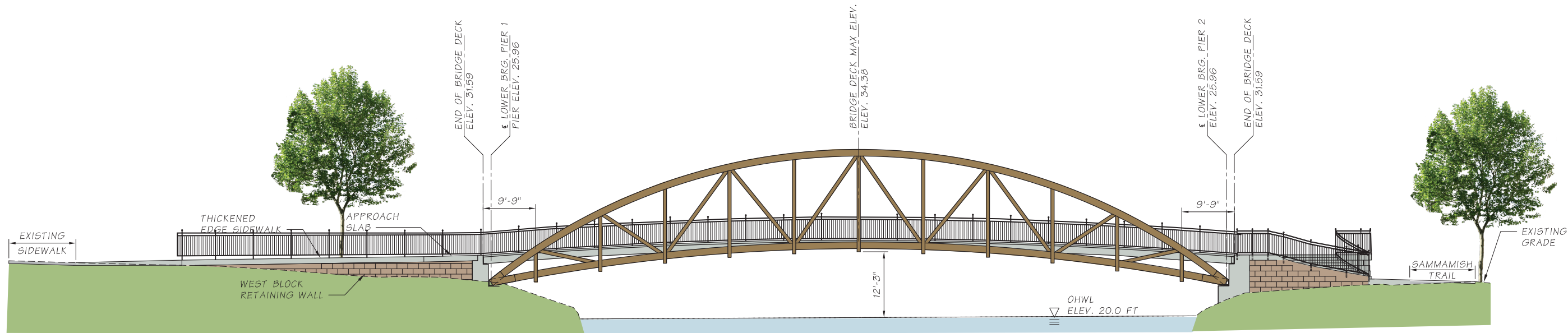
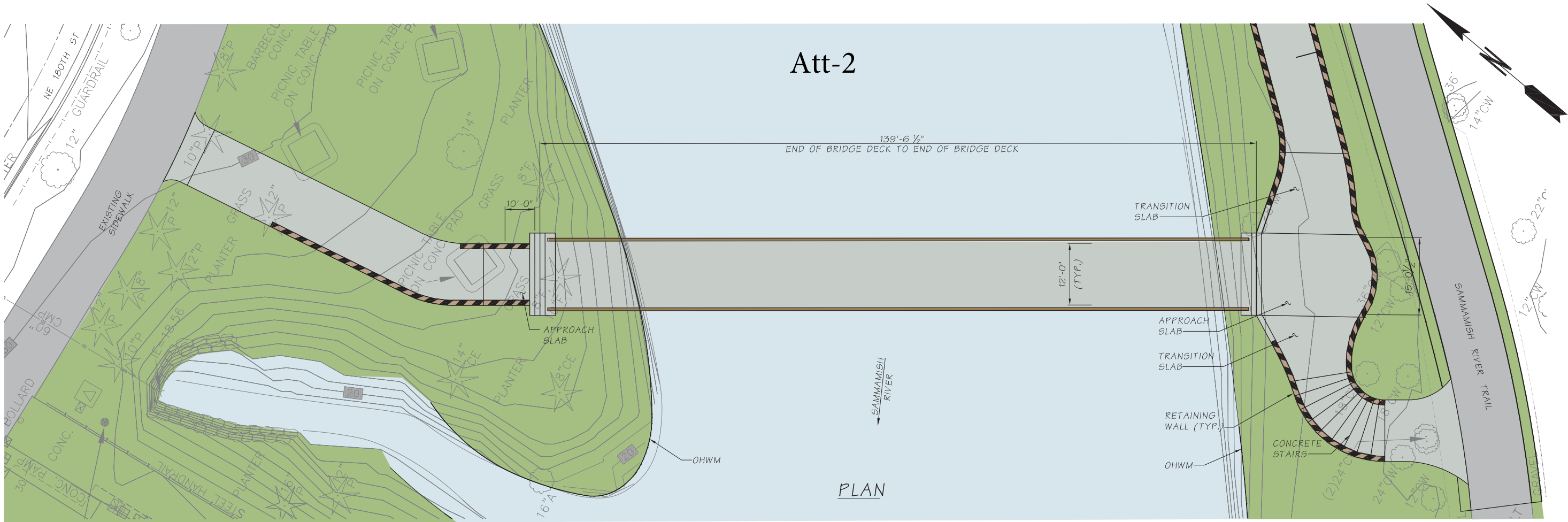
**ATTACHMENT 1**  
**Vicinity Map**  
**Non-Motorized Bridge at the**  
**Park at Bothell Landing**





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P:\W3X71800\700PROJ\709STR\HD Working\plan elevation with staircase.dwg daccim 08/11/16 - 12:07 P



DATUM: WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE OF 1983 (1991 ADJUSTMENT)

GRADE ELEV. SHOWN ARE FINISHED  
GRADE AT TOP OF BRIDGE DECK

0 5' 10' 20'  
FULLSIZE SCALE: 1"=10'-0"

90% SUBMITTAL

DESIGNED BY	H. D'ACCI			
ENTERED BY	D. ARRANTS			
CHECKED BY	K. KIM			
DATE				
REVISION		DATE	BY	

**JACOBS**  
600 108th Avenue N.E., Ste 700  
Bellevue, WA 98004



**CITY OF BOTHELL**  
**NON-MOTORIZED BRIDGE AT**  
**PARK AT BOTHELL LANDING**

June 2, 2020 Agenda Packet Page 331 of 578

52

SHEET  
7  
OF  
22  
SHEETS

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**Washington State  
Department of Transportation**

<b>Supplemental Agreement Number</b> _____		Organization and Address	
Original Agreement Number			
Project Number		Phone:	
Project Title		Execution Date	Completion Date
Description of Work		New Maximum Amount Payable	

The Local Agency of \_\_\_\_\_  
desires to supplement the agreement entered in to with \_\_\_\_\_  
and executed on \_\_\_\_\_ and identified as Agreement No. \_\_\_\_\_  
All provisions in the basic agreement remain in effect except as expressly modified by this supplement.  
The changes to the agreement are described as follows:

**I**

Section 1, SCOPE OF WORK, is hereby changed to read:

**II**

Section IV, TIME FOR BEGINNING AND COMPLETION, is amended to change the number of calendar days  
for completion of the work to read: \_\_\_\_\_

**III**

Section V, PAYMENT, shall be amended as follows:

as set forth in the attached Exhibit A, and by this reference made a part of this supplement.

If you concur with this supplement and agree to the changes as stated above, please sign in the Appropriate  
spaces below and return to this office for final action.

By: \_\_\_\_\_ By: \_\_\_\_\_

\_\_\_\_\_  
Consultant Signature

\_\_\_\_\_  
Approving Authority Signature

\_\_\_\_\_  
Date

**EXHIBIT A  
SCOPE OF WORK**

***City of Bothell***

***Pedestrian Bridge at Park at Bothell Landing Project***

**Supplement #6 – Record of Survey for DNR & Archaeological Monitoring**

**1 Project Management and Coordination**

Jacobs Engineering (Consultant) will coordinate with the City and subconsultant (1 Alliance) on providing services described in this Scope of Work including preparing the Record of Survey as requested by the Department of Natural Resources (DNR). The Consultant will also coordinate with the DNR.

**2.1 DNR Record of Survey**

This task includes the effort to revise an existing Record of Survey per comments from the Department of Natural Resources (DNR). The existing Record of Survey was recorded in King County under recording number 20180125900011. This task will also include recording the revision along with associated recording fees.

***Deliverables:***

- Conformed Copy of the Record of Survey

***Assumptions:***

- *1 Alliance will accept and hold the existing Record of Survey recorded in King County under recording number 20180125900011, as the basis of the work to be performed by 1 Alliance.*

**2.2 DNR Record of Survey for Large Woody Debris (LWD) Locations**

Per the email dated January 6, 2020, the DNR is requiring three separate legal descriptions for the three LWD locations. As such, this task includes creating three separate Records of Survey with legal descriptions for different LWD Locations along the southerly bank of the Sammamish River. Two of them southwest of the new Pedestrian Bridge and one northeast of the Bridge.

***Deliverables:***

- Conformed Copies of the 3 Records of Surveys

***Assumptions:***

- *1 Alliance will accept and hold the existing Record of Survey recorded in King County under recording number 20180125900011, as the basis of the work to be performed by 1 Alliance.*
- *Consultant will provide the control coordinates for each planned LWD location and approximate dimensions of each area. 1 Alliance will show that information on a Record of Survey and tie it to published control monuments per DNR requirements and sent examples.*

- *As the Records of Surveys are required prior to construction, 1 Alliance is not responsible for the accuracy of the final constructed LWD locations.*
- *If the Records of Surveys need revisions after construction, that is not included on the proposal and will be an additional service.*

### **2.3 LWD Signage Plans Preparation**

This task includes the effort to review and clarify DNR's LWD signage requirements and to prepare signage plans that will meet DNR's requirements for this project. Signage plans consist of Park at Bothell landing boat launch sign, markers on LWD structures, and warning signs on the nearest upstream and downstream bridges.

***Deliverables:***

- Draft and Final LWD Signage Plans

***Assumptions:***

- *One review by the CITY and one review by DNR.*
- *CITY will coordinate with King County Parks to allow sign installation on the Sammamish River Trail Bridge southwest of the project site.*

## **3 ARCHEOLOGICAL MONITORING**

### **3.1 Field Monitoring**

The CONSULTANT shall perform monitoring of drilled shaft excavation and any other ground disturbance greater than 4 feet below the existing ground surface. The archaeological monitor shall be at a vantage point to clearly observe ground disturbance; while working near Contractor's heavy equipment, and shall follow all safety requirements including heavy equipment safety training and appropriate personal protective equipment (PPE).

The CONSULTANT shall temporarily pause excavation work as needed to examine exposed sediments and/or artifacts. A pause is a brief interruption of work, which allows the CONSULTANT monitors to inspect deposits and/or artifacts in order to recommend further work stoppage or resumption of work.

If more than one monitoring area is under construction at any given time, the CONSULTANT will provide an additional archeological monitor.

***Assumptions:***

- *The CONSULTANT assumes up to 4 work days for monitoring excavation to top-of-shaft elevation, up to 4 work days for monitoring drilled shaft excavation, and up to 6 work days for monitoring retaining wall excavation.*

- *No archeological materials are identified during monitoring.*
- *We reserve the right to determine appropriate personnel for monitoring.*
- *Archeological monitor must be provided at least 48-hour notice prior to start of start of shift.*
- *The CITY will coordinate with the Stillaguamish Tribe and invite them to observe excavation.*

### **3.2 Reporting and Records**

The CONSULTANT shall prepare a memo of the archeological monitoring results.

***Assumptions:***

- *Reporting is limited to a brief memo to file; no reporting or documentation requirements to DAHP or Tribes.*

***Deliverables:***

- Archeological Monitoring Memo

City of Bothell

**Pedestrian Bridge at Park at Bothell Landing**

**Level of Efforts - Supplement No 6 - ROS for DNR & Archaeological Monitoring**

<b>Task</b>	<b>Description</b>	<b>Project Manager</b>	<b>Sr. Env. Planner</b>	<b>Sr. Hydrologist</b>	<b>Hydraulics Engr.</b>	<b>Sr. Archeologist</b>	<b>Archeologist</b>	<b>Structural Eng.</b>	<b>CAD</b>	<b>Jacobs Total Hours</b>	<b>Jacobs Cost</b>	<b>Subconsultant (1 Alliance)</b>	<b>TOTAL</b>
<b>1</b>	<b>Project Management &amp; Coordination</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>16</b>	<b>\$1,052</b>		<b>\$1,052</b>
<b>2.1</b>	<b>Revise Record of Survey</b>									<b>-</b>	<b>\$0</b>	<b>\$652</b>	<b>\$652</b>
<b>2.2</b>	<b>New Record of Survey for 3 LWD</b>									<b>-</b>	<b>\$0</b>	<b>\$1,529</b>	<b>\$1,529</b>
<b>2.3</b>	<b>LWD Signage Plans Preparation</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>12</b>	<b>35</b>	<b>\$1,834</b>		<b>\$1,834</b>
<b>3.0</b>	<b>Archeological Monitoring</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>118</b>	<b>0</b>	<b>0</b>	<b>127</b>	<b>\$4,318</b>		<b>\$4,318</b>
<b>3.1</b>	<i>Field Monitoring</i>					<i>4</i>	<i>110</i>			<i>114</i>			
<b>3.2</b>	<i>Reporting and Records</i>	<i>1</i>				<i>4</i>	<i>8</i>			<i>13</i>			
	<b>Total Hours</b>	<b>4</b>	<b>6</b>	<b>2</b>	<b>2</b>	<b>8</b>	<b>118</b>	<b>26</b>	<b>12</b>	<b>178</b>			
	<i>Billing Rates (Direct Labor)</i>	<i>\$113.21</i>	<i>\$75.38</i>	<i>\$50.50</i>	<i>\$48.53</i>	<i>\$72.22</i>	<i>\$30.74</i>	<i>\$52.40</i>	<i>\$44.45</i>				
	<b>Total Direct Labor Cost</b>	<b>\$453</b>	<b>\$452</b>	<b>\$101</b>	<b>\$97</b>	<b>\$578</b>	<b>\$3,627</b>	<b>\$1,362</b>	<b>\$533</b>		<b>\$ 7,204</b>	<b>\$ 2,181</b>	<b>\$ 9,385</b>
	<b>Overhead (109.77% of Direct Labor)</b>	<b>\$497</b>	<b>\$496</b>	<b>\$111</b>	<b>\$107</b>	<b>\$634</b>	<b>\$3,982</b>	<b>\$1,496</b>	<b>\$586</b>		<b>\$ 7,908</b>	<b>\$ 3,429</b>	<b>\$ 11,337</b>
	<b>Fee (25% of Direct Labor)</b>	<b>\$113</b>	<b>\$113</b>	<b>\$25</b>	<b>\$24</b>	<b>\$144</b>	<b>\$907</b>	<b>\$341</b>	<b>\$133</b>		<b>\$ 1,801</b>	<b>\$ 545</b>	<b>\$ 2,346</b>
	<i>Direct Expenses (mileage, production, etc.)</i>										<b>\$ 400</b>	<b>\$ 800</b>	<b>\$ 1,200</b>
	<b>TOTAL</b>										<b>\$ 17,313</b>	<b>\$ 6,955</b>	<b>\$ 24,268</b>

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## City of Bothell™

**City Council**  
**Agenda Bill**  
AB # 20-061

**TO:** Mayor Olsen and Members of the Bothell City Council

**FROM:** Paul Byrne, City Attorney (Presenter)

**DATE:** June 2, 2020

**SUBJECT:** Approve an Ordinance Regarding a Wireline and Small Wireless Facility Franchise Agreement with Crown Castle Fiber LLC, c/o Crown Castle

**POLICY CONSIDERATION:** This item asks the City Council to consider adopting an Ordinance regarding a wireline and small wireless facility Franchise Agreement with Crown Castle Fiber LLC, c/o Crown Castle. This Ordinance was originally approved by Council on March 3, 2020, however Crown Castle was not able to return a signed copy of the Franchise Agreement within the required 30 days.

**HISTORY:**

DATE	ACTION
NOVEMBER 19, 2019	Council adopted code amendments to Chapter 12.11 BMC pertaining to wireless communication facilities and small wireless facilities
FEBRUARY 18, 2020	Council discussed this matter as a new item and set it to the Consent Agenda on March 3, 2020 for approval.
MARCH 3, 2020	Council approved a franchise agreement with Crown Castle

**DISCUSSION:** ***\*\* NOTE: \*\* This item was approved by City Council on March 3, 2020. Per the terms of the franchise agreement, Crown Castle was to sign and return a copy of the franchise within 30 days, but inadvertently failed to do so. Crown Castle reached out to the City, apologized for the oversight, and is asking that Council consider approving this franchise agreement a second time.***

In Washington, a telecommunications company or utility that wishes to locate its facilities within city rights-of-way generally obtains a franchise (similar to a master permit) from that city. The franchise sets forth the terms under which those facilities are constructed, operated, relocated, and eventually removed. Both state and federal law contain restrictions on a city's franchise authority, but these restrictions vary significantly, depending on the nature of the utility being

regulated. RCW 35A.47.040, contains state delegation of franchising authority to the City.

Currently, the City of Bothell has franchises with various telecommunications service providers. Crown Castle provides infrastructure to wireless facilities and businesses, including both the wireline backhaul to connect these facilities and physical build-out of small wireless facilities. In this instance, Crown Castle is requesting a franchise to install, operate and maintain small wireless facilities and wireline telecommunications facilities in the City of Bothell's rights of way. These installations may only be installed consistent with the City's new code requirements for small wireless facilities in BMC Chapter 12.11.

This franchise does not permit Crown Castle to operate a broadcast cable system or macro wireless facilities within the rights of way of the City. Crown Castle is still required to apply for all appropriate permits prior to constructing its facilities within the rights of way and go through the applicable land use process.

**FISCAL  
IMPACTS:**

There are no fiscal impacts associated with this item.

**ATTACHMENTS:**

Att-1. Proposed Ordinance Small Wireless Facility Franchise to Crown Castle Fiber LLC, c/o Crown Castle

**RECOMMENDED  
ACTION:**

Adopt the proposed Ordinance granting a Small Wireless Facility Franchise to Crown Castle Fiber, LLC.

**ORDINANCE NO. \_\_\_\_\_ (2020)**

AN ORDINANCE OF THE CITY OF BOTHELL, WASHINGTON, GRANTING TO CROWN CASTLE FIBER LLC C/O CROWN CASTLE AND ITS AFFILIATES, SUCCESSORS, AND ASSIGNS THE RIGHT, PRIVILEGE, AUTHORITY, AND NONEXCLUSIVE FRANCHISE FOR FIVE YEARS TO CONSTRUCT, MAINTAIN, OPERATE, REPLACE, AND REPAIR A TELECOMMUNICATIONS NETWORK IN, ACROSS, OVER, ALONG, UNDER, THROUGH, AND BELOW THE PUBLIC RIGHTS-OF-WAY OF THE CITY OF BOTHELL, WASHINGTON.

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WHEREAS, Crown Castle Fiber LLC c/o Crown Castle (the "Franchisee") has requested that the City Council grant a nonexclusive franchise (this "Franchise") for purposes of operating and maintaining a telecommunications network; and

WHEREAS, the City Council has the authority to grant franchises for the use of its streets and other public properties pursuant to RCW 35A.47.040; and

WHEREAS, the Bothell Municipal Code requires persons who are seeking to operate and maintain telecommunications facilities in City rights-of-way to obtain a franchise to do so; and

WHEREAS, the City is willing to grant the rights requested by Franchisee subject to certain terms and conditions, which are acceptable to both parties.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BOTHELL, WASHINGTON, DOES ORDAIN AS FOLLOWS:

Section 1. FRANCHISE GRANTED. Crown Castle Fiber LLC c/o Crown Castle is granted a non-exclusive franchise for the transmission of wireline and wireless telecommunications in, through, over, and under the rights-of-way of the City of Bothell, in accordance with the terms and conditions of the franchise language detailed in Section 3 of this Ordinance.

Section 2. EFFECTIVE DATE. In compliance with RCW 35A.47.040, this Ordinance shall take effect five (5) days after its passage, approval, and publication of an approved summary thereof consisting of the title, all as required by law ("Effective Date").

Section 3. TERMS AND CONDITIONS OF FRANCHISE. The following provisions establish the terms and conditions of the franchise granted herein:

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This Franchise is entered into in Bothell, Washington, by and between the City of Bothell, a Washington municipal corporation (hereinafter “the City”), and Crown Castle Fiber LLC c/o Crown Castle (the “Franchisee”). The City and Franchisee are sometimes referred to hereinafter collectively as the “parties.”

## **Section 1. Franchise Granted.**

Section 1.1 Pursuant to RCW 35A.47.040, the City hereby grants to the Franchisee, its affiliates, heirs, successors, legal representatives, and assigns, subject to the terms and conditions hereinafter set forth, a Franchise for a period of five (5) years, beginning on the Effective Date of this ordinance. This franchise will automatically renew for an additional five (5) year period, unless either party provides at least ninety (90) days’ written notice of its intent not to renew.

Section 1.2 This Franchise ordinance grants Franchisee the right, privilege, and authority to construct, operate, maintain, replace, relocate, repair, upgrade, remove, excavate, acquire, restore, and use the Small Wireless Facilities, as defined in Section 2.2, for its telecommunications network, in, under, on, across, over, through, along, or below the public Rights-of-Ways located in the City of Bothell, as approved pursuant to City codes and permits issued pursuant to this Franchise. Public “Rights-of-Way” means land acquired or dedicated for public roads and streets, but does not include: WSDOT-managed state highways; land dedicated for roads, streets, and highways not opened and not improved for motor vehicle use by the public; federally-granted trust lands or forest board trust lands; lands owned or managed by the state parks and recreation commission; or federally-granted railroad rights-of-way acquired under 43 U.S.C. § 912 and related provisions of federal law that are not open for motor vehicle use. Rights-of-Way for the purpose of this Franchise do not include: buildings, other City-owned physical facilities, parks, poles, conduits, fixtures, real property or property rights owned by the City, or similar facilities or property owned by or leased to the City. Franchisee is required to obtain a lease or similar agreement for the usage of any City or third party owned poles, conduit, fixtures, or structures.

## **Section 2. Authority Limited to Occupation of Public Rights-of-Way for Services.**



Section 2.1 The authority granted herein is a limited authorization to occupy and use the Rights-of-Way throughout the City (the “Franchise Area”). The Franchisee is authorized to place its Facilities in the Rights-of-Way only consistent with this Franchise, the Bothell Zoning Code, the Comprehensive Plan, the Design and Construction Standards, and the Bothell Municipal Code (collectively, the “Codes”). Nothing contained herein shall be construed to grant or convey any right, title, or interest in the Rights-of-Way of the City to the Franchisee other than for the purpose of providing telecommunications services. The following “Services” are permitted under this Franchise: (i) high speed data and fiber optic services, internet protocol-based services, internet access services, conduit and dark fiber leasing, telephone, and data transport services conveyed using both wireline and wireless facilities and (ii) the infrastructure development to be used for Small Wireless Facilities. Services do not include the deployment of macro facilities.

Section 2.2 As used herein, “Small Wireless Facilities” means a small wireless facility as defined in 47 CFR § 1.6002. Small Wireless Facilities shall also include all necessary cables, transmitters, receivers, equipment boxes, backup power supplies, power transfer switches, electric meters, coaxial cables, wires, conduits, ducts, pedestals, antennas, electronics, and other necessary or convenient appurtenances used for the specific wireless communications facility. Equipment enclosures with equipment generating noise that exceeds the noise limits allowed in the Codes or associated permit are excluded from “Small Wireless Facilities.” Unless otherwise specifically stated in a section, “Facilities” shall encompass both Small Wireless Facilities and wireline or wireless services used to provide the Services.

Section 2.3 This Franchise does not grant the right to offer cable internet services or Cable Services as those terms are defined in 47 U.S.C. § 522(6) by wireline transmission.

Section 2.4 No right to install any facility, infrastructure, wires, lines, cables, or other equipment, on any City property other than a Right-of-Way, or upon private property without the owner’s consent, or upon any City, public, or privately-owned poles or

conduits is granted herein. Nothing contained within this Franchise shall be construed to grant or convey any right, title, or interest in the Rights-of-Way of the City to Franchisee other than for the purpose of providing the Services, or to subordinate the primary use of the Right-of-Way as a public thoroughfare. If Franchisee desires to expand the Services provided within the City, it shall request a written amendment to this Franchise. If Franchisee desires to use City-owned property, or to site new structures within the Rights-of-Way, it shall enter into a separate lease, site specific agreement, or license agreement with the City.

Section 2.5 Franchisee shall have the right, without prior City approval, to offer or provide capacity or bandwidth to its customers consistent with this Franchise provided:

(a) Franchisee at all times retains exclusive control over its telecommunications system, Facilities and Services and remains responsible for constructing, installing, and maintaining its Facilities pursuant to the terms and conditions of this Franchise;

(b) Franchisee may not grant rights to any customer or lessee that are greater than any rights Franchisee has pursuant to this Franchise;

(c) Such customer or lessee shall not be construed to be a third-party beneficiary under this Franchise; and

(d) No such customer or lessee may use the telecommunications system or Services for any purpose not authorized by this Franchise, nor to sell or offer for sale any service to the citizens of the City without all required business licenses, franchise or other form of state wide approval.

**Section 3. Non-Exclusive Franchise Grant.** This Franchise is a non-exclusive franchise and is granted upon the express condition that it shall not in any manner prevent the City from granting other or further franchises in, along, over, through, under, below, or across any said Rights-of-Way. This Franchise shall in no way prevent or prohibit the City from using any of said roads, streets, or other public properties or affect its jurisdiction over them or any part of them, and the City shall retain power to make all necessary changes, relocations, repairs, maintenance, establishment, improvement, dedication of same as the City may deem fit, including the dedication, establishment, maintenance,

and improvement of all new Rights-of-Way, thoroughfares and other public properties of every type and description.

#### **Section 4. Location of Telecommunications Network Facilities.**

Section 4.1 Franchisee may locate its Facilities anywhere within the Franchise Area consistent with and subject to the City's Bothell Design and Construction Standards and applicable Code requirements in effect at the time of the specific Facility application. Franchisee shall not be required to amend this Franchise to construct or acquire Facilities within the Franchise Area, provided that Franchisee does not expand its Services beyond those described in Section 2.

Section 4.2 To the extent that any Rights-of-Way within the Franchise Area are part of the state highway system ("State Highways"), are considered managed access by the City and are governed by the provisions of Chapter 47.24 RCW and applicable Washington State Department of Transportation (WSDOT) regulations, Franchisee shall comply fully with said requirements in addition to local ordinances and other applicable regulations. Without limitation of the foregoing, Franchisee specifically agrees that:

- (a) any pavement trenching, and restoration performed by Franchisee within State Highways shall meet or exceed applicable WSDOT requirements;
- (b) any portion of a State Highway damaged or injured by Franchisee shall be restored, repaired and/or replaced by Franchisee to a condition that meets or exceeds applicable WSDOT requirements; and
- (c) without prejudice to any right or privilege of the City, WSDOT is authorized to enforce in an action brought in the name of the State of Washington any condition of this Franchise with respect to any portion of a State Highway.

#### **Section 5. Relocation of Telecommunications Network Facilities.**

Section 5.1 Relocation Requirement. The City may require Franchisee, and Franchisee covenants and agrees, to protect, support, relocate, remove, and/or temporarily disconnect or relocate its Facilities within the Right-of-Way when reasonably necessary for construction, alteration, repair, or improvement of the Right-of-Way for

purposes of and for public welfare, health, or safety or traffic conditions, dedications of new Rights-of-Way and the establishment and improvement thereof, widening and improvement of existing Rights-of-Way, street vacations, freeway construction, change or establishment of street grade, or the construction of any public improvement or structure by any governmental agency acting in a governmental capacity or as otherwise necessary for the operations of the City or other governmental entity; provided that Franchisee shall have the privilege to temporarily bypass in the authorized portion of the same Rights-of-Way upon approval by the City, which approval shall not unreasonably be withheld or delayed, any Facilities required to be temporarily disconnected or removed. For the avoidance of doubt, such projects shall include any Right-of-Way improvement project, even if the project entails, in part, related work funded and/or performed by or for a third party, provided that such work is performed for the public benefit, but shall not include, without limitation, any other improvements or repairs undertaken by or for the primary benefit of third-party private entities. Collectively all such projects described in this Section 5.1 shall be considered a "Public Project." Except as otherwise provided by law, the costs and expenses associated with relocations or disconnections ordered pursuant to this Section 5.1 shall be borne by Franchisee. Franchisee shall complete the relocation of its Facilities at no charge or expense to the City.

Section 5.2 Relocation – Third-Party Structures. If the request for relocation from the City originates due to a Public Project, in which structures or poles are either replaced or removed, then Franchisee shall relocate or remove its Facilities as required by the City and at no cost to the City, subject to the procedure in Section 5.5. Franchisee acknowledges and agrees that the placement of Small Wireless Facilities on third party-owned structures does not convey an ownership interest in such structures. Franchisee acknowledges and agrees that to the extent Franchisee's Small Wireless Facilities are on poles owned by third parties, the City shall not be responsible for any costs associated with requests arising out of a Public Project.

Section 5.3 Relocation – Franchisee-Owned Structures. The cost of relocation of any Franchisee-owned poles or structures shall be determined in accordance with the requirements of RCW 35.99.060(3)(b), provided, however, that the Franchisee may opt

to pay for the cost of relocating its Small Wireless Facilities in order to provide consideration for the City's approval to site a Small Wireless Facility on Franchisee owned structures or poles in a portion of the Right-of-Way designated or proposed for a Public Project. For this Section 5.3, designation of the Right-of-Way for a Public Project shall be undertaken in the City's Comprehensive Plan in accordance with the requirements of Ch. 36.70A RCW. The Comprehensive Plan includes, but is not limited to, the Transportation element or Transportation Improvement Plan (TIP), Capital Facilities element, utilities element and any other element authorized by RCW 36.70A.070 and RCW 36.70A.080. The parties acknowledge that this provision is mutually beneficial to the parties, as the City may otherwise deny the placement of the Small Wireless Facility at a particular site because of the cost impact of such relocation and the conflict with the City's Comprehensive Plan.

Section 5.4 Locate. Upon request of the City or of a third-party performing work in the Right-of-Way and in order to facilitate the design of City street and Right-of-Way improvements, Franchisee agrees, at its sole cost and expense, to locate and, if reasonably determined necessary by the City, to excavate and expose its Facilities for inspection so that the Facilities' location may be taken into account in the improvement design. The decision as to whether any Facilities need to be relocated in order to accommodate the Public Projects shall be made by the City upon review of the location and construction of Franchisee's Facilities. The City shall provide Franchisee at least fourteen (14) days' written notice prior to any excavation or exposure of Facilities.

Section 5.5 Notice and Relocation Process. If the City determines that the project necessitates the relocation of Franchisee's existing Facilities, the City shall provide Franchisee in writing as soon as practicable with a date by which the relocation shall be completed (the "Relocation Date") consistent with RCW 35.99.060(2). In calculating the Relocation Date, the City shall consult with Franchisee and consider the extent of facilities to be relocated, the services requirements, and the construction sequence for the relocation, within the City's overall project construction sequence and constraints, to safely complete the relocation. Franchisee shall complete the relocation by the Relocation Date, unless the City or a reviewing court establishes a later date for

completion, as described in RCW 35.99.060(2). To provide guidance on this notice process, the City will make reasonable efforts to engage in the following recommended process, absent an emergency posing a threat to public safety or welfare or an emergency beyond the control of the City that will result in severe financial consequences to the City:

- (a) The City will consult with the Franchisee in the predesign phase of any Public Project in order to coordinate the project's design with Franchisee's Facilities within such project's area.
- (b) Franchisee shall participate in predesign meetings until such time as (i) both parties mutually determine that Franchisee's Facilities will not be affected by the Public Project or (ii) until the City provides Franchisee with written notice regarding the relocation as provided in subsection (d) below.
- (c) Franchisee shall, during the predesign phase, evaluate and provide comments to the City related to any alternatives to possible relocations. The City will give any alternatives proposed by the Franchisee full and fair consideration, but the final decision accepting or rejecting any specific alternative shall be within the City's sole discretion.
- (d) The City will provide Franchisee with its decision regarding the relocation of Franchisee's Facilities as soon as reasonably possible, endeavoring to provide no less than ninety (90) days prior to the commencement of the construction of such Public Project; provided, however, that in the event that the provisions of a state or federal grant require a different notification period or process than that outlined in Section 5.5, the City will notify the Franchisee during the predesign meetings and the process mandated by the grant funding will control.
- (e) After receipt of such written notice, Franchisee shall relocate such Facilities to accommodate the Public Project consistent with the timeline provided by the City and at no charge or expense to the City. Such timeline may be extended by a mutual agreement.

Section 5.6 Alternative Arrangements. The provisions of this Section 5 shall in no manner preclude or restrict Franchisee from making any arrangements it may deem



appropriate when responding to a request for relocation of its Facilities by any person or entity other than the City, where the facilities to be constructed by said person or entity are not or will not become City-owned, operated, or maintained facilities, provided that such arrangements do not unduly delay a City construction project.

Section 5.7 Contractor Delay Claims. Franchisee shall be solely responsible for the actual costs incurred by the City for delays in a Public Project to the extent the delay is caused by or arises out of Franchisee's failure to comply with the final schedule for the relocation (other than as a result of a Force Majeure Event or causes or conditions caused by the acts or omissions of the City or any third party unrelated to Franchisee. Franchisee vendors and contractors shall not be considered unrelated third parties). Such costs may include, but are not limited to, payment to the City's contractors and/or consultants for increased costs and associated court costs, interest, and attorney fees incurred by the City to the extent directly attributable to such Franchisee's caused delay in the Public Project.

Section 5.8 Indemnification. Franchisee will indemnify, hold harmless, and pay the costs of defending the City, in accordance with the provisions of Section 16, against any and all claims, suits, actions, damages, or liabilities for delays on City construction projects caused by or arising out of the failure of Franchisee to remove or relocate its Facilities as provided in this Section 5; provided, that Franchisee shall not be responsible for damages due to delays caused by circumstances beyond the control of Franchisee or the sole negligence, willful misconduct, or unreasonable delay of the City or any unrelated third party.

Section 5.9 Building Moving. Whenever any person shall have obtained permission from the City to use any Right-of-Way for the purpose of moving any building, Franchisee, upon thirty (30) days' written notice from the City, shall raise, remove, or relocate to another part of the Right-of-Way, at the expense of the person desiring to move the building, any of Franchisee's Facilities that may obstruct the removal of such building.

Section 5.10 City's Costs. If Franchisee fails, neglects, or refuses to remove or relocate its Facilities as directed by the City following the procedures outlined in Section 5.1 through Section 5.5, then upon at least ten (10) days' written notice to Franchisee, the City may perform such work (including removal) or cause it to be done, and the City's costs shall be paid by Franchisee pursuant to Section 14.3 and Section 14.4, and the City shall not be responsible for any damage to the Facilities.

Section 5.11 Survival. The provisions of this Section 5 shall survive the expiration or termination of this Franchise during such time as Franchisee continues to have Facilities in the Rights-of-Way.

## **Section 6. Undergrounding of Facilities.**

### Section 6.1 Small Wireless Facilities.

(a) As it pertains to Franchisee's Small Wireless Facilities, Franchisee shall not be permitted to erect poles, unless permitted by the City for Small Wireless Facilities pursuant to Section 15.3 and the Codes. Franchisee acknowledges and agrees that if the City allows the placement of Small Wireless Facilities above ground the City may, at any time in the future, require the conversion of Franchisee's aerial facilities to an underground installation or relocated at Franchisee's expense if the existing poles on which Franchisee's Facilities are located are designated for removal due to a Public Project as described in Section 5. This Franchise does not place an affirmative obligation on the City to allow the relocation of such Facilities on public property or in the Rights-of-Way, nor does it relieve Franchisee from any Code provision related to the siting of Small Wireless Facilities.

(b) Franchisee shall not be required to underground any portion of the Small Wireless Facility that must for technological reasons remain above-ground to operate. If the City requires undergrounding of wirelines (either telecommunications or electrical) and allows Franchisee's Small Wireless Facilities to remain above ground, then Franchisee shall cooperate with the City and modify the affected Small Wireless Facilities to incorporate the placement of wireline services underground and internal to the pole if the replacement pole is hollow (for example, placement of electrical and fiber lines) or

otherwise consistent with a design plan agreed to between the City and Franchisee, at no cost to the City.

Section 6.2 Wireline Facilities.

(a) As it pertains to Franchisee's wireline Facilities, Franchisee shall not be permitted to erect poles or to run or suspend wires, cables or other facilities thereon, but shall lay such wires, cables or other facilities underground in the manner required by the City, unless otherwise specifically allowed pursuant to a permit. Franchisee acknowledges and agrees that if the City does not require the undergrounding of its wireline Facilities at the time of permit application, the City may, at any time in the future, require the conversion of Franchisee's aerial wireline Facilities to underground installation at Franchisee's expense, except as otherwise provided in RCW 35.99.060(4). Unless otherwise permitted by the City, Franchisee shall underground its wireline Facilities in all new developments and subdivisions, and any development or subdivision where utilities, other than electrical utilities, are currently underground.

(b) Whenever the City may require the undergrounding of the aerial utilities (not including Small Wireless Facilities) in any area of the City, Franchisee shall underground its wireline Facilities in the manner specified by the City, concurrently with and in the area of the other affected utilities. The location of any such relocated and underground utilities shall be approved by the City. Where other utilities are present and involved in the undergrounding project, Franchisee shall only be required to pay its fair share of common costs borne by all utilities, in addition to the costs specifically attributable to the undergrounding of Franchisee's own wireline Facilities. "Common costs" shall include necessary costs not specifically attributable to the undergrounding of any particular facility, such as costs for common trenching and utility vaults. "Fair share" shall be determined for a project on the basis of the number and size of Franchisee's wireline Facilities being undergrounded in comparison to the total number and size of all other utility facilities being undergrounded.

Section 6.3 To the extent Franchisee is providing wireline Facilities to Small Wireless Facilities either owned by Franchisee or a third party, Franchisee shall adhere to the design standards for such Small Wireless Facilities, and shall underground its wireline Facilities and/or place its wireline Facilities within the pole as may be required by

such design standards. For the purposes of clarity, this Section 6.2(b) does not require undergrounding or interior placement of wireline Facilities within the pole to the extent that the Small Wireless Facilities are located on utility poles that have pre-existing aerial telecommunications facilities and provided such construction of Franchisee's Facilities continue to comply with Section 6.2.

Section 6.4 Franchisee shall not remove any underground Facilities that require trenching or other opening of the Rights-of-Way, except as provided in this Section 6.2. Franchisee may remove any underground Facilities from the Right-of-Way that have been installed in such a manner that it can be removed without trenching or other opening of the Right-of-Way, or if otherwise permitted by the City. Franchisee may remove any underground cable from the Rights-of-Way where reasonably necessary to replace, upgrade, or enhance its Facilities, or pursuant to Section 5. When the City determines, in the City's reasonable discretion, that Franchisee's underground Facilities must be removed in order to eliminate or prevent a hazardous condition, Franchisee shall remove such Facilities at Franchisee's sole cost and expense. Franchisee must apply and receive a permit, pursuant to Section 8.2, prior to any such removal of underground Facilities from the Right-of-Way and must provide as-built plans and maps pursuant to Section 7.1.

Section 6.5 The provisions of this Section 6 shall survive the expiration, revocation, or termination of this Franchise. Nothing in this Section 6 shall be construed as requiring the City to pay any costs of undergrounding any of the Franchisee's Facilities.

## **Section 7. Maps and Records.**

Section 7.1 Following any construction, excluding modifications that meet the same or substantially similar dimensions of the Small Wireless Facility, Franchisee shall provide the City with accurate copies of as-built plans and maps prepared by Franchisee's design and installation contractors for all existing Small Wireless Facilities in the Franchise Area. These plans and maps shall be provided at no cost to the City and shall include hard copies and digital files in Autocad or other industry standard readable formats that are acceptable to the City and delivered electronically. Further, Franchisee shall provide such maps within thirty (30) days following a request from the City.

Franchisee shall warrant the accuracy of all plans, maps, and as-builts provided to the City.

Section 7.2 Within thirty (30) days of a written request from the Public Works Director, the Franchisee shall furnish the City with information sufficient to reasonably demonstrate that the Franchisee has complied with all applicable requirements of this Franchise.

Section 7.3 All books, records, maps, and other documents maintained by Franchisee with respect to its Facilities within the Rights-of-Way shall be made available for inspection by the City at reasonable times and intervals; provided, however, that nothing in this Section 7.3 shall be construed to require Franchisee to violate state or federal law regarding customer privacy, nor shall this Section 7.3 be construed to require Franchisee to disclose proprietary or confidential information without adequate safeguards for its confidential or proprietary nature. Unless otherwise permitted or required by State or federal law, nothing in this Section 7.3 shall be construed as permission to withhold relevant customer data from the City that the City requests in conjunction with a tax audit or review; provided, however, Franchisee may redact identifying information including but not limited to names, street addresses (excluding City and zip code), Social Security Numbers, or Employer Identification Numbers related to any confidentiality agreements Franchisee has with third parties.

Section 7.4 Franchisee shall not be required to disclose information that it reasonably deems to be proprietary or confidential in nature; provided, however, Franchisee shall disclose such information to comply with a utility tax audit. Franchisee shall be responsible for clearly and conspicuously identifying the work as confidential or proprietary and shall provide a brief written explanation as to why such information is confidential and how it may be treated as such under State or federal law. In the event that the City receives a public records request under Chapter 42.56 RCW or similar law for the disclosure of information Franchisee has designated as confidential, trade secret, or proprietary, the City shall promptly provide written notice of such disclosure so that Franchisee can take appropriate steps to protect its interests.

Section 7.5 Nothing in Section 7.3 or Section 7.4 prohibits the City from complying with Chapter 42.56 RCW or any other applicable law or court order requiring the release of public records, and the City shall not be liable to Franchisee for compliance with any law or court order requiring the release of public records. The City shall comply with any injunction or court order obtained by Franchisee that prohibits the disclosure of any such confidential records; however, in the event a higher court overturns such injunction or court order and such higher court action is or has become final and non-appealable, Franchisee shall reimburse the City for any fines or penalties imposed for failure to disclose such records as required hereunder within sixty (60) days of a request from the City.

## **Section 8. Work in the Rights-of-Way.**

Section 8.1 During any period of relocation, construction or maintenance, all work performed by Franchisee or its contractors shall be accomplished in a safe and workmanlike manner, so to minimize interference with the free passage of traffic and the free use of adjoining property, whether public or private. Franchisee shall at all times post and maintain proper barricades, flags, flaggers, lights, flares and other measures as required for the safety of all members of the general public and comply with all applicable safety regulations during such period of construction as required by the ordinances of the City or the laws of the State of Washington, including RCW 39.04.180 for the construction of trench safety systems. The provisions of this Section 8 shall survive the expiration or termination of this Franchise and during such time as Franchisee continues to have Facilities in the Rights-of-Way.

Section 8.2 Whenever Franchisee shall commence work in any Rights-of-Way for the purpose of excavation, installation, construction, repair, maintenance, or relocation of its Facilities, it shall apply to the City for a permit to do so and, in addition, shall give the City at least ten (10) working days prior notice (except in the case of an emergency) of its intent to commence work in the Rights-of-Way. During the progress of the work, the Franchisee shall not unnecessarily obstruct the passage or proper use of the Rights-of-Way, and all work by the Franchisee in the area shall be performed in accordance with



applicable City standards and specifications and warranted for a period of two (2) years. In no case shall any work commence within any Rights-of-Way without a permit, except as otherwise provided in this Franchise.

Section 8.3 The City reserves the right to limit or exclude Franchisee's access to a specific route, public Right-of-Way or other location when, in the judgment of the Public Works Director there is inadequate space (including but not limited to compliance with ADA clearance requirements and maintaining a clear and safe passage through the Rights-of-Way), a pavement cutting moratorium, unnecessary damage to public property, public expense, inconvenience, interference with City utilities, or for any other reason determined by the Public Works Director.

Section 8.4 New wireline Facilities shall not be installed on existing metal street light standards or traffic signal standards, however this restriction shall not apply to Small Wireless Facilities installed pursuant to a separate lease agreement with the City and the associated wireline facilities installed within the poles.

Section 8.5 If the Franchisee shall at any time plan to make excavations in any area covered by this Franchise, the Franchisee shall afford the City, upon receipt of a written request to do so, an opportunity to share such excavation, PROVIDED THAT:

- (a) Such joint use shall not unreasonably delay the work of the Franchisee causing the excavation to be made;
- (b) Such joint use shall be arranged and accomplished on terms and conditions satisfactory to both parties;
- (c) To the extent reasonably possible, Franchisee, at the direction of the City, shall cooperate with the City and provide other private utility companies with the opportunity to utilize joint or shared excavations in order to minimize disruption and damage to the Right-of-Way, as well as to minimize traffic-related impacts; and
- (d) Franchisee may only charge the incremental costs to the City of installing facilities supplied by the City in such joint or shared excavations.

Section 8.6 If required by a permit, Franchisee shall give reasonable advance notice of intended construction to entities or persons adjacent to the affected area. Such notice shall contain the dates, contact number, nature and location of the work to be performed. Following performance of the work, Franchisee shall restore the Right-of-Way to City standards in effect at the time of construction except for any change in condition not caused by Franchisee. Any disturbance of landscaping, fencing, or other improvements on private property caused by Franchisee's work shall, at the sole expense of Franchisee, be promptly repaired and restored to the reasonable satisfaction of the property owner/resident. Notwithstanding the above, nothing herein shall give Franchisee the right to enter onto private property without the permission of such private property owner, or as otherwise authorized by applicable law.

Section 8.7 Franchisee may trim trees upon and overhanging on public ways, streets, alleys, sidewalks, and other public places of the City so as to prevent the branches of such trees from coming in contact with Franchisee's Facilities. The right to trim trees in this Section 8.7 shall only apply to the extent necessary to protect above ground Facilities. Franchisee shall ensure that its tree trimming activities protect the appearance, integrity, and health of the trees to the extent reasonably possible. Franchisee shall be responsible for all debris removal from such activities. All trimming, except in emergency situations, is to be done after the explicit prior written notification and approval of the City and at the expense of Franchisee. Franchisee may contract for such services, however, any firm or individual so retained must first receive City permit approval prior to commencing such trimming. Nothing herein grants Franchisee any authority to act on behalf of the City, to enter upon any private property, or to trim any tree or natural growth encroaching into the Public Rights-of-Way. Franchisee shall be solely responsible and liable for any damage to any third parties' trees or natural growth caused by Franchisee's actions. Franchisee shall indemnify, defend and hold harmless the City from third-party claims of any nature arising out of any act or negligence of Franchisee with regard to tree and/or natural growth trimming, damage, and/or removal. Franchisee shall reasonably compensate the City or the property owner for any damage caused by trimming, damage, or removal by Franchisee. Except in an emergency situation, all tree trimming must be performed under the direction of an arborist certified by the International

Society of Arboriculture, and in a manner consistent with the most recent issue of "Standards of Pruning for Certified Arborists" as developed by the International Society of Arboriculture or its industry accepted equivalent (ANSI A300), unless otherwise approved by the Public Works Director or his/her designee.

Section 8.8 Franchisee shall meet with the City and other franchise holders and users of the Rights-of-Way upon written notice to schedule and coordinate construction in the Rights-of-Way. All construction locations, activities, and schedules shall be coordinated, as ordered by the City to minimize public inconvenience, disruption or damages.

Section 8.9 Franchisee shall inform the City with at least thirty (30) days' advance written notice that it is constructing, relocating, or placing ducts or conduits in the Rights-of-Way and provide the City with an opportunity to request that Franchisee provide the City with additional duct or conduit and related structures necessary to access the conduit pursuant to RCW 35.99.070.

Section 8.10 Franchisee shall maintain all above ground improvements that it places on City Rights-of-Way pursuant to this Franchise. In order to avoid interference with the City's ability to maintain the Right-of-Way, Franchisee shall provide a clear zone of five (5) feet on all sides of such improvements. If Franchisee fails to comply with this provision, and by its failure, property is damaged, then Franchisee shall be responsible for all damages caused thereby, including restoration.

**Section 9. One Call Locator Service.** Prior to doing any work in the Rights-of-Way, the Franchisee shall follow established procedures, including contacting the Utility Notification Center in Washington and comply with all applicable State statutes regarding the One Call Locator Service pursuant to Chapter 19.122 RCW. Further, upon request, by the City or a third party, Franchisee shall locate its Facilities consistent with the requirements of Chapter 19.122 RCW. The City shall not be liable for any damages to Franchisee's Facilities or for interruptions in service to Franchisee's customers that are a direct result of Franchisee's failure to locate its Facilities within the prescribed time limits

and guidelines established by the One Call Locator Service regardless of whether the City issued a permit.

## **Section 10. Safety Requirements.**

Section 10.1 Franchisee shall, at all times, employ professional care and shall install and maintain and use industry-standard methods for preventing failures and accidents that are likely to cause damage, injuries, or nuisances to the public. All structures and all lines, equipment, and connections in, over, under, and upon the Rights-of-Ways, wherever situated or located, shall at all times be kept and maintained in a safe condition. Franchisee shall comply with all federal, State, and City safety requirements, rules, regulations, laws, and practices, and employ all necessary devices as required by applicable law during the construction, operation, maintenance, upgrade, repair, or removal of its Facilities. Additionally, Franchisee shall keep its Facilities free of debris and anything of a dangerous, noxious or offensive nature or which would create a hazard or undue vibration, heat, noise or any interference with City services. By way of illustration and not limitation, Franchisee shall also comply with the applicable provisions of the National Electric Code, National Electrical Safety Code, FCC regulations, and Occupational Safety and Health Administration (OSHA) Standards. Upon reasonable notice to Franchisee, the City reserves the general right to inspect the Facilities to evaluate if they are constructed and maintained in a safe condition.

Section 10.2 If an unsafe condition or a violation of Section 10.1 is found to exist, and becomes known to the City, the City agrees to give Franchisee written notice of such condition and afford Franchisee a reasonable opportunity to repair the same. If Franchisee fails to start to make the necessary repairs and alterations within the time frame specified in such notice (and pursue such cure to completion), then the City may make such repairs or contract for them to be made. All costs, including administrative costs, incurred by the City in repairing any unsafe conditions shall be borne by Franchisee and reimbursed to the City pursuant to Section 14.3 and Section 14.4.

Section 10.3 *Additional standards include:*

(a) Franchisee shall endeavor to maintain all equipment lines and facilities in an orderly manner, including, but not limited to, the removal of all bundles of unused cable on any aerial facilities and the placement of any cables connecting equipment in an orderly manner.

(b) All installations of equipment, lines, and ancillary facilities shall be installed in accordance with industry-standard engineering practices and shall comply with all federal, State, and local regulations, ordinances, and laws.

(c) Any opening or obstruction in the Rights-of-Way or other public places made by Franchisee in the course of its operations shall be protected by Franchisee at all times by the placement of adequate barriers, fences, or boarding, the bounds of which, during periods of dusk and darkness, shall be clearly marked and visible.

Section 10.4 Stop Work Order. On notice from the City that any work is being performed contrary to the provisions of this Franchise, or in an unsafe or dangerous manner as determined by the City, or in violation of the terms of any applicable permit, laws, regulations, ordinances, or standards, the work may immediately be stopped by the City. The stop work order shall:

- (a) Be in writing;
- (b) Be given to the person doing the work or posted on the work site;
- (c) Be sent to Franchisee by overnight delivery;
- (d) Indicate the nature of the alleged violation or unsafe condition; and
- (e) Establish conditions under which work may be resumed.

**Section 11. Work of Contractors and Subcontractors.** Franchisee's contractors and subcontractors shall be licensed and bonded in accordance with State law and the City's ordinances, regulations, and requirements. Work by contractors and subcontractors are subject to the same restrictions, limitations, and conditions as if the work were performed by Franchisee. Franchisee shall be responsible for all work performed by its contractors and subcontractors and others performing work on its behalf as if the work were performed by Franchisee and shall ensure that all such work is performed in compliance with this Franchise and applicable law.

**Section 12. Restoration after Construction.**

Section 12.1 Franchisee shall, promptly after installation, construction, relocation, maintenance, or repair of its Facilities, or after abandonment approved pursuant to Section 18, promptly remove any obstructions from the Rights-of-Way and restore the surface of the Rights-of-Way as required by the City's Design and Construction Standards. The Public Works Director or his/her designee shall have final approval of the condition of such Rights-of-Way after restoration. All concrete encased survey monuments that have been disturbed or displaced by such work shall be restored pursuant to federal, state (such as Chapter 332-120 WAC), and local standards and specifications.

Section 12.2 Franchisee agrees to promptly complete all restoration work and to promptly repair any damage caused by work to the Franchise Area or other affected area at its sole cost and expense and according to the time and terms specified in the construction permit issued by the City. All work by Franchisee pursuant to this Franchise shall be performed in accordance with applicable City standards and warranted for a period of two (2) years and for undiscovered defects as is standard and customary for this type of work.

Section 12.3 If conditions (e.g. weather) make the complete restoration required under this Section 12 impracticable, Franchisee shall temporarily restore the affected Right-of-Way or property. Such temporary restoration shall be at Franchisee's sole cost and expense. Franchisee shall promptly undertake and complete the required permanent restoration when conditions no longer make such permanent restoration impracticable.

Section 12.4 In the event Franchisee does not repair or restore a Right-of-Way as required under this Section 12 or an improvement in or to a Right-of-Way, then upon fifteen (15) days' notice to Franchisee, the City may repair the damage and shall be reimbursed its actual cost within sixty (60) days of submitting an invoice to Franchisee in accordance with the provisions of Section 14.3 and Section 14.4. In addition, and pursuant to Section 14.3 and Section 14.4, the City may bill Franchisee for expenses associated with the inspection of such restoration work. The failure by Franchisee to



complete such repairs shall be considered a breach of this Franchise and is subject to remedies by the City including the imposition of damages consistent with Section 20.

Section 12.5 The provisions of this Section 12 shall survive the expiration or termination of this Franchise so long as Franchisee continues to have Facilities in the Rights-of-Way and has not completed all restoration to the City's standards.

### **Section 13. Emergency Work/Dangerous Conditions.**

Section 13.1 In the event of any emergency in which any of Franchisee's Facilities located in the Rights-of-Way breaks, falls, becomes damaged, or is otherwise in such a condition as to immediately endanger the property, life, health, or safety of any person, entity, or the City, Franchisee shall immediately take the proper emergency measures to repair its Facilities in order to cure or remedy the dangerous conditions for the protection of property, life, health, or safety of any person, entity, or the City without first applying for and obtaining a permit as required by this Franchise. However, this shall not relieve Franchisee from the requirement of obtaining any permits necessary for this purpose, and Franchisee shall apply for all such permits not later than the next succeeding day during which City Hall is open for business. The City retains the right and privilege to cut, move, or remove any Facilities located within the Rights-of-Way of the City, as the City may determine to be necessary, appropriate, or useful in response to any public health or safety emergency.

Section 13.2 The City shall not be liable for any damage to or loss of Facilities within the Rights-of-Way as a result of or in connection with any public works, public improvements, construction, grading, excavation, filling, or work of any kind in the Rights-of-Way by or on behalf of the City, except to the extent directly and proximately caused by the sole negligence, intentional misconduct, or criminal actions of the City, its employees, contractors, or agents. The City shall further not be liable to Franchisee for any direct, indirect, or any other such damages suffered by any person or entity of any type as a direct or indirect result of the City's actions under this Section 13 except to the extent caused by the sole negligence, intentional misconduct, or criminal actions of the City, its employees, contractors, or agents.

Section 13.3 Whenever the construction, installation, or excavation of Facilities authorized by this Franchise has caused or contributed to a condition that appears to substantially impair the lateral support of the adjoining street or public place, or endangers the public, an adjoining public place, street, electrical or telecommunications utilities, or City property, the Public Works Director may direct Franchisee, at Franchisee's own expense, to take reasonable action to protect the public or such property, and such action may include compliance within a prescribed time. In the event that Franchisee fails or refuses to promptly take the actions directed by the City, or fails to fully comply with such directions, or if emergency conditions exist which require immediate action, before the City can timely contact Franchisee to request Franchisee effect the immediate repair, the City may access the Facilities and take such reasonable actions as are necessary to protect the public, the adjacent streets, or street utilities, or to maintain the lateral support thereof, or reasonable actions regarded as necessary safety precautions, and Franchisee shall be liable to the City for the costs thereof.

#### **Section 14. Recovery of Costs, Taxes, and Fees.**

Section 14.1 Franchisee shall pay a fee for the actual administrative expenses incurred by the City that are directly related to the receiving and approving this Franchise pursuant to RCW 35.21.860, including the costs associated with the City's legal costs incurred in drafting and processing this Franchise. Franchisee shall further be subject to all permit fees associated with activities undertaken through the authority granted in this Franchise or under the laws of the City. Where the City incurs costs and expenses for review, inspection, or supervision of activities, including but not limited to reasonable fees associated with attorneys, consultants, City staff, and City Attorney time, undertaken through the authority granted in this Franchise or any ordinances relating to the subject for which a permit fee is not established, Franchisee shall pay such costs and expenses directly to the City in accordance with the provisions of Section 14.3.

Section 14.2 Franchisee shall promptly reimburse the City in accordance with the provisions of Section 14.3 and Section 14.4 for any and all costs the City reasonably incurs in response to any emergency situation involving Franchisee's Facilities, to the

extent said emergency is not the fault of the City. The City agrees to simultaneously seek reimbursement from any franchisee or permit holder who caused or contributed to the emergency situation.

Section 14.3 Franchisee shall reimburse the City within sixty (60) days of submittal by the City of an itemized billing for reasonably incurred costs, itemized by project, for Franchisee's proportionate share of all actual, identified expenses incurred by the City in planning, constructing, installing, repairing, altering, or maintaining any City facility as the result of the presence of Franchisee's Facilities in the Rights-of-Way. Such costs and expenses shall include but not be limited to Franchisee's proportionate cost of City personnel assigned to oversee or engage in any work in the Rights-of-Way as the result of the presence of Franchisee's Facilities in the Rights-of-Way. Such costs and expenses shall also include Franchisee's proportionate share of any time spent reviewing construction plans in order to either accomplish the relocation of Franchisee's Facilities or the routing or rerouting of any utilities so as not to interfere with Franchisee's Facilities.

Section 14.4 The time of City employees shall be charged at their respective rate of salary, including overtime if applicable, plus benefits and reasonable overhead. Any other costs will be billed proportionately on an actual cost basis. All billings will be itemized so as to specifically identify the costs and expenses for each project for which the City claims reimbursement. A charge for the actual costs incurred in preparing the billing may also be included in said billing. At the City's option, the billing may be on an annual basis, but the City shall provide the Franchisee with the City's itemization of costs, in writing, at the conclusion of each project for information purposes.

Section 14.5 Franchisee hereby warrants that its operations as authorized under this Franchise are those of a telephone business as defined in RCW 82.16.010 or a service provider as defined in RCW 35.21.860. As a result, the City will not impose a franchise fee under the terms of this Franchise, other than as described herein. The City hereby reserves its right to impose a franchise fee on Franchisee if Franchisee's operations as authorized by this Franchise change such that the statutory prohibitions of RCW 35.21.860 no longer apply or if statutory prohibitions on the imposition of such fees

are removed. In either instance, the City also reserves its right to require that Franchisee obtain a separate Franchise for its change in use. Nothing contained herein shall preclude Franchisee from challenging any such new fee or separate agreement under applicable federal, state, or local laws.

Section 14.6 Franchisee acknowledges that certain of its business activities may be subject to taxation as a telephone business and that Franchisee shall pay to the City the rate applicable to such taxable services under Chapter 5.08 of the Bothell Municipal Code, and consistent with state and federal law. The parties agree that if there is a dispute regarding tax payments that the process in Chapter 5.08 of the Bothell Municipal Code shall control. In that event, the City may not enforce remedies under Section 20 or commence a forfeiture or revocation process pursuant to Section 21 until the dispute is finally resolved either consistent with Chapter 5.08 of the Bothell Municipal Code or by judicial action and then only if the Franchisee does not comply with such resolution. The parties agree, however, that nothing in this Franchise shall limit the City's power of taxation as may exist now or as later imposed by the City. This provision does not limit the City's power to amend the Bothell Municipal Code as may be permitted by law.

## **Section 15. Small Wireless Facilities.**

Section 15.1 *City Retains Approval Authority.* The City shall have the authority at all times to control by appropriately exercised police powers through ordinance or regulation, consistent with 47 U.S.C. § 253, 47 U.S.C. § 332(c)(7), and the laws of the State of Washington, the location, elevation, manner of construction, and maintenance of any Small Wireless Facilities by Franchisee, and Franchisee shall promptly conform with all such requirements, unless compliance would cause Franchisee to violate other requirements of law. This Franchise does not prohibit the City from exercising its rights under federal, state, or local law to deny or give conditional approval to an application for a permit to construct any individual Small Wireless Facility.

Section 15.2 *City Approvals and Permits.* The granting of this Franchise is not a substitute for any other City-required approvals to construct Franchisee's Facilities in the Rights-of-Way ("City Approvals"). The parties agree that such City Approvals (except

Right-of-Way use permits as described in Section 8.2) are not considered use permits, as that term is defined in RCW 35.99.010. These City Approvals do not grant general authorization to enter and utilize the Rights-of-Way but rather grant Franchisee permission to build its specific Small Wireless Facilities. Therefore, City Approvals are not subject to the thirty (30) day issuance requirement described in RCW 35.99.030. The parties recognize that this provision is specifically negotiated as consideration for designating the entire City as the Franchise Area. Such City Approvals shall be issued consistent with the Codes and with state and federal laws governing wireless communication facility siting and may be in addition to any permits required under Section 8.2.

Section 15.3 *Preference for Existing Infrastructure; Site Specific Agreements.*

(a) Franchisee shall utilize existing infrastructure in the City whenever possible and consistent with the design, concealment, and siting regulations of the Codes. The erection of new poles or structures in the Right-of-Way may only be permitted if no other alternative space feasible for the installation of the Facility is available. In the event that existing infrastructure is not available or feasible for a Small Wireless Facility, or if the City prefers new poles or infrastructure in a particular area of the City, then Franchisee may request the placement of new or replacement structures in the Rights-of-Way consistent with the requirements of the Codes.

(b) Franchisee acknowledges and agrees that if Franchisee requests to place new structures or replacement structures that are higher than the replaced structure and the overall height of the replacement structure and the Facility are over 60 feet in the Rights-of-Way, then Franchisee may be required to enter into a site-specific agreement consistent with RCW 35.21.860 in order to construct such Facilities in the Right-of-Way. Such agreements may require a site-specific charge paid to the City. The approval of a site-specific agreement is separate from this Franchise and must be approved and executed by the City Manager or his/her designee.

(c) Unless otherwise required by the Codes, replacement poles or structures which remain substantially similar to existing structures or deviate in height or design as permitted within the Codes are permissible, provided that Franchisee, or the pole owner

at the Franchisee's request, removes the old pole or structure promptly, but no more than ninety (90) days after the installation of the replacement pole or structure.

(d) This Section 15.3 does not place an affirmative obligation on the City to allow the placement of new infrastructure on public property or in the Rights-of-Way, nor does it relieve Franchisee from any Code provision related to the siting or design of wireless facilities.

Section 15.4 *Concealment*. Franchisee shall construct its Facilities consistent with the concealment or stealth requirements as described in the Codes, as the same exist or are hereafter amended, or in the applicable permit(s), lease, site specific agreement, or license agreement, in order to minimize the visual impact of such Facilities.

Section 15.5 *Eligible Facilities Requests*. The parties acknowledge that it is the intent of this Franchise to provide general authorization to use the Rights-of-Way for Small Wireless Facilities. The designs as illustrated in a Small Wireless Permit, including the dimensions and number of antennas and equipment boxes and the pole height are intended and stipulated to be concealment features when considering whether a proposed modification is a substantial change under Section 6409(a) of the Spectrum Act, 47 U.S.C. § 1455(a).

Section 15.6 *Inventory*. Franchisee shall maintain a current inventory of Small Wireless Facilities throughout the Term of this Franchise. Franchisee shall provide to the City a copy of the inventory report no later than one hundred eighty (180) days after the Effective Date of this ordinance and shall provide the City an updated copy of the inventory report within thirty (30) days of a request by the City. The inventory report shall include GIS coordinates, date of installation, type of pole used for installation, description/type of installation for each Small Wireless Facility installation, and photographs taken before and after the installation of the Small Wireless Facility and taken from the public street. Small Wireless Facilities that are considered Deactivated Facilities, as described in Section 18.1, shall be included in the inventory report and Franchisee shall provide the same information as is provided for active installations as well as the date the Facilities were deactivated and the date the Deactivated Facilities



were removed from the Right-of-Way. The City shall compare the inventory report to its records to identify any discrepancies, and the parties will work together in good faith to resolve any discrepancies. Franchisee is not required to report on future inventory reports any Deactivated Facilities that were removed from the Right-of-Way since the last reported inventory and may thereafter omit reference to the Deactivated Facilities.

Section 15.7 Unauthorized Facilities. Any Small Wireless Facilities installations in the Right-of-Way that were not authorized under this Franchise or other required City Approval ("Unauthorized Facilities") will be subject to the payment of an Unauthorized Facilities charge by Franchisee. The City shall provide written notice to Franchisee of any Unauthorized Facilities identified by City staff and Franchisee shall either (i) establish that the site was authorized, or (ii) submit a complete application to the City for approval of the Unauthorized Facilities. Upon notice of the Unauthorized Facility, Franchisee shall be charged Five Hundred and 00/100 Dollars (\$500.00) per day per Unauthorized Facility ("Unauthorized Facility Penalty"). The Unauthorized Facility Penalty shall be waived in its entirety if Franchisee can establish that the site was in fact authorized. The Unauthorized Facility Penalty shall be suspended upon the submission of a complete application to the City requesting approval of the Unauthorized Facility. If the application for such Unauthorized Facilities is denied as the final decision, then the Unauthorized Facility Penalty will resume until the Unauthorized Facilities are removed and Franchisee shall remove the Unauthorized Facilities from the City's Right-of-Way within thirty (30) days after the expiration of all appeal periods for such denial. Upon the conclusion of any matter involving an Unauthorized Facility, City shall provide Franchisee an invoice detailing the total amount of the Unauthorized Facility Penalty, if any, which penalty Franchisee shall pay within thirty (30) days after receipt of notice thereof. This Franchise remedy is in addition to any other remedy available to the City at law or equity. Notwithstanding the foregoing, an Unauthorized Facility Penalty pursuant to this Franchise shall not be assessed if Franchisee received City Approval for the Small Wireless Facilities but such Small Wireless Facilities are technically inconsistent with the City Approval; provided, however, Franchisee is still required to fix any inconsistencies with the permit requirements and that this provision does not restrict the City's other enforcement rights.

Section 15.8 Graffiti Abatement. As soon as practical, but not later than thirty (30) days from the date Franchisee receives notice or is otherwise aware, Franchisee shall remove all graffiti on any of its Small Wireless Facilities of which it is the owner of the pole or structure or on the Small Wireless Facilities themselves attached to a third-party pole (i.e., graffiti on the shrouding protecting the radios). The foregoing shall not relieve Franchisee from complying with any City graffiti or visual blight ordinance or regulation.

Section 15.9 Emissions Reports.

- (a) Franchisee is obligated to comply with all applicable laws relating to allowable presence of or human exposure to Radiofrequency Radiation (“RFs”) or Electromagnetic Fields (“EMFs”) on or off any poles or structures in the Rights-of-Way, including all applicable FCC standards. Franchisee shall comply with the RF emissions certification requirements under applicable law.
- (b) Nothing in this Franchise prohibits the City from requiring periodic testing of Franchisee’s Facilities, which the City may request no more than once per year unless as otherwise required by a permit due to a modification of the Facility. The City may inspect any of Franchisee’s Facilities and equipment located in the Rights-of-Way. If the City discovers that the emissions from a Facility exceeds the FCC standards, then the City may order Franchisee to immediately turn off the Facility or portion thereof committing the violation, until the emissions exposure is remedied. Such order shall be made orally by calling 1-800-264-6620 and also by written notice pursuant to Section 31. Franchisee is required to promptly turn off that portion of the Facility that is in violation, no later than forty-eight (48) hours after receipt of oral notice. Franchisee shall reimburse the City for any costs incurred by the City for inspecting the Facility and providing notice as described in Section 14.3 and Section 14.4.

Section 15.10 *Interference with Public Facilities.* Franchisee's Small Wireless Facilities shall not physically interfere or cause harmful interference, as defined in 47 CFR § 15.3(m), with any City operations (including, but not limited to, traffic lights, public safety radio systems, or other City communications infrastructure) or with emergency communications operation or equipment. If the Small Wireless Facilities cause such harmful interference, Franchisee shall respond to the City's request to address the source of the interference as soon as practicable, but in no event later than forty-eight (48) hours after receipt of notice. The City may require, by written notice, that Franchisee power down the specific Small Wireless Facilities, or portion thereof, causing such interference if such interference is not remedied within forty-eight (48) hours after notice. If, within thirty (30) days after receipt of such written notice from the City of such interference, Franchisee has not abated such interference in a manner that is consistent with federal guidelines, such Small Wireless Facility may be deemed an Unauthorized Facility and subject to the provisions of Section 15.7 or removal by the City consistent with Section 13. The Small Wireless Facility, or interfering portion thereof, must remain powered down (except for testing purposes) during the abatement period; otherwise the City may take more immediate action consistent with Section 13 to protect the public health, safety, and welfare.

Section 15.11 *Interference with Other Facilities.* Franchisee is solely responsible for determining whether its Small Wireless Facilities interfere with telecommunications facilities of other utilities and franchisees within the Rights-of-Way. Franchisee shall comply with the rules and regulations of the Federal Communications Commission regarding radio frequency interference when siting its Small Wireless Facilities within the Franchise Area. Franchisee, in the performance and exercise of its rights and obligations under this Franchise shall not physically or technically interfere in any manner with the existence and operation of any and all existing utilities, sanitary sewers, water mains, storm drains, gas mains, poles, aerial and underground electrical and telephone wires, electroliers, cable television, and other telecommunications, utility, or municipal property, without the express written approval of the owner or owners of the affected property or properties, except as expressly permitted by applicable law or this Franchise.

**Section 16. Indemnification.**

Section 16.1 Franchisee releases, covenants not to bring suit against, and agrees to indemnify, defend, and hold harmless the City, its officers, employees, agents, and representatives from any and all claims, costs, judgments, awards, or liability to any person, for injury or death of any person or damage to property caused by or arising out of any acts or omissions of Franchisee, its agents, servants, officers, or employees in the performance of this Franchise and any rights granted within this Franchise. This indemnification obligation shall extend to claims that are not reduced to a suit and any claims that may be compromised, with Franchisee's prior written consent, prior to the culmination of any litigation or the institution of any litigation.

Section 16.2 Inspection or acceptance by the City of any work performed by Franchisee at the time of completion of construction shall not be grounds for avoidance by Franchisee of any of its obligations under this Section 16.

Section 16.3 The City shall promptly notify Franchisee of any claim or suit and request in writing that Franchisee indemnify the City. Franchisee may choose counsel to defend the City subject to this Section 16.3. City's failure to so notify and request indemnification shall not relieve Franchisee of any liability that Franchisee might have, except to the extent that such failure prejudices Franchisee's ability to defend such claim or suit. In the event that Franchisee refuses the tender of defense in any suit or any claim, as required pursuant to the indemnification provisions within this Franchise, and said refusal is subsequently determined by a court having jurisdiction (or such other tribunal that the parties shall agree to decide the matter), to have been a wrongful refusal on the part of Franchisee, Franchisee shall pay all of the City's reasonable costs for defense of the action, including all expert witness fees, costs, and attorney's fees, and including costs and fees incurred in recovering under this indemnification provision. If separate representation to fully protect the interests of both parties is necessary, such as a conflict of interest between the City and the counsel selected by Franchisee to represent the City, then upon the prior written approval and consent of Franchisee, which shall not be unreasonably withheld, the City shall have the right to employ separate counsel in any

action or proceeding and to participate in the investigation and defense thereof, and Franchisee shall pay the reasonable fees and expenses of such separate counsel, except that Franchisee shall not be required to pay the fees and expenses of separate counsel on behalf of the City for the City to bring or pursue any counterclaims or interpleader action, equitable relief, restraining order or injunction. The City's fees and expenses shall include all out-of-pocket expenses, such as consultants and expert witness fees, and shall also include the reasonable value of any services rendered by the counsel retained by the City but shall not include outside attorneys' fees for services that are unnecessarily duplicative of services provided the City by Franchisee. Each party agrees to cooperate and to cause its employees and agents to cooperate with the other party in the defense of any such claim and the relevant records of each party shall be available to the other party with respect to any such defense.

Section 16.4 Except to the extent that damage or injury arises from the sole negligence or willful misconduct of the City, its officers, officials, employees, or agents, the obligations of Franchisee under the indemnification provisions of this Section 16 and any other indemnification provision herein shall apply regardless of whether liability for damages arising out of bodily injury to persons or damages to property were caused or contributed to by the concurrent negligence of the City, its officers, officials, employees, or agents and the Franchisee. Notwithstanding the proceeding sentence, to the extent the provisions of RCW 4.24.115 are applicable, the parties agree that the indemnity provisions hereunder shall be deemed amended to conform to said statute and liability shall be allocated as provided therein. It is further specifically and expressly understood that the indemnification provided constitutes Franchisee's waiver of immunity under Title 51 RCW, solely for the purposes of this indemnification, relating solely to indemnity claims made by the City directly against the Franchisee for claims made against the City by Franchisee's employees. This waiver has been mutually negotiated by the parties.

Section 16.5 Notwithstanding any other provisions of this Section 16, Franchisee assumes the risk of damage to its Facilities located in the Rights-of-Way and upon City-owned property from activities conducted by the City, its officers, agents, employees, representatives, elected and appointed officials, and contractors, except to the extent any

such damage or destruction is caused by or arises from any solely negligent, willful misconduct, or criminal actions on the part of the City, its officers, agents, employees, representatives, elected or appointed officials, or contractors. In no event shall the City be liable for any indirect, incidental, special, consequential, exemplary, or punitive damages, including, by way of example and not limitation, lost profits, lost revenue, loss of goodwill, or loss of business opportunity in connection with its performance or failure to perform under this Franchise. Franchisee releases and waives any and all such claims against the City, its officers, agents, employees, representatives, elected or appointed officials, or contractors. Franchisee further agrees to indemnify, hold harmless, and defend the City against any third-party claims for damages, including, but not limited to, business interruption damages, lost profits, and consequential damages, brought by or under users of Franchisee's Facilities as the result of any interruption of service due to damage or destruction of Franchisee's Facilities caused by or arising out of activities conducted by the City, its officers, agents, employees, or contractors.

Section 16.6 The provisions of this Section 16 shall survive the expiration, revocation, or termination of this Franchise.

## **Section 17. Insurance.**

Section 17.1 Franchisee shall maintain for so long as Franchisee has Facilities in the Rights-of-Way, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the acts or omissions of Franchisee. Franchisee shall require that every subcontractor maintain substantially the same insurance coverage with substantially the same policy limits as required of Franchisee. Franchisee shall maintain insurance from insurers with a current A.M. Best rating of not less than A-. Franchisee shall provide a copy of a certificate of insurance and additional insured endorsement (except for workers compensation) to the City for its inspection at the time of acceptance of this Franchise, and such insurance certificate shall evidence a policy of insurance that includes:

- (a) Automobile Liability insurance with limits of no less than \$5,000,000 combined single limit per occurrence for bodily injury and property damage.



- (b) Commercial General Liability insurance, written on an occurrence basis with limits of no less than \$5,000,000 per occurrence for bodily injury and property damage and \$5,000,000 general aggregate including personal and advertising injury, blanket contractual; premises; operations; independent contractors; products and completed operations; and broad form property damage; explosion, collapse and underground (XCU).
- (c) Pollution liability shall be in effect throughout the entire Franchise term, with a limit of one million dollars (\$1,000,000) per occurrence, and two million dollars (\$2,000,000) in the aggregate
- (d) Workers' Compensation coverage as required by the Industrial Insurance laws of the State of Washington and Employer's Liability with a limit of \$1,000,000 each accident/disease/policy limit. Evidence of qualified self-insurance is acceptable.
- (e) Excess Umbrella liability policy with limits of no less than \$5,000,000 per occurrence and in the aggregate. Franchisee may use any combination of primary and excess to meet required total limits.

Section 17.2 Payment of deductible or self-insured retention shall be the sole responsibility of Franchisee. Franchisee may utilize primary and umbrella liability insurance policies to satisfy the insurance policy limits required in this Section 17. Franchisee's umbrella liability insurance policy shall provide "follow form" coverage over its primary liability insurance policies or be at least as broad as such underlying policies.

Section 17.3 The required insurance policies, with the exception of Workers' Compensation and Employer's Liability obtained by Franchisee shall include the City, its officers, officials, employees, agents, and representatives ("Additional Insureds"), as an additional insured with regard to any work or operations performed under this Franchise or by or on behalf of the Franchisee. The coverage shall contain no special limitations on the scope of protection afforded to the Additional Insureds. In addition, the insurance policy shall contain a clause stating that coverage shall apply separately to each insured against whom a claim is made, or suit is brought, except with respect to the limits of the

insurer's liability. Franchisee shall provide to the City upon acceptance a certificate of insurance and blanket additional insured endorsement. Receipt by the City of any certificate showing less coverage than required is not a waiver of Franchisee's obligations to fulfill the requirements. Franchisee's required commercial general and auto liability insurance shall be primary insurance with respect to the City. Any insurance, self-insurance, or insurance pool coverage maintained by the City shall be in excess of Franchisee's required insurance and shall not contribute with it.

Section 17.4 Upon receipt of notice from its insurer(s) Franchisee shall provide the City with thirty (30) days prior written notice of any cancellation of any insurance policy, except for non-payment, in which case a ten (10) day notice will be provided, required pursuant to this Section 17. Franchisee shall, prior to the effective date of such cancellation, obtain replacement insurance policies meeting the requirements of this Section 17. Failure to provide the insurance cancellation notice and to furnish to the City replacement insurance policies meeting the requirements of this Section 17 shall be considered a material breach of this Franchise and subject to the City's election of remedies described in Section 20 below. Notwithstanding the cure period described in Section 20.2, the City may pursue its remedies immediately upon a failure to furnish replacement insurance.

Section 17.5 Franchisee's maintenance of insurance as required by this Section 17 shall not be construed to limit the liability of Franchisee to the coverage provided by such insurance, or otherwise limit the City's recourse to any remedy available at law or equity. Further, Franchisee's maintenance of insurance policies required by this Franchise shall not be construed to excuse unfaithful performance by Franchisee. If Franchisee maintains higher insurance limits than the minimums shown above, the City shall be insured for the full available limits of Commercial General and Excess Umbrella liability maintained by the Franchisee, irrespective of whether such limits maintained by the Franchisee are greater than those required by this contract or whether any certificate of insurance furnished to the City evidences limits of liability lower than those maintained by the Franchisee.

Section 17.6 The City may review all insurance limits once every three years during the Term may make reasonable adjustments in the limits upon thirty (30) days' prior written notice to and review by Franchisee. Franchisee shall then issue or provide a certificate of insurance to the City showing compliance with these adjustments. Upon request by the City, Franchisee shall furnish certified copies of all required insurance policies, including endorsements, required in this Franchise and evidence of all contractors' coverage.

Section 17.7 As of the Effective Date of this Franchise, Franchisee is not self-insured. Should Franchisee wish to become self-insured at the levels outlined in this Franchise at a later date, Franchisee or its affiliated parent entity shall comply with the following: (i) provide the City, upon request, a copy of Franchisee's or its parent company's most recent audited financial statements, if such financial statements are not otherwise publicly available; (ii) Franchisee or its parent company is responsible for all payments within the self-insurance program; and (iii) Franchisee assumes all defense and indemnity obligations as outlined in the indemnification section of this Franchise.

## **Section 18. Abandonment of Franchisee's Telecommunications Network.**

Section 18.1 Where any Facilities or portions of Facilities are no longer needed, and their use is to be discontinued, the Franchisee shall immediately report such Facilities in writing ("Deactivated Facilities") to the Public Works Director. This notification is in addition to the inventory revisions addressed in Section 15.6. Deactivated Facilities, or portions thereof, shall be completely removed within ninety (90) days and the site, pole or infrastructure restored to its pre-existing condition.

Section 18.2 If Franchisee leases a structure from a landlord and such landlord later abandons the structure, Franchisee shall remove its Facilities from the abandoned structure within the timeline provided by the landlord, but no more than ninety (90) days of such notification from the landlord, at no cost to the City and shall remove the pole if so required by the landlord. Notwithstanding the preceding sentence, the timelines determined by the City for relocation projects described in Section 5 above shall apply.

Section 18.3 Upon the expiration, termination, or revocation of the rights granted under this Franchise, Franchisee shall remove all of its Facilities from the Rights-of-Way within ninety (90) days of receiving written notice from the Public Works Director or his/her designee. The Facilities, in whole or in part, may not be abandoned by Franchisee without written approval by the City. Any plan for abandonment or removal of Franchisee's Facilities must be first approved by the Public Works Director or his/her designee, and all necessary permits must be obtained prior to such work. Franchisee shall restore the Rights-of-Way to at least the same condition the Rights-of-Way were in immediately prior to any such installation, construction, relocation, maintenance or repair, provided Franchisee shall not be responsible for any changes to the Rights-of-Way not caused by Franchisee or any person doing work for Franchisee. Franchisee shall be solely responsible for all costs associated with removing its Facilities.

Section 18.4 Notwithstanding Section 18.1 above, the City may permit Franchisee's Facilities to be abandoned in place in such a manner as the City may prescribe. Upon permanent abandonment, and Franchisee's agreement to transfer ownership of the Facilities to the City, Franchisee shall submit to the City a proposal and instruments for transferring ownership to the City.

Section 18.5 Any Facilities which are not removed within one hundred and eighty (180) days of either the date of termination or revocation of this Franchise or the date the City issued a permit authorizing removal, whichever is later, shall automatically become the property of the City. Any costs incurred by the City in safeguarding such Facilities or removing the Facilities shall be reimbursed by Franchisee. Nothing contained within this Section 18 shall prevent the City from compelling Franchisee to remove any such Facilities through judicial action when the City has not permitted Franchisee to abandon said Facilities in place.

Section 18.6 The provisions of this Section 18 shall survive the expiration, revocation, or termination of this Franchise and for so long as Franchisee has Facilities in Rights-of-Way.

## **Section 19. Bonds.**

Section 19.1 Franchisee shall furnish a performance bond ("Performance Bond") written by a corporate surety reasonably acceptable to the City equal to at least 120% of the estimated cost of constructing Franchisee's Facilities within the Rights-of-Way of the City prior to commencement of any such work or such other amount as deemed appropriate by the Public Works Director. The Performance Bond shall guarantee the following: (1) timely completion of construction; (2) construction in compliance with all applicable plans, permits, technical codes, and standards; (3) proper location of the Facilities as specified by the City; (4) restoration of the Rights-of-Way and other City properties affected by the construction; (5) submission of as-built drawings after completion of construction; and (6) timely payment and satisfaction of all claims, demands, or liens for labor, materials, or services provided in connection with the work which could be asserted against the City or City property. Said bond must remain in full force until the completion of construction, including final inspection, corrections, and final approval of the work, recording of all easements, provision of as-built drawings, and the posting of a Maintenance Bond as described in Section 19.2. Compliance with the Performance Bond requirement of the City's current Design and Construction Standards shall satisfy the provisions of this Section 19. In lieu of a separate Performance Bond for individual projects involving work in the Franchise Area, Franchisee may satisfy the City's bond requirements by posting a single on-going performance bond in an amount approved by City.

Section 19.2 Maintenance Bond. Franchisee shall furnish a two (2) year maintenance bond ("Maintenance Bond"), or other surety acceptable to the City, at the time of final acceptance of construction work on Facilities within the Rights-of-Way. The Maintenance Bond amount will be equal to ten percent (10%) of the documented final cost of the construction work. The Maintenance Bond in this Section 19.2 must be in place prior to City's release of the bond required by Section 19. Compliance with the Maintenance Bond requirement of the City's current Design and Construction Standards shall satisfy the provisions of this Section 19.2. In lieu of a separate Maintenance Bond for individual projects involving work in the Franchise Area, Franchisee may satisfy the

Maintenance Bond requirement by posting a single on-going Maintenance Bond in an amount approved by City.

Section 19.3 Franchise Bond. Franchisee shall provide City with a bond in the amount of Fifty Thousand Dollars (\$50,000.00) ("Franchise Bond") running or renewable for the term of this Franchise, in a form and substance reasonably acceptable to City. In the event Franchisee shall fail to substantially comply with any one or more of the provisions of this Franchise following notice and a reasonable opportunity to cure, then there shall be recovered jointly and severally from Franchisee and the bond any actual damages suffered by City as a result thereof, including but not limited to staff time, material and equipment costs, compensation or indemnification of third parties, and the cost of removal or abandonment of facilities hereinabove described. Franchisee specifically agrees that its failure to comply with the terms of this Section 19 shall constitute a material breach of this Franchise. The amount of the bond shall not be construed to limit Franchisee's liability or to limit the City's recourse to any remedy to which the City is otherwise entitled at law or in equity.

## **Section 20. Remedies to Enforce Compliance.**

Section 20.1 The City may elect, without any prejudice to any of its other legal rights and remedies, to obtain an order from the superior court having jurisdiction compelling Franchisee to comply with the provisions of the Franchise and to recover damages and costs incurred by the City by reason of Franchisee's failure to comply. In addition to any other remedy provided herein, the City reserves the right to pursue any remedy to compel or force Franchisee and/or its successors and assigns to comply with the terms hereof, and the pursuit of any right or remedy by the City shall not prevent the City from thereafter declaring a forfeiture or revocation for breach of the conditions herein. Provided, further, that by entering into this Franchise, it is not the intention of the City or Franchisee to waive any other rights, remedies, or obligations as otherwise provided by



law equity, or otherwise, and nothing contained here shall be deemed or construed to affect any such waiver.

Section 20.2 If Franchisee shall violate, or fail to comply with any of the provisions of this Franchise, or should it fail to heed or comply with any notice given to Franchisee under the provisions of this Franchise, the City shall provide Franchisee with written notice specifying with reasonable particularity the nature of any such breach and Franchisee shall undertake all commercially reasonable efforts to cure such breach within thirty (30) days of receipt of notification. If the parties reasonably determine the breach cannot be cured within (30) thirty days, the City may specify a longer cure period, and condition the extension of time on Franchisee's submittal of a plan to cure the breach within the specified period, commencement of work within the original thirty (30) day cure period, and diligent prosecution of the work to completion. If the breach is not cured within the specified time, or Franchisee does not comply with the specified conditions, the City may, at its discretion, (1) commence revocation proceedings, pursuant to Section 21, or (2) claim damages of Two Hundred Fifty Dollars (\$250.00) per day against the Franchise Bond set forth in Section 19.3, or (3) suspend the issuance of additional permits, or (4) pursue other remedies as described in Section 20.1 above.

**Section 21. Forfeiture and Revocation.** If Franchisee willfully violates or fails to comply with any material provisions of this Franchise beyond applicable notice and cure periods, then at the election of the Bothell City Council after at least thirty (30) days written notice to Franchisee specifying the alleged violation or failure and an opportunity to cure, the City may revoke all rights conferred and this Franchise may be revoked by the City Council after a hearing held upon such notice to Franchisee. Such hearing shall be open to the public and Franchisee and other interested parties may offer written and/or oral evidence explaining or mitigating such alleged noncompliance. Within thirty (30) days after the hearing, the Bothell City Council, on the basis of the record, will make the determination as to whether there is cause for revocation, whether the Franchise will be terminated, or whether lesser sanctions should otherwise be imposed. The Bothell City Council may in its sole discretion fix an additional time period to cure violations. If the deficiency has not been cured at the expiration of any additional time period or if the

Bothell City Council does not grant any additional period, the Bothell City Council may by resolution declare the Franchise to be revoked and forfeited or impose lesser sanctions. If Franchisee appeals revocation and termination, such revocation may be held in abeyance pending judicial review by a court of competent jurisdiction, provided Franchisee is otherwise in compliance with the Franchise.

**Section 22. Non-Waiver.** The failure of the City to insist upon strict performance of any of the covenants and agreements of this Franchise or to exercise any option herein conferred in any one or more instances shall not be construed to be a waiver or relinquishment of any such covenants, agreements, or option or of any other covenants, agreements, or option.

**Section 23. City Ordinances and Regulations.** Nothing herein shall be deemed to restrict the City's ability to adopt and enforce all necessary and appropriate ordinances regulating the performance of the conditions of this Franchise, including any valid ordinance made in the exercise of its police powers in the interest of public safety and for the welfare of the public. The City shall have the authority at all times to reasonably control by appropriate regulations the location, elevation, manner of construction, and maintenance of Facilities by Franchisee, and Franchisee shall promptly conform with all such regulations, unless compliance would cause Franchisee to violate other requirements of law. In the event of a conflict between the provisions of this Franchise and any other generally applicable ordinance(s) enacted under the City's police power authority, such other ordinances(s) shall take precedence over the provisions set forth herein.

**Section 24. Cost of Publication.** The cost of publication of this Franchise shall be borne by Franchisee.

**Section 25. Survival.** All of the provisions, conditions, and requirements of Section 5, Section 6, Section 8, Section 12, Section 16, Section 18, Section 25, Section 27, and Section 38.2 of this Franchise shall be in addition to any and all other obligations and liabilities Franchisee may have to the City at common law, by statute, or by contract, and shall survive the City's Franchise to Franchisee for the use of the Franchise Area and any

renewals or extensions thereof. All of the provisions, conditions, regulations, and requirements contained in this Franchise shall further be binding upon the heirs, successors, executors, administrators, legal representatives, and assigns of Franchisee and all privileges, obligations, and liabilities of Franchisee shall inure to its heirs, successors, and assigns equally as if they were specifically mentioned where Franchisee is named herein.

## **Section 26. Assignment.**

Section 26.1 This Franchise may not be directly or indirectly assigned, transferred, or disposed of by sale, lease, merger, consolidation, or other act of Franchisee, by operation of law or otherwise, unless prompt written notice is provided to the City within sixty (60) days following the assignment. Franchisee may freely assign this Franchise in whole or in part to a parent, subsidiary, or affiliated entity, unless there is a change of control as described in Section 26.2 below, or to an entity that acquires all or substantially all of Franchisee's assets located in the area defined by the Federal Communications Commission in which the Facilities are located, or for collateral security purposes. Franchisee shall provide prompt, written notice to the City of any such assignment. In the case of transfer or assignment as security by mortgage or other security instrument in whole or in part to secure indebtedness, such notice shall not be required unless and until the secured party elects to realize upon the collateral. For purposes of this Section 26, no assignment or transfer of this Franchise shall be deemed to occur based on the public trading of Franchisee's stock; provided, however, any tender offer, merger, or similar transaction resulting in a change of control shall be subject to the provisions of this Franchise.

Section 26.2 Any transactions which singularly or collectively result in a change of 50% or more of the (i) ownership or working control (for example, management of Franchisee or its Telecommunications facilities) of the Franchisee; or (ii) ownership or working control of the Franchisee's Telecommunications facilities within the City; or (iii) control of the capacity or bandwidth of the Franchisee's Telecommunication facilities within the City, shall be considered an assignment or transfer requiring notice to the City

pursuant to this Franchise. Such transactions between affiliated entities are not exempt from notice requirements. A Franchisee shall notify the City of any proposed change in, or transfer of, or acquisition by any other party of control of a Franchisee within sixty (60) days following the closing of the transaction.

Section 26.3 Franchisee may, without prior consent from the City: (i) lease the Facilities, or any portion, to another person; (ii) grant an indefeasible right of user interest in the Facilities, or any portion, to another person; or (iii) offer to provide capacity or bandwidth in its Facilities to another person, provided further, that Franchisee shall at all times retain exclusive control over its Facilities and remain fully responsible for compliance with the terms of this Franchise, and Franchisee shall furnish, upon request from the City, a copy of any such lease or agreement, provided that Franchisee may redact the name, street address (except for City and zip code), Social Security Numbers, Employer Identification Numbers or similar identifying information, and other information considered confidential under applicable laws provided in such lease or agreement, and the lessee complies, to the extent applicable, with the requirements of this Franchise and applicable City codes. Franchisee's obligation to remain fully responsible for compliance with the terms under this Section 26.3 shall survive the expiration of this Franchise but only if and to the extent and for so long as Franchisee is still the owner or has exclusive control over the Facilities used by a third party.

**Section 27. Extension.** If this Franchise expires without renewal or is otherwise lawfully terminated or revoked, the City may, subject to applicable law:

(a) Allow Franchisee to maintain and operate its Facilities on a month-to-month basis, provided that Franchisee maintains insurance for such Facilities during such period and continues to comply with this Franchise; or

(b) The City may order the removal of any and all Facilities at Franchisee's sole cost and expense consistent with Section 18.

**Section 28. Entire Agreement.** This Franchise constitutes the entire understanding and agreement between the parties as to the subject matter herein and no other agreements

or understandings, written or otherwise, shall be binding upon the parties upon execution of this Franchise.

**Section 29. Eminent Domain.** The existence of this Franchise shall not preclude the City from acquiring by condemnation in accordance with applicable law, all or a portion of the Franchisee's Facilities for the fair market value thereof. In determining the value of such Facilities, no value shall be attributed to the right to occupy the area conferred by this Franchise.

**Section 30. Vacation.** If at any time the City, by ordinance, vacates all or any portion of the area affected by this Franchise, the City shall not be liable for any damages or loss to the Franchisee by reason of such vacation. The City shall notify the Franchisee in writing not less than ninety (90) days before vacating all or any portion of any such area. The City may, after ninety (90) days written notice to the Franchisee, terminate this Franchise with respect to such vacated area.

**Section 31. Notice.** Any notice required or permitted under this Franchise shall be in writing, and shall be delivered personally, delivered by a nationally recognized overnight courier, or sent by registered or certified mail, return receipt requested, to the other party at the address listed below. If such notice, demand or other communication shall be served personally, service shall be conclusively deemed made at the time of such personal service. If such notice, demand or other communication is given by overnight delivery, it shall be conclusively deemed given the day after it was sent to the party to whom such notice, demand or other communication is to be given. If such notice, demand or other communication is given by mail, it shall be conclusively deemed given three (3) days after it was deposited in the United States mail addressed to the party to whom such notice, demand or other communication is to be given.

CITY OF BOTHELL  
Public Works Director  
18415 101<sup>st</sup> Ave. N.E.  
Bothell, WA 98011

Franchisee:  
Crown Castle Fiber LLC  
c/o Crown Castle  
2000 Corporate Drive  
Canonsburg, PA 15317  
Attn: Ken Simon, General  
Counsel

With a copy to:

Crown Castle Fiber LLC  
c/o Crown Castle  
2000 Corporate Drive  
Canonsburg, PA 15317  
Attn: SCN Contracts  
Management

**Section 32. Severability.** If any section, sentence, clause, or phrase of this Franchise should be held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause, or phrase of this Franchise unless such invalidity or unconstitutionality materially alters the rights, privileges, duties, or obligations hereunder, in which event either party may request renegotiation of those remaining terms of this Franchise materially affected by such court ruling.

**Section 33. Compliance with All Applicable Laws.** Franchisee agrees to comply with all present and future federal and state laws, ordinances, rules and regulations. Nothing herein shall be deemed to restrict the City's ability to adopt and enforce all necessary and appropriate ordinances regulating the performance of the conditions of this Franchise, including any valid ordinance made in the exercise of its police powers in the interest of public safety and for the welfare of the public. The City shall have the authority at all times to reasonably control by appropriate regulations the location, elevation, manner of construction and maintenance of Facilities by Franchisee, and Franchisee shall promptly conform with all such regulations, unless compliance would cause Franchisee to violate other requirements of law. Franchisee further expressly acknowledges that following the approval of this Franchise, the City may modify its Codes to address Small Wireless deployment and such Code modifications shall apply to Franchisee's Facilities, except to the extent of a vested right or right under state or federal law. In the event of a conflict between the provisions of this Franchise and any other generally applicable ordinance(s) enacted under the City's police power authority, such other ordinances(s) shall take precedence over the provisions set forth herein. Notwithstanding the foregoing,



Franchisee shall not be required to comply with any new ordinances to the extent that they impact existing Facilities to which Franchisee has a vested right in accordance with the vested rights doctrine under Washington case law or as codified at RCW 19.27.095.

**Section 34. Amendment.** The City reserves the right at any time to amend this Franchise to conform to any hereafter enacted, amended, or adopted federal or state statute or regulation relating to the public health, safety, and welfare; or relating to roadway regulation or relating to a City ordinance enacted pursuant to such federal or state statute or regulation; provided that the City provide Franchisee with ninety (90) days prior written notice of its action setting forth the full text of the amendment and identifying the statute, regulation, or ordinance requiring the amendment. Said amendment shall become automatically effective upon expiration of the notice period unless, before expiration of that period, Franchisee makes a written request for negotiations over the terms of the amendment. If the parties do not reach agreement as to the terms of the amendment within ninety (90) days of the call for negotiations, the parties shall submit the issue to non-binding mediation. If such mediation is unsuccessful, the parties may then submit the issue to a court of competent jurisdiction.

**Section 35. Attorney Fees.** If a suit or other action is instituted in connection with any controversy arising out of this Franchise, the prevailing party shall be entitled to recover all of its costs, expenses, and attorney fees as the court finds reasonable, including those upon appeal of any judgment or ruling.

**Section 36. Hazardous Substances.** Franchisee shall not introduce or use any hazardous substances (chemical or waste) in violation of any applicable law or regulation, and Franchisee shall not allow any of its agents, contractors, or any person under its control to do the same. Franchisee will be solely responsible for and will defend, indemnify, and hold the City and its officers, officials, employees, agents, and representatives harmless from and against any and all claims, costs, and liabilities, including reasonable attorney fees and costs, arising out of or in connection with the cleanup or restoration of the property associated with Franchisee's use, storage, or disposal of hazardous substances, whether or not intentional, and/or with the use, storage

or disposal of such substances by Franchisee's agents, contractors, or other persons acting under Franchisee's control, whether or not intentional.

**Section 37. Licenses, Fees, and Taxes.** Prior to constructing any improvements, Franchisee shall obtain a business or utility license from the City. Franchisee shall pay promptly, and before they become delinquent, all taxes on personal property and improvements owned or placed by Franchisee and shall pay all license fees and public utility charges relating to the conduct of its business, shall pay for all permits, licenses, and zoning approvals, shall pay any other applicable tax unless documentation of exemption is provided to the City, and shall pay utility taxes and license fees imposed by the City.

**Section 38. Miscellaneous.**

Section 38.1 City and Franchisee respectively represent that its signatory is duly authorized and has full right, power, and authority to execute this Franchise.

Section 38.2 This Franchise shall be construed in accordance with the laws of the State of Washington. Venue for any dispute related to this Franchise shall be the United States District Court for the Western District of Washington or King County Superior Court.

Section 38.3 The section captions and headings herein are intended solely to facilitate the reading thereof. Such captions and headings shall not affect the meaning or interpretation of the text herein.

Section 38.4 Where the context so requires, the singular shall include the plural and the plural includes the singular.

Section 38.5 Franchisee shall be responsible for obtaining all other necessary approvals, authorizations, and agreements from any party or entity and it is acknowledged and agreed that the City is making no representation, warranty, or covenant whether any of the foregoing approvals, authorizations, or agreements are required or have been obtained by Franchisee by any person or entity.

Section 38.6 This Franchise may be enforced at both law and equity.

Section 38.7 Franchisee acknowledges that it, and not the City, shall be responsible for the premises and equipment's compliance with all marking and lighting requirements of the FAA and the FCC. Franchisee shall indemnify and hold the City harmless from any fines or other liabilities caused by Franchisee's failure to comply with such requirements. Should Franchisee or the City be cited by either the FCC or the FAA because the Facilities or the Franchisee's equipment is not in compliance and should Franchisee fail to cure the conditions of noncompliance within the timeframe allowed by the citing agency, the City may either terminate this Franchise immediately on notice to the Franchisee or proceed to cure the conditions of noncompliance at the Franchisee's expense.

Section 38.8 Neither party shall be required to perform any covenant or obligation in this Franchise, or be liable in damages to the other party, so long as the performance of the covenant or obligation is delayed, caused or prevented by a Force Majeure Event. A "Force Majeure Event" is defined for purposes of this Franchise as strikes, lockouts, sit-down strike, unusual transportation delays, riots, floods, washouts, explosions, earthquakes, fire, storms, weather (including inclement weather which prevents construction), acts of the public enemy, wars, terrorism, insurrections, and any other similar act of God event.

**Section 39. Acceptance.** The rights and privileges granted pursuant to this Franchise shall not become effective until its terms and conditions are accepted by Franchisee. Acceptance shall be accomplished by Franchisee's submission of a written instrument in the form attached hereto as Exhibit A, executed and sworn to by a corporate officer of the Franchisee before a Notary Public. Acceptance must be filed with the City within thirty (30) days after the effective date of this Ordinance. At the time that acceptance is submitted, Franchisee shall also submit necessary insurance documentation pursuant to Section 17; any Performance Bond, if applicable, pursuant to Section 19; and the Franchise Bond required pursuant to Section 19.3. The administrative fees owing pursuant to Section 14.1 are due within thirty (30) days of receipt of invoice from the City.

APPROVED:

\_\_\_\_\_  
LIAM OLSEN  
MAYOR

ATTEST/AUTHENTICATED:

\_\_\_\_\_  
LAURA HATHAWAY  
CITY CLERK

APPROVED AS TO FORM:

\_\_\_\_\_  
PAUL BYRNE  
CITY ATTORNEY

FILED WITH THE CITY CLERK: \_\_\_\_\_  
PASSED BY THE CITY COUNCIL: \_\_\_\_\_  
PUBLISHED: \_\_\_\_\_  
EFFECTIVE DATE: \_\_\_\_\_  
ORDINANCE NO.: \_\_\_\_\_ (2020)

**SUMMARY OF ORDINANCE NO. \_\_\_\_\_ (2020)**

City of Bothell, Washington

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On the \_\_\_\_\_ day of \_\_\_\_\_, 2020, the City Council of the City of Bothell passed Ordinance No. \_\_\_\_\_ (2020). A summary of the content of said Ordinance, consisting of the title, is provided as follows:

AN ORDINANCE OF THE CITY OF BOTHELL, WASHINGTON, GRANTING TO CROWN CASTLE FIBER LLC C/O CROWN CASTLE AND ITS AFFILIATES, SUCCESSORS, AND ASSIGNS THE RIGHT, PRIVILEGE, AUTHORITY, AND NONEXCLUSIVE FRANCHISE FOR FIVE YEARS TO CONSTRUCT, MAINTAIN, OPERATE, REPLACE, AND REPAIR A TELECOMMUNICATIONS NETWORK IN, ACROSS, OVER, ALONG, UNDER, THROUGH, AND BELOW THE PUBLIC RIGHTS-OF-WAY OF THE CITY OF BOTHELL, WASHINGTON.

The full text of this Ordinance will be mailed upon request.

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LAURA HATHAWAY  
CITY CLERK

FILED WITH THE CITY CLERK: \_\_\_\_\_  
PASSED BY THE CITY COUNCIL: \_\_\_\_\_  
PUBLISHED: \_\_\_\_\_  
EFFECTIVE DATE: \_\_\_\_\_  
ORDINANCE NO.: \_\_\_\_\_ (2020)

EXHIBIT A

STATEMENT OF ACCEPTANCE

Crown Castle Fiber LLC c/o Crown Castle, for itself and its successors and assigns, hereby accepts and agrees to be bound by all lawful terms, conditions, and provisions of the Franchise attached hereto and incorporated herein by this reference.

CROWN CASTLE FIBER LLC C/O CROWN CASTLE

By: \_\_\_\_\_ Date: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

STATE OF \_\_\_\_\_ )  
COUNTY OF \_\_\_\_\_ )

On this \_\_\_\_ day of \_\_\_\_\_, 201\_, before me the undersigned, a Notary Public in and for the State of \_\_\_\_\_, duly commissioned and sworn, personally appeared, \_\_\_\_\_ of \_\_\_\_\_, the company that executed the within and foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said company, for the uses and purposes therein mentioned, and on oath stated that he/she is authorized to execute said instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal on the date hereinabove set forth.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
NOTARY PUBLIC in and for the State of \_\_\_\_\_, residing at \_\_\_\_\_

MY COMMISSION EXPIRES: \_\_\_\_\_





City of Bothell™

City Council  
Agenda Bill  
AB # 20-062

**TO:** Mayor Olsen and Members of the Bothell City Council

**FROM:** Paul Byrne, City Attorney  
Darcey Eilers, Deputy City Attorney  
Elana Zana, Ogden Murphy Wallace (City's telecommunications counsel)

**DATE:** June 2, 2020

**SUBJECT:** Approve an Ordinance Extending Comcast's Cable Television Franchise Agreement until May 2025

**POLICY CONSIDERATION:** This item asks the City Council to consider if the City should adopt an ordinance extending the existing cable franchise agreement with Comcast for an additional five years to May 2025.

If approved, it has the potential to impact community members and businesses by continuing to allow existing cable service and maintaining the existing number of cable service providers in the City. If approved, it will also positively impact the City by maintaining the existing no-cost institutional fiber optic cable network (I-Net) that exclusively serves several City buildings (City Hall, Police Department, and Fire Station 42). In addition, the City will continue to collect revenue from franchise activities and reimbursement for previously-incurred capital costs associated with public, educational, and government (PEG) channel programming.

HISTORY:	DATE	ACTION
	NOVEMBER 3, 1997	City Council granted a cable franchise to Vista Television d/b/a TCI of Washington (Ord. No. 1709)
	JANUARY 16, 2001	City Council approved a three-year franchise extension to Vista Television Cable (Ord. 1843)
	DECEMBER 17, 2001	City Council approved an additional two-year franchise extension to Vista Television Cable (Ord. 1866)
	JUNE 17, 2002	City Council approved the transfer of control of the cable franchise from TCI of Washington (a subsidiary of AT&T) to the newly-merged AT&T Comcast (Resolution No. 1138)

**APRIL 21, 2009**

City Council approved a franchise extension for Comcast of Washington II, Inc. (Ord. No. 2018)

**APRIL 19, 2011**

City Council adopted a cable franchise renewal by approving a new seven-year franchise agreement with Comcast of Washington II, Inc. (Ord. No. 2065); the agreement was effective May 20, 2011 (Agreement No. 11-140)

Comcast provides cable services to Bothell customers, operating its cable system in City rights-of-way under a franchise agreement. Comcast's current franchise is the successor to an original 1997 franchise, granted to Vista Television d/b/a TCI of Washington. Like many telecommunication companies, Comcast has experienced corporate name changes and business mergers. The most recent franchise with Comcast expired in May 2018.

**DISCUSSION:** Since prior to the expiration of Comcast's franchise, the City's outside telecommunications counsel, Elana Zana with Ogden Murphy Wallace, and the City's legal staff have been negotiating with Comcast representatives for a new franchise agreement that will be more consistent with other franchise agreements. In the meantime, Comcast and the City have continued operating under the existing franchise. For reference, Comcast currently has approximately 6,000 cable subscribers.

City staff are recommending an extension at this point rather than a new franchise, based on the recent changes in the law promulgated by the Federal Communications Commission ("FCC"), specifically the impact the 2019 FCC Order will have on franchise fee revenues, the in-kind services provided by Comcast, and the City's I-Net.

One issue that has delayed a new agreement is that Comcast determined that it would no longer provide the no-cost institutional fiber optic cable network (I-net) that exclusively serves the City. Currently, several City buildings (City Hall, the Police Department, and Fire Station 42) are served by a I-net system that Comcast installed solely for City use. Loss of Comcast's no-cost I-net will result in future operating costs. City staff is developing a plan to provide necessary fiber optic cable to City buildings without relying on outside providers in order to reduce anticipated future operating expenses.

Comcast has agreed to continue the status quo of the existing franchise for an additional five years through May 2025. The status of this extension may change

prior to that date depending on the enforceability of the 2019 FCC Order and potential new orders or rules expected in the coming year.

The proposed extension ordinance is attached as **Attachment 1**.

**FISCAL IMPACTS:** The revenue associated with this franchise agreement is unchanged and consistent with budgeted amounts. Comcast pays a 5% franchise fee to the City, which results in a franchise fee payment of approximately \$135,000 per quarter. Comcast also remits to the City approximately \$6,500 per quarter in PEG fees and approximately \$9,500 per quarter in utility taxes.

**ATTACHMENTS:** Att-1. Proposed Ordinance Extending the Comcast Cable Franchise

**RECOMMENDED ACTION:** No action is requested at this time; however, this item is currently scheduled for Council action on the June 16, 2020 consent agenda.

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**ORDINANCE NO. \_\_\_\_\_ (2020)**

AN ORDINANCE OF THE CITY OF BOTHELL, WASHINGTON,  
GRANTING A CABLE TELEVISION FRANCHISE EXTENSION TO  
COMCAST CABLE COMMUNICATIONS MANAGEMENT, LLC, AND  
FIXING AN EFFECTIVE DATE.

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WHEREAS, the City of Bothell (the "City") granted a cable franchise to Comcast Cable Communications Management, LLC ("Comcast"), dated May 20, 2011, by Ordinance No. 2065, which is also filed as Agreement No. 11-140 (the "Franchise"); and

WHEREAS, the Franchise expired on May 20, 2018; and

WHEREAS, Section 2.9 of the Franchise contemplates that the parties will discuss an extension of the Franchise; and

WHEREAS, Comcast and the City have been engaged in negotiations in accordance with the provisions of 47 U.S.C. § 546(h); and

WHEREAS, Comcast and the City find it mutually beneficial to extend the existing Franchise for five (5) years.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BOTHELL, WASHINGTON, DOES ORDAIN AS FOLLOWS:

Section 1. FRANCHISE EXTENSION. The term of the Franchise is hereby extended up to and through May 20, 2025. This extension is expressly conditioned upon the City's receipt of Comcast's written acceptance as described in Section 4.

Section 2. COMPLIANCE WITH FRANCHISE TERMS. As a condition of the extension granted by this Ordinance, both parties shall agree to continue to abide by the terms of the Franchise. Subject to applicable law, all provisions in the Franchise shall remain in effect throughout the duration of the Franchise extension identified in this Ordinance, except that the provision for the duration of the Franchise is extended to May 20, 2025.

Section 3. INSURANCE. The insurance policies maintained by Comcast pursuant to the Franchise shall remain in effect during the extension period.

Section 4. ACCEPTANCE. The rights and privileges granted pursuant to this Ordinance shall not become effective until its terms and conditions are accepted by Comcast. Acceptance shall be accomplished by the submission of a written instrument executed and sworn to by a corporate officer of Comcast before a Notary Public and filed with the City within sixty (60) days after the effective date of this Ordinance, in a form substantially attached as Exhibit A hereto.

Section 5. RESERVATION OF RIGHTS AND NO WAIVER. Both the City and Comcast reserve and retain all of their rights under both the formal renewal process and informal renewal process under 47 U.S.C. § 546. By extending and accepting the Franchise, neither party waives any rights it may have under the law.

Section 6. SEVERABILITY. If any section, sentence, clause, or phrase of this ordinance should be held to be invalid by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause, or phrase of this ordinance.

Section 7. EFFECTIVE DATE. This ordinance, being an exercise of a power specifically delegated to the City legislative body, is not subject to referendum and shall take effect five (5) days after passage and publication of an approved summary thereof consisting of the title.

Section 8. CORRECTIONS. The City Clerk and the codifiers of this ordinance are authorized to make necessary corrections to this ordinance including, but not limited to, the correction of scrivener's/clerical errors, references, ordinance numbering, section/subsection numbers, and any references thereto.

APPROVED:

---

LIAM OLSEN  
MAYOR

ATTEST/AUTHENTICATED:

---

LAURA HATHAWAY  
CITY CLERK

APPROVED AS TO FORM:

---

PAUL BYRNE  
CITY ATTORNEY

FILED WITH THE CITY CLERK: \_\_\_\_\_  
PASSED BY THE CITY COUNCIL: \_\_\_\_\_  
PUBLISHED: \_\_\_\_\_  
EFFECTIVE DATE: \_\_\_\_\_  
ORDINANCE NO.: \_\_\_\_\_ (2020)



**SUMMARY OF ORDINANCE NO. \_\_\_\_\_ (2020)**

City of Bothell, Washington

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On the \_\_\_\_\_ day of \_\_\_\_\_, 2020, the City Council of the City of Bothell passed Ordinance No. \_\_\_\_\_ (2020). A summary of the content of said Ordinance, consisting of the title, is provided as follows:

AN ORDINANCE OF THE CITY OF BOTHELL, WASHINGTON, GRANTING A CABLE TELEVISION FRANCHISE EXTENSION TO COMCAST CABLE COMMUNICATIONS MANAGEMENT, LLC AND FIXING AN EFFECTIVE DATE.

The full text of this Ordinance will be mailed upon request.

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LAURA HATHAWAY  
CITY CLERK

FILED WITH THE CITY CLERK: \_\_\_\_\_  
PASSED BY THE CITY COUNCIL: \_\_\_\_\_  
PUBLISHED: \_\_\_\_\_  
EFFECTIVE DATE: \_\_\_\_\_  
ORDINANCE NO.: \_\_\_\_\_ (2020)

**EXHIBIT A**  
**ACCEPTANCE OF EXTENSION OF FRANCHISE**

This Acceptance of Extension of Franchise is made this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, by and between Comcast Cable Communications Management, LLC ("Comcast") and the City of Bothell, Washington (the "City").

WHEREAS, the City conferred a franchise on Comcast (the "Franchise") and recently adopted Ordinance No. \_\_\_\_ extending the term of the Franchise; and

WHEREAS, the City and Comcast wish to agree to and acknowledge the continued effect of the Franchise until May 10, 2025.

Now, therefore, Comcast and the City acknowledge and agree as follows:

1. Term. The Franchise is hereby acknowledged and agreed to be extended until May 10, 2025.
2. Ratification. All terms and conditions of the Franchise are hereby ratified, accepted and confirmed, except that the provision for the duration of the Franchise is hereby extended to May 10, 2025. Comcast confirms hereby that it will maintain during this extended term insurance policies as described in the Franchise.

CITY OF BOTHELL

By: \_\_\_\_\_  
MAYOR

Dated: \_\_\_\_\_

COMCAST

By: \_\_\_\_\_  
Its: \_\_\_\_\_  
Dated: \_\_\_\_\_

STATE OF WASHINGTON )  
 ) ss.  
COUNTY OF \_\_\_\_\_ )

On this \_\_\_\_\_ day of \_\_\_\_\_, 2020, before me personally appeared \_\_\_\_\_, to me known to be the \_\_\_\_\_ of the corporation that executed the within and foregoing instrument, and acknowledged said instrument to be the free and voluntary act and deed of said corporation for the uses and purposes therein mentioned, and on oath stated that \_\_\_\_\_ was authorized to execute said instrument.

In witness whereof I have hereunto set my hand and affixed my official seal the day and year first above written.

NOTARY PUBLIC in and for the State  
of Washington, residing at \_\_\_\_\_  
My commission expires: \_\_\_\_\_



## City of Bothell™

**City Council**  
**Agenda Bill**  
AB # 20-063

**TO:** Mayor Olsen and Members of the Bothell City Council

**FROM:** Michael Kattermann, Community Development Director  
Erin Leonhart, Public Works Director  
Dave Boyd, Community Development Senior Planner (Presenter)  
Boyd E. Benson, Utilities & Development Services Manager

**DATE:** June 2, 2020

**SUBJECT:** Public Hearing and Consideration of an Ordinance Amending Sections of Bothell Municipal Code Chapter 14.04, Critical Areas Regulations, to comply with Federal Emergency Management Administration requirements

**POLICY CONSIDERATION:** This item asks the City Council to consider proposed amendments (Attachment 1) to the Critical Areas Regulations related to special flood hazard areas as required by the Federal Emergency Management Agency (FEMA). These regulations must be adopted and effective by June 19, 2020 in order for the City to be in compliance and for property owners in the City to be able to be covered under FEMA flood insurance programs.

**HISTORY:**

DATE	ACTION
<b>FEBRUARY 19, 2019</b>	City Council reinitiated amendment
<b>JUNE 4, 2019</b>	Council study session, action later deferred
<b>JANUARY 30, 2020</b>	FEMA Community Assistance Contact visit

These amendments were first initiated in 2016 along with other Critical Areas Regulations updates, but have been deferred pending FEMA guidance, including updated mapping of floodplains and floodways. FEMA is adopting new Flood Insurance Rate Maps on June 19 (Snohomish County) and August 19 (King County) and completion of these amendments is required by FEMA to ensure that the Municipal Code complies with current Federal requirements.

On June 4, 2019, Council held a study session on Planning Commission recommendations for related Critical Areas Regulations updates, but the FEMA guidance was still pending, and council indicated a preference to do a more complete study of wetland buffers before adopting any updates. In early 2020, a consultant contract for the wetland buffer study began, and FEMA guidance was received with a June 19 deadline for adoption. The wetland buffer analysis is underway, but will not be complete in time to include with the FEMA amendments. It is anticipated that the wetland buffer analysis and related

Critical Areas Regulations amendments will be reviewed by Planning Commission in Summer 2020 and City Council in Fall 2020.

**DISCUSSION:** The FEMA Critical Areas Regulations amendments are narrowly focused on compliance with recent FEMA requirements related to updated floodplain mapping and consistency with Washington Department of Ecology model code regarding management of frequently flooded areas, now referred to as Special Flood Hazard Areas. Attachment 2 is a comparative table indicating where proposed BMC amendments address the recommendations of the model code. City staff used this tool in working with FEMA and Department of Ecology staff to ensure proposed BMC amendments comply.

Special Flood Hazard Area requirements must be considered for all development within mapped flood hazard areas subject to periodic inundation to minimize potential loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base. The existing regulations are substantially consistent with current requirements and much of the amendments focus on incorporating the precise definitions and language of the model code. A new separate “Special Flood Hazard Area” permit process has been developed to more effectively address and enforce the specific requirements of the amendments

These updates must be effective by June 19, 2020, in order for the City to be compliant with respect to FEMA requirements and for property owners to qualify for coverage under FEMA flood insurance programs. For that reason, they are proceeding ahead of other Critical Areas Regulations updates that are in process. This “phased” approval process will assure that property owners will be able to maintain continuous flood insurance coverage.

Because of the need to meet the FEMA deadline and the COVID-19 restrictions on public meetings, there was not time to review these amendments with the Planning Commission. Council has the ability to act without Planning Commission review or recommendation and this situation seems to warrant direct Council action. If adopted by Council, the ordinance (Attachment 1) will be published on June 5 and become effective on June 10.

**FISCAL**  
**IMPACTS:** This item has no financial implications.

**City Council**  
**Agenda Bill**  
AB # 20-063

**ATTACHMENTS:** | Att-1. Proposed Ordinance  
Att-2. Washington State Model Ordinance Evaluation Sheet  
Att-3. SEPA Comments and Responses

**RECOMMENDED ACTION:** | Approve the proposed Ordinance (Attachment 1), Amending Sections of Bothell Municipal Code Chapter 14.04, Critical Areas Regulations, pertaining to flood management.

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**ORDINANCE NO. \_\_\_\_\_ (2020)**

AN ORDINANCE OF THE CITY OF BOTHELL, WASHINGTON, AMENDING CHAPTER 14.04 OF THE BOTHELL MUNICIPAL CODE (BMC) RELATING TO CRITICAL AREA REGULATIONS FOR SPECIAL FLOOD HAZARD AREAS AND ADDING NEW SECTIONS, WITH AN ASSOCIATED MINOR PROCEDURAL AMENDMENT TO BMC 11.04.003.

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WHEREAS, there are areas in Bothell that are considered special flood hazard areas, also called floodplains or 100-year floodplains, because those areas are subject to a 1 percent or greater chance of flooding in a given year;

WHEREAS, these flood hazard areas are subject to periodic inundation, which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare; and

WHEREAS, in order to maintain participation in the National Flood Insurance Program (NFIP) and allow Bothell residents to obtain flood insurance and to be eligible to receive certain types of federal disaster aid when the need comes, the City must adopt an updated floodplain ordinance that meets current state and NFIP standards; and

WHEREAS, the Federal Emergency Management Agency (FEMA) and the Washington Department of Ecology recently prepared an updated draft model ordinance that includes all the minimum standards required as a condition of participation in the NFIP; and

WHEREAS, a community that does not adopt updated regulations becomes automatically suspended from the NFIP until the updated ordinance is adopted and approved by FEMA; and

WHEREAS, this Ordinance incorporates the provisions of the model ordinance into the City's existing specialized regulations for any development occurring in the floodplains, which are codified in Chapter 14.04 of the Bothell Municipal Code relating to critical areas; and

WHEREAS, this Ordinance is necessary to ensure property owners remain eligible for participation in the NFIP, which the current regulations amended based on a model ordinance drafted by FEMA and the Washington State Department of Ecology; and

WHEREAS, the City Council finds that it is in the public interest to adopt this Ordinance for the protection of the public health, safety, welfare, property, or peace.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BOTHELL, WASHINGTON, DOES ORDAIN AS FOLLOWS:

Section 1. Section 11.04.003 of the Bothell Municipal Code (BMC) is hereby amended to provide for processing of special flood hazard area permits, with new text shown by underline and deletions are shown by ~~strikethrough~~.

#### **11.04.003 Project permit application framework.**

A. Table of Land Use Actions Arranged by Type (Exempt, Types I, II, III, IVA, IVB and V), Indicating Hearing Body Where Appropriate.

Exempt (per BMC 11.04.007)	Type I	Type II	Type III	Type IVA	Type IVB	Type V
Landmark designations	Forest practices/land clearing permits w/o SEPA review	Short subdivision (HE if appealed)	Variance (HE)			Comp. plan amendments (PC; CC optional)
Street vacations under Chapter 35.79 RCW	Grading permits w/o SEPA review	General binding site plan (HE if appealed)	Conditional use permit (HE*)			Development regulations and amendments thereto (PC; CC optional)
Street use permits, public area use permits, and other approvals relating to the use of public areas	Building permits w/o SEPA review	Building permits w/SEPA review (HE if appealed)	Shoreline conditional use permit and shoreline variance (HE*)			Area-wide rezone (PC; CC optional)
	Right-of-way invasion permits w/o SEPA review	Shoreline substantial development permits (HE* if appealed)	Appeals of administrative interpretations#			Annexations (CC)
	Utility permits (includes: sewer connection, side		Preliminary subdivision (HE*)			

Exempt (per BMC 11.04.007)	Type I	Type II	Type III	Type IVA	Type IVB	Type V
Other project permits determined by the council to present special circumstances warranting a different review process	<p>storm sewer connection, water meter, and hydrant use)</p> <p>Tenant improvement permits</p> <p>Temporary occupancy permits for commercial and multiple-family building</p> <p>Boundary line adjustments (HE if appealed)</p> <p>Sign permits</p> <p>WCF and SWF permits</p> <p>Final certificates of occupancy</p> <p>Minor modifications to final PUD</p> <p>Administrative interpretations#</p>	<p>Critical areas alteration permits (HE if appealed)</p> <p>Reasonable use requests (HE if appealed)</p> <p>Final binding site plan (HE if appealed)</p> <p>Grading permits w/SEPA review (HE if appealed)</p> <p>Forest practices/land clearing permits w/SEPA review (HE if appealed)</p> <p>Right-of-way invasion permits w/SEPA review (HE if appealed)</p> <p>Zoning special exception</p> <p>Approval of a project within the campus district that is consistent with the campus master</p>	<p>Plat vacations and alterations (HE*)</p> <p>Preliminary PUD (HE*)</p> <p>Minor and major modifications to an approved preliminary PUD (minor modifications to be included in final PUD application; major modifications require reprocessing as a preliminary PUD) (HE*)</p> <p>Final PUD (HE*)</p> <p>Major modifications to an approved final PUD (HE*)</p>			

Exempt (per BMC 11.04.007)	Type I	Type II	Type III	Type IVA	Type IVB	Type V
	Minor modifications to approved CUPs  Demolition permits  Final plats  <u>Special flood hazard area permits</u>	plan and development agreement (HE if appealed)  Site plan review (HE if appealed)	Abbreviations for Hearing Body:  CC: City Council  HE: Hearing Examiner  PC: Planning Commission  SB: Shorelines Board  # May be appealed, see BMC 11.04.008  * Unless delegated by the council to the planning commission or shorelines board, where applicable for specific applications involving new regulations			

Section 2. BMC 14.04.005, contained in Article I of Chapter 14.04 BMC, is hereby amended as follows, with new text shown by underline and deletions shown by ~~strike through~~. All other provisions of this section will remain unchanged and in full force. Three asterisks (\*\*\*) represent omitted text that is not being amended.

#### **14.04.005 Definitions**

The following definitions apply throughout this chapter. Additional definitions applicable only to the sections relating to Special Flood Hazard Areas are included in a separate section within Article XIII.

Words not defined in this chapter shall be as defined in the city code, the Washington Administrative Code, or the Revised Code of Washington. Words not found in either code shall be as defined in the Webster's Third New International Dictionary, latest edition.

#### **A**

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~~"Area of shallow flooding" means an area designated AO or AH Zone on the flood insurance map(s). The base flood depths range from one to three feet; a clearly defined~~

~~channel does not exist; the path of flooding is unpredictable and indeterminate; and velocity flow may be evident. AO is characterized as sheet flow and AH indicates ponding.~~

“Area of special flood hazard” means the land in the floodplain within a community subject to a 1 percent or greater chance of flooding in any given year. It is shown on the Flood Insurance Rate Map (FIRM) as zone A, AO, AH, A1-30, AE, A99, AR (V, VO, V1-30, VE). “Special Flood Hazard Area” is synonymous in meaning with the phrase “area of special flood hazard.”

## **B**

~~“Base flood” means a flood having a one percent chance of being equaled or exceeded in any given year. It is also referred to as the “100-year” flood. The base flood is determined for existing conditions unless a basin plan with projected flows under future development conditions has been completed and adopted by the city of Bothell. Designations on FIRM maps always include the letters “A” or “V.”~~

~~“Base flood elevation” means the water surface elevation of the base flood. It shall be referenced to the National Geodetic Vertical Datum of 1929.~~

~~“Basement” means that portion of a story partly underground and having at least one-half of its height or more than five feet below the adjoining finish grade.~~

“Best available science” means current scientific information used in the process to designate, protect, or restore critical areas, that is derived from a valid scientific process as defined by WAC 365-195-900 through 365-195-925. Sources of the best available science are included in *Citations of Recommended Sources of Best Available Science for Designating and Protecting Critical Areas* published by the Washington State Department of Community, Trade and Economic Development. An exception is that for Article XIII regarding Special Flood Hazard Areas, requirements are derived from Federal Emergency Management Agency (FEMA) and Ecology Model Ordinance (2019).

\*\*\*

~~“Breakaway wall” means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.~~

\*\*\*

## **C**

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~~“Compensatory storage” means new, excavated storage volume equivalent to any flood storage capacity which has been or would be eliminated by filling or grading within the flood fringe. “Equivalent” shall mean that the storage removed shall be replaced by equal volume between corresponding one-foot contour intervals that are hydraulically connected to the floodway through their entire depth.~~

\*\*\*

“Critical areas” include any of the following areas or ecosystems: aquifer recharge areas, fish and wildlife habitat conservation areas, Special Flood Hazard Areas ~~frequently flooded areas~~, geologically hazardous areas, and wetlands, as defined in Chapter 36.70A RCW and this chapter.

“Critical facility” means a facility for which even a slight chance of flooding, ~~inundation~~, or impact from a hazard event might be too great. Critical facilities include, but are not limited to, schools, nursing homes, hospitals, police, fire and emergency response installations, and installations that produce, use, or store hazardous materials or hazardous waste.

\*\*\*

## E-

~~“Elevated building” means a building that has no basement and its lowest elevated floor is raised above ground level by foundation walls, shear walls, post, piers, pilings, or columns.~~

\*\*\*

## F

\*\*\*

“Flood” or “flooding” means:

A.        A general and temporary condition of partial or complete inundation of normally dry land areas from:

(1) The overflow of inland and/or tidal waters.

(2) The unusual and rapid accumulation of runoff of surface waters from any source.

(3) Mudslides (i.e., mudflows) which are proximately caused by flooding as defined in paragraph A(2) of this definition and are akin to a river of liquid and flowing

mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.

B. The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph A(1) of this definition.

~~“Flood insurance map” means the official map on which the Federal Insurance Administration has delineated the areas of special flood hazards and include the risk premium zones applicable to the community. Also known as “flood insurance rate map” or “FIRM.”~~

~~“Flood insurance study” means the official report provided by the Federal Insurance Administration that includes flood profiles, the flood boundary floodway map, and the water surface elevation of the base flood.~~

~~“Floodplain” or “flood-prone area” means the total any land area susceptible to being inundated by water from any source, adjoining a river, stream, watercourse, or lake subject to inundation by the base flood. Also see the definition for “flood” or “flooding.”~~

\*\*\*

~~“Floodway” means the channel of a river or other watercourse and the adjacent land area that must be reserved in order to discharge the base flood without cumulatively increasing the water surface water elevation more than a designated height, that one foot. Also referred to as “regulatory floodway.” known as the “zero rise floodway.”~~

\*\*\*

~~“Frequently flooded areas” or “flood hazard areas” are lands in the floodplain subject to a one percent or greater chance of flooding in any given year. These areas could include, but are not limited to, streams, lakes, wetlands and their associated floodplains, flood fringes or the Federal Emergency Management Agency floodway. A flood hazard area consists of the following components which shall be determined through a required special study or other available floodplain data.~~

~~A. “Floodplain” means the total area subject to inundation by the base flood.~~



~~B. "Flood fringe" means that portion of the floodplain outside of the FEMA floodway which is covered by floodwaters during the base flood; it is generally associated with standing water rather than rapidly flowing water.~~

~~C. "Federal Emergency Management Agency (FEMA) floodway" means the channel of the stream and that portion of the adjoining floodplain which is necessary to contain and discharge the base flood flow without increasing the base flood elevation more than one foot.~~

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## H

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~~"Hazard areas" means areas designated as Special Flood Hazard Areas frequently flooded areas or geologically hazardous areas due to potential for erosion, landslide, seismic activity, mine collapse, or other geological condition.~~

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## L

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~~"Lowest floor" means the lowest floor of the lowest enclosed area, including the basement. An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or storage in an area other than a basement area, which is not considered a building's lowest floor; provided, that such enclosure is not built so as to render the structure in violation of the applicable requirements of this chapter.~~

\*\*\*

## M

~~Manufactured home," as defined under WAC 296-150M-0020, means a single-family dwelling unit built according to the United States Department of Housing and Urban Development (HUD) Manufactured Home Construction and Safety Standards Act, which is a national, preemptive building code.~~

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~~"Mobile/manufactured home park or subdivision" means a parcel (or contiguous parcels) of land divided into two or more mobile and/or manufactured home lots for rent or sale.~~

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## S

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~~“Special flood hazard areas” means the land in the floodplain within an area subject to a one percent or greater chance of flooding in any given year. Designations of special flood hazard areas on flood insurance map(s) always include the letters A or V.~~

\*\*\*

~~“Substantial damage” means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.~~

~~“Substantial improvement” means any repair, reconstruction or improvement of a structure, the total cost or fair market value of which exceeds 50 percent of the market value of the structure either:~~

~~A. Before the improvement or repair is started; or~~

~~B. If the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition “substantial improvement” is considered to occur when the first alteration of any wall, ceiling, floor or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.~~

~~The term does not, however, include either:~~

~~1. Any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions; or~~

~~2. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places, or the Bothell Register of Historic Landmarks.~~

~~The term “substantial improvement” does not mean the same as the term “substantial development” as utilized in BMC Title 13, Shoreline Management. See shorelines master program glossary.~~

\*\*\*

## W

~~“Water dependent” means a use or portion of a use that cannot exist in a location that is not adjacent to the water, but is dependent on the water by reason of the intrinsic nature of its operations. A use that can be carried out only on, in, or adjacent to water. Examples of water dependent uses include: ship cargo terminal loading areas; fishing; ferry and passenger terminals; barge loading, ship building, and dry docking facilities; marinas, moorage, and boat launching facilities; aquaculture; float plane operations; surface water intake; and sanitary sewer and storm drain outfalls.~~

Section 3. BMC 14.04.010, contained in Article I of Chapter 14.04 BMC, is hereby amended as follows, with new text shown by underline and deletions shown by ~~strikethrough~~. All other provisions of this section will remain unchanged and in full force. Three asterisks (\*\*\*) represent omitted text that is not being amended.

**14.04.010 Purpose and goals.**

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D. *Goals.* By limiting development and alteration of critical areas, this chapter seeks to:

1. Protect members of the public and public resources and facilities from injury, loss of life, or property damage due to landslides and steep slope failures, erosion, seismic events, volcanic eruptions, or flooding;
2. Maintain healthy, functioning ecosystems through the protection of unique, fragile, and valuable elements of the environment, including ground and surface waters, wetlands, and fish and wildlife and their habitats, and to conserve the biodiversity of plant and animal species;
3. Direct activities not dependent on critical areas resources to less ecologically sensitive sites and mitigate unavoidable impacts to critical areas by regulating alterations in and adjacent to critical areas; and
4. Prevent cumulative adverse environmental impacts to water quality, wetlands, and fish and wildlife habitat, and the overall net loss of wetlands, Special Flood Hazard Areas ~~frequently flooded areas~~, and habitat conservation areas.

\*\*\*

Section 4. BMC 14.04.080, contained in Article I of Chapter 14.04 BMC, is hereby amended as follows, with new text shown by underline and deletions shown by ~~strikethrough~~. All other provisions of this section will remain unchanged and in full force. Three asterisks (\*\*\*) represent omitted text that is not being amended.

#### **14.04.080 Jurisdiction – Critical areas.**

A. The city shall regulate all uses, activities, and developments within, adjacent to, or likely to affect, one or more critical areas, consistent with the best available science and the provisions herein.

B. Critical areas regulated by this chapter include:

1. Wetlands as designated in Article XI, Wetlands;
2. Critical aquifer recharge areas as designated in Article XII, Critical Aquifer Recharge Areas;
3. Special Flood Hazard Areas ~~Frequently flooded areas~~ as designated in Article XIII, Special Flood Hazard Areas ~~Frequently Flooded Areas~~;
4. Geologically hazardous areas as designated in Article XIV, Geologically Hazardous Areas; and
5. Fish and wildlife habitat conservation areas as designated in Article XV, Fish and Wildlife Habitat Conservation Areas including streams.

C. All areas within the city meeting the definition of one or more critical areas, regardless of any formal identification, are hereby designated critical areas and are subject to the provisions of this chapter.

D. *Areas Adjacent to Critical Areas Subject to Regulation.* Areas adjacent to critical areas shall be considered to be within the jurisdiction of these requirements and regulations to support the intent of this chapter and ensure protection of the functions and values of critical areas. "Adjacent" shall mean any activity located:

1. On a site immediately adjoining a critical area;
2. A distance equal to or less than the required critical area buffer width and building setback;
3. A distance equal to or less than one-half mile (2,640 feet) from a bald eagle nest;<sup>8</sup>
4. A distance equal to or less than 300 feet upland from a stream, wetland, or water body;<sup>9</sup>
5. Within the Special Flood Hazard Areas ~~floodway, floodplain,~~ or channel migration zone; or
6. A distance equal to or less than 200 feet from a critical aquifer recharge area.<sup>10</sup>

---Footnotes---

8 Distance of 2,640 feet is based on the Washington State Department of Fish and Wildlife's *Management Recommendations for Washington's Priority Species, Volume IV: Birds*, 2000.

9 Distance of 300 feet is based on maximum recommended riparian habitat area width from Washington State Department of Fish and Wildlife's *Management Recommendations for Washington's Priority Habitats: Riparian*, 1997.

10 Distance of 200 feet is a suggested distance to ensure that activities within the critical aquifer recharge area are included under the application of this chapter, even when the exact boundaries of the critical aquifer recharge area are not known at the time of application.

Section 5. BMC 14.04.120, contained in Article I of Chapter 14.04 BMC, is hereby amended as follows, with new text shown by underline and deletions shown by ~~strike through~~. All other provisions of this section will remain unchanged and in full force. Three asterisks (\*\*\*) represent omitted text that is not being amended.

#### **14.04.120 Exemptions**

A. *Exemption Request and Review Process.* The proponent of the activity may submit a written request for exemption to the director that describes the activity and states the exemption listed in this section that applies.

The director shall review the exemption request to verify that it complies with this chapter and approve, approve with conditions, or deny the exemption. If the exemption is approved, it shall be placed on file with the department. If the exemption is denied, the proponent may continue in the review process and shall be subject to the requirements of this chapter.

Exemptions within this section do not exempt any development, activity, or use in a Special Flood Hazard Area from complying with all applicable requirements of Article XIII.

\*\*\*

Section 6. BMC 14.04.130, contained in Article III of Chapter 14.04 BMC, is hereby amended as follows, with new text shown by underline. All other provisions of this section will remain unchanged and in full force. Three asterisks (\*\*\*) represent omitted text that is not being amended.

#### **14.04.130 Exception – Public agency and utility.**

A. If the application of this chapter would prohibit a development proposal by a public agency or public utility, the agency or utility may apply for an exception pursuant to this section. However, this exception section does not apply to provide any exception to the requirements of Article XIII of this Chapter. Instead, Special Flood Hazard Area exceptions must comply with all Special Flood Hazard Area requirements in Article XIII of this Chapter and 44 CFR 60.6(a).

\*\*\*

Section 7. BMC 14.04.150, contained in Article IV of Chapter 14.04 BMC, is hereby amended as follows, with new text shown by underline. All other provisions of this section will remain unchanged and in full force. Three asterisks (\*\*\*) represent omitted text that is not being amended.

#### **14.04.150 Allowed Activities**

A. *Critical Areas Report.* Activities allowed under this chapter shall have been reviewed and permitted or approved by the city or other agency with jurisdiction, but do not require submittal of a separate critical areas identification form or critical areas report, unless such submittal was required previously for the underlying permit. The director may apply conditions to the underlying permit or approval to ensure that the allowed activity is consistent with the provisions of this chapter to protect critical areas. Nothing within this section authorizes activities in a Special Flood Hazard Area to occur without complying with all applicable requirements of Article XIII.

\*\*\*

Section 8. BMC 14.04.210, contained in Article VI of Chapter 14.04 BMC, is hereby amended as follows, with new text shown by underline and deletions shown by ~~strike through~~. All other provisions of this section will remain unchanged and in full force. Three asterisks (\*\*\*) represent omitted text that is not being amended.

#### **14.04.210 Mitigation sequencing.**

Applicants shall demonstrate that all reasonable efforts have been examined with the intent to avoid and minimize adverse impacts to critical areas. When an alteration to a critical area is proposed, such alteration shall be avoided, minimized, or compensated for in the following sequential order of preference:

A. Avoiding the adverse impact altogether by not taking a certain action or parts of an action;

- B. Minimizing adverse impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;
- C. Rectifying the adverse impact to wetlands, critical aquifer recharge areas, Special Flood Hazard Areas ~~frequently flooded areas~~, and habitat conservation areas by repairing, rehabilitating, or restoring the affected environment to the historical conditions or the conditions existing at the time of the initiation of the project;
- D. Minimizing or eliminating the hazard by restoring or stabilizing the hazard area through engineered or other methods;
- E. Reducing or eliminating the adverse impact or hazard over time by preservation and maintenance operations during the life of the action;
- F. Compensating for the adverse impact to wetlands, critical aquifer recharge areas, Special Flood Hazard Areas ~~frequently flooded areas~~, and habitat conservation areas by replacing, enhancing, or providing substitute resources or environments; and
- G. Monitoring the hazard or other required mitigation and taking remedial action when necessary.

Mitigation for individual actions may include a combination of the above measures as appropriate. With any mitigation measures taken in a Special Flood Hazard Area, alterations must comply with all Special Flood Hazard Area requirements in Article XIII of this Chapter and may require official FIRM revision through either a Conditional Letter of Map Revision (CLOMR) or a Letter of Map Revision (LOMR).

Section 9. BMC 14.04.250, contained in Article VIII of Chapter 14.04 BMC, is hereby amended as follows, with new text shown by underline and deletions shown by ~~strike through~~. All other provisions of this section will remain unchanged and in full force. Three asterisks (\*\*\*) represent omitted text that is not being amended.

#### **14.04.250 Variances.**

- A. Variances from the standards of this chapter may be authorized by the city in accordance with the procedures set forth in Chapter 12.36 BMC, except that a variance cannot be granted under this section to authorize a variance from the requirements of Article XIII of this Chapter for Special Flood Hazard Areas. For variances under this section, tThe hearing body shall review the request and make a written finding that the request meets or fails to meet the variance criteria.



B. *Variance Criteria.* A variance may be granted only if the applicant demonstrates that the requested action conforms to all of the criteria set forth in Chapter 12.36 BMC as follows:

1. Special conditions and circumstances exist that are peculiar to the land, the lot, or something inherent in the land, and that are not applicable to other lands in the same district;
2. The special conditions and circumstances do not result from the actions of the applicant;
3. A literal interpretation of the provisions of this chapter would deprive the applicant of all reasonable economic uses and privileges permitted to other properties in the vicinity and zone of the subject property under the terms of this chapter, and the variance requested is the minimum necessary to provide the applicant with such rights;
4. Granting the variance requested will not confer on the applicant any special privilege that is denied by this chapter to other lands, structures, or buildings under similar circumstances;
5. The granting of the variance is consistent with the general purpose and intent of this chapter, and will not further degrade the functions or values of the associated critical areas or otherwise be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity of the subject property;
6. The decision to grant the variance includes the best available science and gives special consideration to conservation or protection measures necessary to preserve or enhance anadromous fish habitat; and
7. The granting of the variance is consistent with the general purpose and intent of the Imagine Bothell Comprehensive Plan and adopted development regulations.

C. *Conditions May Be Required.* In granting any variance, the city may prescribe such conditions and safeguards as are necessary to secure adequate protection of critical areas from adverse impacts, and to ensure conformity with this chapter.

D. *Time Limit.* The city shall prescribe a time limit within which the action for which the variance is required shall be begun, completed, or both. Failure to begin or complete such action within the established time limit shall void the variance.

E. *Burden of Proof.* The burden of proof shall be on the applicant to bring forth evidence in support of the application and upon which any decision has to be made on the application.

Section 10. BMC 14.04.260, contained in Article IX of Chapter 14.04 BMC, is hereby amended as follows, with new text shown by underline and deletions shown by ~~strike through~~. All other provisions of this section will remain unchanged and in full force. Three asterisks (\*\*\*) represent omitted text that is not being amended.

**14.04.260    Unauthorized critical area alterations and enforcement.**

A. When a critical area or its buffer has been altered in violation of this chapter, all ongoing development work shall stop and the critical area shall be restored. The city shall have the authority to issue a stop work order to cease all ongoing development work, and order restoration, rehabilitation, or replacement measures at the owner's or other responsible party's expense to compensate for violation of provisions of this chapter.

B. *Requirement for Restoration Plan.* All development work shall remain stopped until a restoration plan is prepared and approved by the city. Such a plan shall be prepared by a qualified professional using the best available science and shall describe how the actions proposed meet the minimum requirements described in subsection C of this section. The director shall, at the violator's expense, seek expert advice in determining the adequacy of the plan. Inadequate plans shall be returned to the applicant or violator for revision and resubmittal.

*C. Minimum Performance Standards for Restoration.*

1. For alterations to critical aquifer recharge areas, Special Flood Hazard Areas ~~frequently flooded areas~~, wetlands, and habitat conservation areas, the following minimum performance standards shall be met for the restoration of a critical area; provided, that if the violator can demonstrate that greater functional and habitat values can be obtained, these standards may be modified:

- a. The historic structural and functional values shall be restored, including water quality and habitat functions;
- b. The historic soil types and configuration shall be replicated;
- c. The critical area and buffers shall be replanted with native vegetation that replicates the vegetation historically found on the site in species types, sizes, and densities. The historic functions and values should be replicated at the location of the alteration; and
- d. Information demonstrating compliance with the requirements in BMC 14.04.230, Mitigation plan requirements, shall be submitted to the director.

2. For alterations to Special Flood Hazard Areas ~~flood~~ and geological hazards, the following minimum performance standards shall be met for the restoration of a

critical area; provided, that if the violator can demonstrate that greater safety can be obtained, these standards may be modified:

- a. The hazard shall be reduced to a level equal to, or less than, the pre-development hazard;
- b. Any risk of personal injury resulting from the alteration shall be eliminated or minimized; and
- c. The hazard area and buffers shall be replanted with native vegetation sufficient to minimize the hazard.

\*\*\*

Section 11. Article XIII of Chapter 14.04 BMC is retitled from “Frequently Flooded Areas” to “Special Flood Hazard Areas” to be consistent with Federal Emergency Management Agency requirements and the language of this ordinance.

Section 12. BMC 14.04.700, contained in Article XIII of Chapter 14.04 BMC, is hereby amended as follows, with new text shown by underline and deletions shown by ~~striketrough~~. All other provisions of this section will remain unchanged and in full force. Three asterisks (\*\*\*) represent omitted text that is not being amended.

**14.04.700     Designation of Special Flood Hazard Areas ~~frequently flooded areas.~~**

~~Frequently flooded or special flood hazard areas~~ Special Flood Hazard Areas are lands subject to a one percent or greater chance of flooding in any given year; otherwise known as the “100-year” flood or the “base” flood. These areas could include, but are not limited to, streams, lakes, wetlands and their associated floodplains, or flood fringes. ~~or~~ Special Flood Hazard Areas are those areas identified by the Federal Insurance Administrator ~~Administration~~ in a scientific and engineering report entitled “The Flood Insurance Study for King County, Washington and Incorporated Areas” dated ~~March 30, 1998~~ August 19, 2020, and any revisions thereto, and “The Flood Insurance Study for Snohomish County, Washington, and Incorporated Areas,” dated ~~November 8, 1999~~ June 19, 2020, and any revisions thereto, ~~with accompanying FIRMs are hereby adopted by reference and declared to be part of this chapter. The flood insurance studies and FIRMs are on file at the office of the city clerk.~~

All development within Special Flood Hazard Areas is subject to the terms of Article XIII and other applicable regulations. The regulations contained within Article XIII represent minimum standards in special flood hazard areas and supersede any other existing ordinance, code, or regulation that is inconsistent or that requires lower or less restrictive

standards in special flood hazard areas (previously referred to as frequently flooded areas). However, these regulations are not intended to repeal or abrogate any other existing ordinances, including land development regulations, subdivision regulations, zoning ordinances, stormwater management regulations, environmental regulations, or building codes.

Section 13. A new section is added to Article XIII of Chapter 14.04 BMC to be codified as BMC 14.04.705 and titled “Definitions for Special Flood Hazard Areas.”

#### **14.04.705 Definitions for Special Flood Hazard Areas.**

The following definitions are for purposes of Special Flood Hazard Areas and shall apply only to Article XIII of this Chapter. Unless specifically defined below or in this chapter, terms or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance the most reasonable application.

1. “Alteration of watercourse” means any action that will change the location of the channel occupied by water within the banks of any portion of a riverine waterbody.
2. “Appeal” means a request for a review of the interpretation of any provision of this ordinance or a request for a variance.
3. “ASCE 24” means the most recently published version of ASCE 24, Flood Resistant Design and Construction, published by the American Society of Civil Engineers.
4. “Base flood” means a flood having a one percent chance of being equaled or exceeded in any given year. It is also referred to as the “100-year flood.”
5. “Base Flood Elevation (BFE)” means the elevation to which floodwater is anticipated to rise during the base flood.
6. “Basement” means any area of the building having its floor sub-grade (below ground level) on all sides.
7. “Building” has the same meaning as “Structure.”
8. “Building Code” means the currently effective versions of the International Building Code and the International Residential Code adopted by the State of Washington Building Code Council.
9. “Conditional Letter of Map Revision (CLOMR)” is FEMA's comment on a proposed project that would, upon construction, affect the hydrologic or hydraulic characteristics

of a flooding source and thus result in the modification of the existing regulatory floodway, the effective Base Flood Elevations, or the Special Flood Hazard Area. The letter does not revise an effective National Flood Insurance Program (NFIP) map, it indicates whether the project, if built as proposed, would be recognized by FEMA. Building permits cannot be issued based on a CLOMR, because a CLOMR does not change the NFIP map.

10. "Development" means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials located within the area of special flood hazard.
11. "Elevated Building" means, for insurance purposes, a non-basement building that has its lowest elevated floor raised above ground level by foundation walls, shear walls, post, piers, pilings, or columns.
12. "Elevation Certificate" refers to an administrative tool of the National Flood Insurance Program (NFIP) that can be used to provide elevation information, to determine the proper insurance premium rate, and to support a request for a Letter of Map Amendment (LOMA) or Letter of Map Revision based on fill (LOMR-F).
13. "Essential Facility" has the same meaning as the term "Essential Facility" defined in ASCE 24. Table 1-1 in ASCE 24-14 further identifies building occupancies that are essential facilities.
14. "Existing Manufactured Home Park or Subdivision" means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by the community.
15. "Expansion to an Existing Manufactured Home Park or Subdivision" means preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).
16. "Farmhouse" means a single-family dwelling located on a farm site where resulting agricultural products are not produced for the primary consumption or use by the occupants and the farm owner.
17. "Flood elevation study" means an examination, evaluation, and determination of flood hazards and, if appropriate, corresponding water surface elevations, or an

examination, evaluation, and determination of mudslide (*i.e.*, mudflow) and/or flood-related erosion hazards. Also known as the Flood Insurance Study (FIS).

18. "Flood Insurance Rate Map (FIRM)" means the official map of a community, on which the Federal Insurance Administrator has delineated both the Special Flood Hazard Areas and the risk premium zones applicable to the community. A FIRM that has been made available digitally is called a Digital Flood Insurance Rate Map (DFIRM).
19. "Flood-proofing" or "floodproofing" means any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate risk of flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents. Flood-proofed structures are those that have the structural integrity and design to be impervious to floodwater below the Base Flood Elevation.
20. "Floodplain administrator" means the Public Works Director, who is the community official designated by Article XIII of this chapter to administer and enforce the floodplain management regulations.
21. "Floodplain management regulations" means zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as floodplain ordinance, grading ordinance, and/or erosion control ordinance), and other application of police power. The term describes such state or local regulations, in any combination thereof, which provide standards for the purpose of flood damage prevention and reduction.
22. "Functionally dependent use" means a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, and does not include long-term storage or related manufacturing facilities.
23. "Highest adjacent grade" means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.
24. "Historic structure" means any structure that is:
  - A. Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
  - B. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a

district preliminarily determined by the Secretary to qualify as a registered historic district;

C. Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of Interior;

D. Individually listed on the Bothell Historic Resources Inventory; or

E. Listed on the Bothell Register of Historic Landmarks either individually or as part of a district.

25. "Letter of Map Revision (LOMR)" is FEMA's modification to an effective Flood Insurance Rate Map, or Flood Boundary and Floodway Map, or both. Letter of Map Revisions are generally based on the implementation of physical measures that affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective Base Flood Elevations, or the Special Flood Hazard Area. The LOMR officially revises the Flood Insurance Rate Map or Flood Boundary and Floodway Map, and sometimes the Flood Insurance Study report, and when appropriate, includes a description of the modifications. The LOMR is generally accompanied by an annotated copy of the affected portions of the FIRM, FBFM, or FIS report.

26. "Lowest floor" means the lowest floor of the lowest enclosed area, including the basement. An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or storage in an area other than a basement area, is not considered a building's lowest floor; provided, that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this chapter (*i.e.*, provided there are adequate flood ventilation openings).

27. "Manufactured Home" means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" does not include a "recreational vehicle."

28. "Manufactured home park or subdivision" means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

29. "Mean Sea Level" means, for purposes of the National Flood Insurance Program, the vertical datum to which Base Flood Elevations shown on a community's Flood Insurance Rate Map are referenced.

30. "One-hundred-year flood" or "100-year flood" has the same meaning as "Base flood."



31. "New construction," for the purposes of determining insurance rates, means structures for which the "start of construction" commenced on or after the effective date of an initial Flood Insurance Rate Map or after December 31, 1974, whichever is later, and includes any subsequent improvements to such structures. For floodplain management purposes, "new construction" means structures for which the "start of construction" commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.
32. "New Manufactured Home Park or Subdivision" means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of adopted floodplain management regulations adopted by the community.
33. "Reasonably Safe from Flooding" means development that is designed and built to be safe from flooding based on consideration of current flood elevation studies, historical data, high water marks and other reliable data known to the community. In unnumbered A zones where flood elevation information is not available and cannot be obtained by practicable means, reasonably safe from flooding means that the lowest floor is at least two feet above the Highest Adjacent Grade.
34. "Recreational Vehicle" means a vehicle:
- A. Built on a single chassis;
  - B. 400 square feet or less when measured at the largest horizontal projection;
  - C. Designed to be self-propelled or permanently towable by a light duty truck; and
  - D. Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.
35. "Start of construction" includes substantial improvement and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement was within 180 days from the date of the permit. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading, and filling; nor does it include the installation of streets and/or walkways; nor does it

include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

36. "Structure" means for floodplain management purposes, a walled and roofed building, including a gas or liquid storage tank that is principally above ground, as well as a manufactured home.
37. "Substantial Damage" means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.
38. "Substantial improvement" means reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage", regardless of the actual repair work performed. The term does not, however, include either:
- A. Any project for improvement of a structure to correct previously identified existing violations of state or local health, sanitary, or safety code specifications that have been identified by the local code enforcement official and that are the minimum necessary to assure safe living conditions;
  - B. Any alteration of a "historic structure," provided that the alteration will not preclude the structure's continued designation as a "historic structure."

The term "substantial improvement" here does not have the same meaning as the term "substantial development" as utilized in BMC Title 13 (Shoreline Management).

39. "Variance" means a grant of relief by a community from the terms of a floodplain management regulation.
40. "Water Dependent" means a structure for commerce, recreation, or industry that cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operations.
41. "Water surface elevation" means the height, in relation to the vertical datum utilized in the applicable flood insurance study, of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

Section 14. BMC 14.04.710 is hereby amended as follows, with new text shown by underline and deletions shown by ~~strike through~~. All other provisions of this section will remain unchanged and in full force. Three asterisks (\*\*\*) represent omitted text that is not being amended.

#### **14.04.710 Findings and intent.**

A. The Legislature of the State of Washington has delegated the responsibility to local communities, including the City of Bothell, to adopt floodplain management regulations designed to promote the public health, safety, and general welfare of its citizenry.

B. Frequently flooded or flood hazard areas are subject to periodic inundation which results in loss of life and property, health, and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare. These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities, and when inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated, or otherwise protected from flood damage or that are inappropriately located in the floodplain also contribute to the flood loss.

~~BC.~~ It is the intent of the city of Bothell, by way of this article, to reduce, minimize and/or prevent the public and private losses noted above and to promote the public health, safety, and general welfare; and minimize public and private losses due to flood conditions in specific areas by provisions, through the regulation of development within Special Flood Hazard Areas frequently flooded areas designed to:

1. Protect human life and health;
2. Minimize expenditure of public money for costly flood control projects;
3. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
4. Minimize prolonged business interruptions;
5. Minimize damage to public facilities and utilities, such as water and gas mains; electric, telephone, and sewer lines; and streets and bridges located in flood hazard areas;
6. Help maintain a stable tax base by providing for the sound use and development of flood hazard areas so as to minimize blight areas caused by flooding;

7. Notify potential buyers that the property is in a Special Flood Hazard Area;
8. Notify those who occupy flood hazard areas that they assume responsibility for their actions; and
9. Participate in and maintain eligibility for flood insurance and disaster relief.

D. In order accomplish its purposes, this Article includes methods and provisions for:

1. Restricting or prohibiting uses which are development that is dangerous to health, safety, and property due to water or erosion hazards, or which results in damaging increases in erosion or in flood heights or velocities;
2. ~~Require~~ Requiring that uses development vulnerable to floods, ~~including facilities which serve such uses,~~ be protected against flood damage at the time of initial construction;
3. Controlling ~~and minimize~~ the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;
4. Controlling filling, grading, dredging, and other development, which may increase flood damage; and
5. Preventing or regulate ~~regulating~~ the construction of flood barriers ~~which that will~~ unnaturally divert floodwaters or ~~which~~ may increase flood hazards in other areas.

Section 15. BMC 14.04.720 is hereby amended as follows, with new text shown by underline and deletions shown by ~~strike through~~. All other provisions of this section will remain unchanged and in full force. Three asterisks (\*\*\*) represent omitted text that is not being amended.

#### **14.04.720 Administration.**

A. ~~Critical Areas Alteration Permit (CAAP)~~ Special Flood Hazard Area Permit. A ~~CAAP~~ Special Flood Hazard Area Permit shall be obtained before construction or development begins within any area of special flood hazard as defined by this chapter. The permit shall be for all structures including manufactured homes, and for any and all other development/redevelopment in the Special Flood Hazard Area, including tenant improvements, fill, and other activities. This requirement for a Special Flood Hazard Permit is separate from and in addition to any other required permits, including a critical areas alteration permit under this chapter.

B. *Designation of the Local Flood Management Floodplain Administrator.* The Public Works Director is hereby appointed to administer, implement, and enforce this Article, including by granting or denying Special Flood Hazard Area Permits in accordance with the provisions of this Article. The Floodplain Administrator may delegate authority to implement these provisions. ~~The public works director is administrator. The public works director is appointed to administer and implement this section by reviewing permit applications in accordance with its provisions and providing final findings to the community development director who shall issue or deny the CAAP based on said findings.~~

C. *Duties and Responsibilities of the Local Flood Management Floodplain Administrator.* Duties of the local flood management floodplain administrator shall include, but not be limited to:

1. *Permit Review.*

a. Review all permit applications within areas of special flood hazard to determine that the requirements of this chapter and this section have been satisfied;

b. Review all permit applications within areas of special flood hazard to determine that all necessary permits have been obtained from those federal, state or local governmental agencies from which prior approval is required;

c. Review all permit applications within areas of special flood hazard to determine if the proposed development is not located in the floodway. If located in the floodway, assure that the encroachment provisions of BMC 14.04.760(A)3(l) of this section are met;

d. Review all permit applications within areas of special flood hazard to determine if the site is reasonably safe from flooding; and

e. In newly annexed areas, ensure that FEMA was notified that an annexation occurred in the Special Flood Hazard Area, as required by subsection C.3.

f. In areas with BFEs (when a regulatory floodway has not been designated), no new construction, substantial improvements, or other development (including fill) shall be permitted within A and AE zones on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

2. *Use of Other Base Flood Data.*

a. When base flood elevation data has not been provided or is not available in accordance with Section 14.04.700, the local flood management administrator shall obtain, review and reasonably utilize any base flood elevation and floodway data available from a federal, state or other source, in order to administer and fulfill the administrator's duties and responsibilities under this chapter Article.

b. *Review of Building Development Permits*. Where base flood elevation data has not been provided or is not available either through the ~~flood insurance study or from another authoritative source~~, FIS or FIRM or from another authoritative source as described in subsection 2(a) above, applications for building floodplain development permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment ~~the judgment of the city engineer~~ and includes use of historical data, high water marks, photographs of past flooding, etc., where available. Failure to elevate at least two feet above the highest adjacent grade in these zones may result in higher insurance rates.

### 3. Annexation.

a. Notify FEMA when annexations occur in the Special Flood Hazard Area.

D. Application for Special Flood Hazard Area Permits. Application for a Special Flood Hazard Area permit shall be made on forms furnished by the Floodplain Administrator and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Specifically, the following information is required, at minimum:

1. Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures recorded on a current elevation certificate with Section B completed by the Floodplain Administrator;
2. Elevation in relation to mean sea level to which any structure has been flood-proofed;
3. Where a structure is to be flood-proofed, certification by a registered professional engineer or architect that the flood-proofing methods for any nonresidential structure meet flood-proofing criteria in Section 17.04.760.A.3.h;
4. Description of the extent to which a watercourse will be altered or relocated as a result of proposed development;
5. Where development is proposed in a floodway, an engineering analysis indicating no rise of the Base Flood Elevation; and

6. Any other such information that may be reasonably required by the Floodplain Administrator in order to review the application.

Section 16. A new section is added to Article XIII of Chapter 14.04 BMC, to be codified as BMC 14.04.725 and titled "Penalties and Enforcement."

**14.04.725 Penalties and Enforcement.**

A. No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this Article and other applicable regulations. Violation of and/or noncompliance with the provisions of this Article by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) will be enforced and penalized under BMC 14.04.260. The remedies provided in that section, whether civil or criminal, shall be cumulative and shall be in addition to any other remedy provided by law. Each day of violation shall constitute a separate offense. Nothing herein contained shall prevent the City from taking such other lawful action as is necessary to prevent or remedy any violation.

Section 17. BMC 14.04.740 is hereby amended as follows, with new text shown by underline and deletions shown by ~~strike through~~. All other provisions of this section will remain unchanged and in full force. Three asterisks (\*\*\*) represent omitted text that is not being amended.

**14.04.740 Information to be obtained and maintained.**

A. Where base flood elevation data is provided through the ~~flood insurance study FIS, FIRM,~~ or as required in BMC 14.04.720(C)(2)(a), obtain and maintain a record of the actual (as-built) elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement.

B. For all new or substantially improved floodproofed nonresidential structures ~~in a special flood hazard area where base flood elevation data is provided through the FIS, FIRM, or as required in Section 14.04.720(D)(3):~~

1. ~~Verify~~ Obtain and maintain a record of the actual elevation (in relation to mean sea level) to which the structure was floodproofed; and
2. Maintain the floodproofing certifications required in Section 14.04.720(C)(2). ~~by this article. The applicant must provide certification by a professional civil engineer or land surveyor licensed in the state of Washington of the actual as-built elevation of~~



~~the lowest floor, including basement (in relation to mean sea level), and, if applicable, the actual as-built elevation to which the structure is floodproofed. If the structure has a basement, this must be indicated.~~

C. Certification required by Section 14.04.760(A)(3)(k)(i) (floodway encroachments).

D. Records of all variance actions, including justification for their issuance.

E. Improvement and damage calculations.

F.3- Maintain for public inspection all records pertaining to the provisions of this aArticle.

G. If a project will alter the BFE or boundaries of the SFHA, then the project proponent shall provide the community with engineering documentation and analysis regarding the proposed change. If the change to the BFE or boundaries of the SFHA would normally require a Letter of Map Change, then the project proponent shall initiate, and receive approval of, a Conditional Letter of Map Revision (CLOMR) prior to approval of the development permit. The project shall be constructed in a manner consistent with the approved CLOMR.

H. If a CLOMR application is made, then the project proponent shall also supply the full CLOMR documentation package to the Floodplain Administrator to be attached to the floodplain development permit, including all required property owner notifications.

Section 18. BMC 14.04.760 is hereby amended as follows, with new text shown by underline and deletions shown by ~~strikethrough~~. All other provisions of this section will remain unchanged and in full force. Three asterisks (\*\*\*) represent omitted text that is not being amended.

#### **14.04.760 Development regulations.**

A. Any activities in a Special Flood Hazard Area ~~special flood hazard area~~ as defined by this chapter shall require a Special Flood Hazard Area Permit Critical Area Alteration Permit (CAAP) and shall be subject to the requirements of this article ~~and, independently of any requirement for a CAAP permit under BMC 14.04.240. These regulations apply to all Special Flood Hazard Areas within the boundaries of the City of Bothell~~

##### *1. Alteration of Watercourses.*

a. Notify adjacent communities and the Department of Ecology prior to such ~~any~~ alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance ~~Administration~~ Administrator through appropriate notification means; and-

b. Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.

c. Assure that flood carrying capacity of the altered or relocated portion of said watercourse is maintained.

2. *Interpretation of FIRM Boundaries.* Make interpretations where needed, as to exact location of the boundaries of the areas of special flood hazards (e.g., where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation ~~as provided for elsewhere in this chapter.~~ Such appeals shall be granted consistent with the standards of Section 60.6 of the Rules and Regulations of the National Flood Insurance Program (NFIP).

3. *General Standards.* In all areas of special flood hazards, the following standards are required:

a. In areas where a regulatory floodway has not been designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within zone AE on the community's FIRMs, unless it is demonstrated that the cumulative effect of the proposed development when combined with all other existing development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

b. *Anchoring.*

(i) ~~All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure~~ All new construction and substantial improvements, including those related to manufactured homes, shall be anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads including the effects of buoyancy;

(ii) ~~All manufactured homes must likewise be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors, or as otherwise provided in FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook~~ All manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors.

c. *Construction Materials and Methods.*

- (i) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
- (ii) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.
- (iii) Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
- (iv) Buildings located in areas subject to ponding or low-velocity flows must primarily address issues related to hydrostatic loads on the crawlspace foundation, removal of floodwater and sediment from the crawlspace area, and other NFIP floodproofing requirements, such as protecting or elevating utilities and using flood-resistant materials in accordance with FEMA Technical Bulletin 11-01. Crawlspace construction is not recommended in A zones with high-velocity floodwaters (greater than 5 feet per second). Other types of foundations, such as open pile or column foundations, that allow floodwaters to flow freely beneath the building are recommended for these areas.

d. *Utilities.*

- (i) Utilities shall be located in the 100-year floodplain only when no other physically feasible location is available.
- (ii) All new and replacement water supply systems, when permitted in the SFHA or 100-year floodplain, shall be designed to minimize or eliminate infiltration of floodwaters into the system. Water wells shall be located on high ground that is not in the floodway.
- (iii) Installation of new or replacement sanitary sewage systems in the 100-year floodplain shall be prohibited unless a waiver is granted by the applicable department of public health. If a waiver is granted, the system shall be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from the system into floodwaters.
- (iv) Installation of replacement sanitary sewage systems within the 100-year floodplain shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters.

(v) On-site waste disposal systems, when permitted in the 100-year floodplain, shall be located to avoid impairment to them or contamination from them during flooding.

(vi) Construction of sewage treatment facilities in the 100-year floodplain shall be prohibited.

(vii) Utility transmission lines transporting hazardous substances within the 100-year floodplain shall be buried at a minimum depth of four feet below the maximum depth of scour for the base flood as predicted by a professional civil engineer licensed in the state of Washington and shall achieve sufficient negative buoyancy so that any potential for flotation or upward migration is eliminated.

e. Critical facilities shall not be constructed in the 100-year floodplain.

f. Construction of livestock manure storage facilities and associated nonpoint source water pollution facilities shall not be constructed in the 100-year floodplain.

g. *Residential Construction.*

~~(i) New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one foot above base flood elevation;~~

(i) In AE or other A zoned areas where the base flood elevation (BFE) has been determined or can be reasonably obtained, new construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one foot or more above the BFE. Mechanical equipment and utilities shall be waterproof or elevated at least one foot above the BFE.

(ii) New construction and substantial improvement of any residential structure in an Unnumbered A zone for which a BFE is not available and cannot be reasonably obtained shall be reasonably safe from flooding, but in all cases the lowest floor shall be at least two feet above the Highest Adjacent Grade.

~~(iii)~~ (iii) Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either (1) have engineered openings designed and certified by a registered professional engineer or architect or (2) must meet or exceed the following minimum criteria:

(A) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;

(B) The bottom of all openings shall be no higher than one foot above grade;

(C) Openings may be equipped with screens, louvers, or other coverings or devices; provided, that they permit the automatic entry and exit of floodwaters; and

(D) A garage attached to a residential structure constructed with the garage floor slab below the BFE must be designed to allow for the automatic entry and exit of floodwaters.

(iv) If buildings or manufactured homes are constructed or substantially improved with fully enclosed areas below the lowest floor, the areas shall be used solely for parking of vehicles, building access, or storage.

h. *Nonresidential Construction.* New construction and substantial improvement of any commercial, industrial, or other nonresidential structure shall meet the requirements of subsection (i) or (ii) below: shall either have the lowest floor, including basement, elevated one foot above the level of the base flood elevation; or together with attendant utility and sanitary facilities shall:

~~(i) Be floodproofed so that below one foot above the base flood level the structure is watertight with walls substantially impermeable to the passage of water.~~

~~(ii) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.~~

~~(iii) Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the official as set forth elsewhere in this section.~~

(i) New construction and substantial improvement of any commercial development, shall meet all of the following requirements:

(A) In AE or other A zoned areas where the BFE has been determined or can be reasonably obtained: New construction and substantial

improvement of any commercial industrial, or other nonresidential structure shall have the lowest floor, including basement, elevated one foot or more above the BFE, or elevated as required by ASCE 24, whichever is greater. Mechanical equipment and utilities shall be waterproofed or elevated at least one foot above the BFE, or as required by ASCE 24, whichever is greater.

(B) If located in an Unnumbered A zone for which a BFE is not available and cannot be reasonably obtained, the structure shall be reasonably safe from flooding, but in all cases the lowest floor shall be at least two feet above the Highest Adjacent Grade.

(C) Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls for allowing the entry and exit of floodwaters. Designs for meeting this requirement must either (1) have engineered openings designed and certified by a registered professional engineer or architect or (2) meet or exceed the following minimum criteria:

(1) Have a minimum of two openings with a total net area of not less than one square inch for every square foot of enclosed area subject to flooding;

(2) The bottom of all openings shall be no higher than one foot above grade;

(3) Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwater; and

(4) A garage attached to a residential structure, constructed with the garage floor slab below the BFE, must be designed to allow for the automatic entry and exit of floodwaters.

(D) If buildings are constructed or substantially improved with fully enclosed areas below the lowest floor, the areas shall be used solely for parking of vehicles, building access, or storage.

(ii) If the requirements of subsection 1 are not met, then new construction and substantial improvement of any commercial, industrial, or other nonresidential structure shall meet all of the following requirements:

(A) Be dry flood-proofed so that below one foot or more above the base flood level the structure is watertight with walls substantially impermeable to the passage of water or dry flood-proofed to the elevation required by ASCE 24, whichever is greater.

(B) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

(C) Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the official as set forth in 14.04.740.B.

~~(iv) (D)~~ Nonresidential structures that are elevated, not floodproofed, must meet the same standards for space below the lowest floor as described in subsection (A)(3)(g) of this section.

~~(v) (E)~~ Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level (e.g., a building flood-proofed to the base flood level will be rated as one foot below). Flood-proofing the building an additional foot may reduce insurance premiums.

i. *Manufactured Homes.*

(i) All manufactured homes to be placed or substantially improved within Zones A, AE, and X shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is one foot or more above the base flood elevation and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement. in accordance with the provisions of subsection (A)(3)(b) of this section.

(ii) If manufactured homes are constructed or substantially improved with fully enclosed areas below the lowest floor, the areas shall be used solely for parking of vehicles, building access, or storage.

j. *Subdivision Proposals and Other Development.*

(i) All subdivision proposals and any other new development shall be consistent with the need to minimize flood damage.



(ii) Subdivisions, short subdivisions, ~~and binding site plans, and any other new development~~ shall follow these requirements:

(A) New building lots shall contain 5,000 square feet or more of buildable land outside the 100-year floodplain and building setback lines shall be shown on the face of the plat to restrict permanent structures to this 5,000-square-foot or greater area;

(B) All public utilities and facilities such as sewer, gas, electrical, and water systems shall be located and constructed consistent with subsection (A)(3)(d) of this section;

(C) Adequate drainage shall be provided to reduce exposure to flood damage;

(D) Where subdivision proposals and other proposed developments contain greater than 50 lots or 5 acres (whichever is the lesser) base flood elevation data shall be included as part of the application;

~~(D) Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or five acres, whichever is less;~~

(E) Base flood data and flood hazard notes shall be shown on the face of the recorded plat, including, but not limited to, the base flood elevation, required flood protection elevations, and the boundaries of the 100-year floodplain. BFE and required elevations must be reviewed at permit application review to determine if they have changed since the plat or short plat was recorded; and

(F) The following note shall appear on the face of the recorded plat for all affected lots:

#### **NOTICE**

Lots and structures located within flood hazard areas may be inaccessible by emergency vehicles during flood events. Residents and property owners should take appropriate advance precautions.

k. *Floodways.* Located within areas of special flood hazard are areas designated as “floodways.” Since the floodway is an extremely hazardous area due to the

velocity of floodwaters which carry debris, include potential projectiles, and increase erosion potential, the following provisions apply.

(i) Prohibit encroachments, including fill, new construction, substantial improvements and other development unless certification by a registered professional engineer ~~or architect~~ is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering that the proposed that encroachments would ~~shall~~ not result in any increase in flood levels during the occurrence of the base flood discharge.

(ii) If this subsection is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of this section.

(iii) Construction or reconstruction of residential structures is prohibited within designated floodways, except for (A) repairs, reconstruction, or improvements to a structure which do not increase the ground floor area; and (B) repairs, reconstruction or improvements to a structure, the cost of which does not exceed 50 percent of the market value of the structure either (1) before the repair, reconstruction, or improvement is started, or (2) if the structure has been damaged, and is being restored, before the damage occurred. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety toward specifications which have been identified by the local code official and which are the minimum necessary to assure safe living conditions or to structures identified as historic places shall not be included in the 50 percent.

(iv) If residential construction is authorized because k(i) of this section is satisfied, or construction is allowed pursuant to k(ii) of this section, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Section 14.04.760.

~~l. **Encroachments.** The cumulative effect of any proposed development, when combined with all other existing and anticipated development, shall not increase the water surface elevation of the base flood more than one foot at any point.~~

~~m. **Recreational Vehicles.** Recreational vehicles placed on sites will be required to either:~~

~~(i) Be on the site for fewer than 180 consecutive days; and or~~

~~(ii) Be fully licensed and ready for highway use, on its wheels or jacking system, be attached to the site only by quick disconnect type utilities and security devices, and have no permanently attached additions; or~~

(iii) Meet the requirement of subsection (A)(3)(i) of this section and the elevation and anchoring requirements for manufactured homes.

m. Appurtenant Structures (Detached Garages & Small Storage Structures) and Storage for all A Zones.

(i) Appurtenant structures used solely for parking of vehicles or limited storage may be constructed such that the floor is below the BFE, provided the structure is designed and constructed in accordance with the following requirements:

(A) Use of the appurtenant structure must be limited to parking of vehicles or limited storage;

(B) The portions of the appurtenant structure located below the BFE must be built using flood resistant materials;

(C) The appurtenant structure must be adequately anchored to prevent flotation, collapse, and lateral movement;

(D) Any machinery or equipment servicing the appurtenant structure must be elevated or flood-proofed to or above the BFE;

(E) The appurtenant structure must comply with floodway encroachment provisions in Section 14.04.760.A.3.k(i);

(F) The appurtenant structure must be designed to allow for the automatic entry and exit of floodwaters in accordance with Section 14.04.760.A.3.g(iii);

(G) The structure shall have low damage potential, and

(H) If the structure is converted to another use, it must be brought into full compliance with the standards governing such use.

(ii) Detached garages, storage structures, and other appurtenant structures not meeting the above standards must be constructed in accordance with all applicable standards in Section 14.04.760.A.3.g(i).

(iii) Meet the requirement of subsection A.3.i of this section and the elevation and anchoring requirements for manufactured homes.

(iv) The storage or processing of materials that could be injurious to human, animal, or plant life if released due to damage from flooding is prohibited in Special Flood Hazard Areas.

(v) Storage of other material or equipment may be allowed if not subject to damage by floods and if firmly anchored to prevent flotation, or if readily removable from the area within the time available after flood warning.

B. General Requirements for Other Development. All development, including manmade changes to improved or unimproved real estate for which specific provisions are not specified in this ordinance or the Building Codes with adopted amendments and any Bothell amendments, shall:

1. Be located and constructed to minimize flood damage;
2. Meet the encroachment limitations of this ordinance if located in a regulatory floodway;
3. Be anchored to prevent flotation, collapse, or lateral movement resulting from hydrostatic loads, including the effects of buoyancy, during conditions of the design flood;
4. Be constructed of flood damage-resistant materials;
5. Meet the flood opening requirements of Section 14.04.760.A.3; and
6. Have mechanical, plumbing, and electrical systems above the design flood elevation or meet the requirements of ASCE 24, except that minimum electric service required to address life safety and electric code requirements is permitted below the design flood elevation provided it conforms to the provisions of the electrical part of building code for wet locations.

Section 19. A new section is added to Article XIII of Chapter 14.04 BMC, to be codified as BMC 14.04.770 and titled "Variances for Special Flood Hazard Areas."

#### **14.04.770 Variances for Special Flood Hazard Areas**

A. The variance criteria set forth in this section are based on the general principle of zoning law that variances pertain to a piece of property and are not personal in nature. A variance may be granted for a parcel of property with physical characteristics so unusual that complying with the requirements of Article XIII would create an exceptional hardship to the applicant or the surrounding property owners. The characteristics must be unique to the property and not be shared by adjacent parcels. The unique characteristic must pertain to the land itself, not to the structure, its inhabitants, or the property owners.

B. It is the duty of the City of Bothell to help protect its citizens from flooding. This need is so compelling and the implications of the cost of insuring a structure built below the

Base Flood Elevation are so serious that variances from the flood elevation or from other requirements in the flood ordinance are quite rare. The long-term goal of preventing and reducing flood loss and damage can only be met if variances are strictly limited. Therefore, the variance guidelines provided in this section are more detailed and contain multiple provisions that must be met before a variance can be properly granted. The criteria are designed to screen out those situations in which alternatives other than a variance are more appropriate.

C. Variances shall only be issued:

(1) Upon the following determinations:

(a) That the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances; and

(b) That the variance is the minimum necessary, considering the flood hazard, to afford relief; and

(c) That there is a showing of good and sufficient cause; and

(d) That failure to grant the variance would result in exceptional hardship to the applicant.

(2) For a Functionally Dependent Use, upon a determination that subsections C(1)(a)-(c) are satisfied.

(3) For the repair, rehabilitation, or restoration of historic structures, upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

D. Variances shall not be issued within any floodway if any increase in flood levels during the base flood discharge would result.

E. Generally, variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the BFE, provided the procedures of Sections 14.04.720 and 14.04.760 have been fully considered. As the lot size increases beyond one-half acre, the technical justification required for issuing the variance increases.

F. *Variance Criteria*: In considering variance applications, the City of Bothell shall consider all technical evaluations, all relevant factors, all standards specified in other sections of this ordinance, and:

- (1) The danger that materials may be swept onto other lands to the injury of others;
- (2) The danger to life and property due to flooding or erosion damage;
- (3) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
- (4) The importance of the services provided by the proposed facility to the community;
- (5) The necessity to the facility of a waterfront location, where applicable;
- (6) The availability of alternative locations for the proposed use, which are not subject to flooding or erosion damage;
- (7) The compatibility of the proposed use with existing and anticipated development;
- (8) The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;
- (9) The safety of access to the property in time of flood for ordinary and emergency vehicles;
- (10) The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters expected at the site; and,
- (11) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities, such as sewer, gas, electrical, water system, and streets and bridges.

G. *Additional Requirements for Issuance of a Variance*:

- (1) Any applicant to whom a variance is granted shall be given written notice over the signature of a community official that:
  - (a) The issuance of a variance to construct a structure below the BFE will result in increased premium rates for flood insurance, up to amounts as high as \$25 for \$100 of insurance coverage, and
  - (b) Such construction below the BFE increases risks to life and property.

(2) The Floodplain Administrator shall maintain a record of all variance actions, including justification for their issuance.

(3) The Floodplain Administrator shall condition the variance as needed to ensure that the requirements and criteria of this chapter are met.

Section 20. SEVERABILITY. This ordinance and the various parts thereof are hereby declared to be severable. If any section, sentence, clause, or phrase of this ordinance should be declared or held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of the ordinance as a whole or any other section, sentence, clause, or phrase thereof other than the portion so declared to be invalid or unconstitutional.

Section 21. EFFECTIVE DATE. This ordinance, being an exercise of a power specifically delegated to the City legislative body, is not subject to referendum and shall take effect five (5) days after passage and publication of an approved summary thereof consisting of the title.

Section 22. CORRECTIONS. The City Clerk and the codifiers of this ordinance are authorized to make necessary corrections to this ordinance including, but not limited to, the correction of scrivener's/clerical errors, references, ordinance numbering, section/subsection numbers, and any references thereto.

APPROVED:

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LIAM OLSEN  
MAYOR

ATTEST/AUTHENTICATED:

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LAURA HATHAWAY  
CITY CLERK

APPROVED AS TO FORM:



PAUL BYRNE  
CITY ATTORNEY

FILED WITH THE CITY CLERK: \_\_\_\_\_  
PASSED BY THE CITY COUNCIL: \_\_\_\_\_  
PUBLISHED: \_\_\_\_\_  
EFFECTIVE DATE: \_\_\_\_\_  
ORDINANCE NO.: \_\_\_\_\_ (2020)

**SUMMARY OF ORDINANCE NO. \_\_\_\_\_ (2020)**

City of Bothell, Washington

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On the \_\_\_\_\_ day of \_\_\_\_\_, 2020, the City Council of the City of Bothell passed Ordinance No. \_\_\_\_\_ (2020). A summary of the content of said Ordinance, consisting of the title, is provided as follows:

AN ORDINANCE OF THE CITY OF BOTHELL, WASHINGTON, AMENDING CHAPTER 14.04 OF THE BOTHELL MUNICIPAL CODE (BMC) RELATING TO CRITICAL AREA REGULATIONS FOR SPECIAL FLOOD HAZARD AREAS AND ADDING NEW SECTIONS, WITH AN ASSOCIATED MINOR PROCEDURAL AMENDMENT TO BMC 11.04.003.

The full text of this Ordinance will be mailed upon request.

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LAURA HATHAWAY  
CITY CLERK

FILED WITH THE CITY CLERK: \_\_\_\_\_  
PASSED BY THE CITY COUNCIL: \_\_\_\_\_  
PUBLISHED: \_\_\_\_\_  
EFFECTIVE DATE: \_\_\_\_\_  
ORDINANCE NO.: \_\_\_\_\_ (2020)



<p><b>1.3 Statement of Purpose</b></p> <p>It is the purpose of this ordinance to promote the public health, safety, and general welfare; reduce the annual cost of flood insurance; and minimize public and private losses due to flood conditions in specific areas by provisions designed to:</p> <ol style="list-style-type: none"> <li>1) Protect human life and health;</li> <li>2) Minimize expenditure of public money for costly flood control projects;</li> <li>3) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;</li> <li>4) Minimize prolonged business interruptions;</li> <li>5) Minimize damage to public facilities and utilities, such as water and gas mains; electric, telephone, and sewer lines; and streets and bridges located in flood hazard areas;</li> <li>6) Help maintain a stable tax base by providing for the sound use and development of flood hazard areas so as to minimize blight areas caused by flooding;</li> <li>7) Notify potential buyers that the property is in a Special Flood Hazard Area;</li> <li>8) Notify those who occupy flood hazard areas that they assume responsibility for their actions; and</li> <li>9) Participate in and maintain eligibility for flood insurance and disaster relief.</li> </ol>	<p><b>14.04.710(C)</b></p>
<p><b>1.4 Methods of Reducing Flood Losses</b></p> <p>In order to accomplish its purposes, this ordinance includes methods and provisions for:</p> <ol style="list-style-type: none"> <li>1) Restricting or prohibiting development that is dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities,</li> <li>2) Requiring that development vulnerable to floods be protected against flood damage at the time of initial construction;</li> <li>3) Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;</li> <li>4) Controlling filling, grading, dredging, and other development, which may increase flood damage; and</li> <li>5) Preventing or regulating the construction of flood barriers that unnaturally divert floodwaters or may increase flood hazards in other areas.</li> </ol>	<p><b>14.04.710(D)</b></p>

**Language in red requires attention.**

**Language in green found compliant with Bothell code.**

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Section 2.0 – Definitions	<p>44 CFR 59.1 (Not mandatory to adopt all definitions as shown) * Terms with one asterisk trigger a specific minimum requirement and must be adopted.</p>
<p><b>*Alteration of watercourse:</b> Any action that will change the location of the channel occupied by water within the banks of any portion of a riverine waterbody.</p> <p><b>Appeal:</b> A request for a review of the interpretation of any provision of this ordinance or a request for a variance.</p> <p><b>*Area of shallow flooding:</b> A designated zone AO, AH, AR/AO or AR/AH (or VO) on a community's Flood Insurance Rate Map (FIRM) with a one percent or greater annual chance of flooding to an average depth of one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow. Also referred to as the sheet flow area.</p> <p><b>*Area of special flood hazard:</b> The land in the floodplain within a community subject to a 1 percent or greater chance of flooding in any given year. It is shown on the Flood Insurance Rate Map (FIRM) as zone A, AO, AH, A1-30, AE, A99, AR (V, VO, V1-30, VE). "Special flood hazard area" is synonymous in meaning with the phrase "area of special flood hazard".</p> <p><b>ASCE 24:</b> The most recently published version of ASCE 24, Flood Resistant Design and Construction, published by the American Society of Civil Engineers.</p> <p><b>*Base flood:</b> The flood having a 1% chance of being equaled or exceeded in any given year (also referred to as the "100-year flood").</p> <p><b>*Base Flood Elevation (BFE):</b> The elevation to which floodwater is anticipated to rise during the base flood.</p> <p><b>*Basement:</b> Any area of the building having its floor sub-grade (below ground level) on all sides.</p> <p><b>Building:</b> See "Structure."</p> <p><b>Building Code:</b> The currently effective versions of the International Building Code and the International Residential Code adopted by the State of Washington Building Code Council.</p>	<p>14.04.705(1)</p> <p>14.04.705(2)</p> <p>n/a</p> <p>14.04.005 (A)</p> <p>14.04.705(3)</p> <p>14.04.705(4)</p> <p>14.04.705(5)</p> <p>14.04.705(6)</p> <p>14.04.705(7)</p> <p>14.04.705(8)</p>

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<p><b>Breakaway wall:</b> A wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.</p>	
<p><b>Coastal High Hazard Area:</b> An area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. The area is designated on the FIRM as zone V1-30, VE or V.</p>	
<p><b>Critical Facility:</b> A facility for which even a slight chance of flooding might be too great. Critical facilities include (but are not limited to) schools, nursing homes, hospitals, police, fire and emergency response installations, and installations which produce, use, or store hazardous materials or hazardous waste.</p>	<p>14.04.005 (C)</p>
<p><b>*Development:</b> Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials located within the area of special flood hazard.</p>	<p>14.04.705(10)</p>
<p><b>Elevation Certificate:</b> An administrative tool of the National Flood Insurance Program (NFIP) that can be used to provide elevation information, to determine the proper insurance premium rate, and to support a request for a Letter of Map Amendment (LOMA) or Letter of Map Revision based on fill (LOMR-F).</p>	<p>14.04.705(12)</p>
<p><b>Elevated Building:</b> For insurance purposes, a non-basement building that has its lowest elevated floor raised above ground level by foundation walls, shear walls, post, piers, pilings, or columns.</p>	<p>14.04.705(11)</p>
<p><b>Essential Facility:</b> This term has the same meaning as “Essential Facility” defined in ASCE 24. Table 1-1 in ASCE 24-14 further identifies building occupancies that are essential facilities.</p>	<p>14.04.705(13)</p>
<p><b>Existing Manufactured Home Park or Subdivision:</b> A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by the community.</p>	<p>14.04.705(14)</p>

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<p><b>Expansion to an Existing Manufactured Home Park or Subdivision:</b> The preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).</p>	<p>14.04.705(14)</p>
<p><b>Farmhouse:</b> A single-family dwelling located on a farm site where resulting agricultural products are not produced for the primary consumption or use by the occupants and the farm owner.</p>	<p>14.04.705(16)</p>
<p><b>*Flood or Flooding:</b></p> <ol style="list-style-type: none"> <li>1) A general and temporary condition of partial or complete inundation of normally dry land areas from: <ol style="list-style-type: none"> <li>a) The overflow of inland or tidal waters.</li> <li>b) The unusual and rapid accumulation or runoff of surface waters from any source.</li> <li>c) Mudslides (i.e., mudflows) which are proximately caused by flooding as defined in paragraph (1)(b) of this definition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.</li> </ol> </li> <li>2) The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph (1)(a) of this definition.</li> </ol>	<p>14.04.005 (F)</p>
<p><b>*Flood elevation study:</b> An examination, evaluation and determination of flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of mudslide (i.e., mudflow) and/or flood-related erosion hazards. Also known as a Flood Insurance Study (FIS).</p>	<p>14.04.705(17)</p>
<p><b>*Flood Insurance Rate Map (FIRM):</b> The official map of a community, on which the Federal Insurance Administrator has delineated both the special hazard areas and the risk premium zones applicable to the community. A FIRM that has been made available digitally is called a Digital Flood Insurance Rate Map (DFIRM).</p>	<p>14.04.705(18)</p>

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<p><b>*Floodplain or flood-prone area:</b> Any land area susceptible to being inundated by water from any source. See "Flood or flooding."</p>	14.04.005 (F)
<p><b>*Floodplain administrator:</b> The community official designated by title to administer and enforce the floodplain management regulations.</p>	14.04.705(20)
<p><b>Floodplain management regulations:</b> Zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as floodplain ordinance, grading ordinance and erosion control ordinance) and other application of police power. The term describes such state or local regulations, in any combination thereof, which provide standards for the purpose of flood damage prevention and reduction.</p>	14.04.705(21)
<p><b>*Flood proofing:</b> Any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate risk of flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents. Flood proofed structures are those that have the structural integrity and design to be impervious to floodwater below the Base Flood Elevation.</p>	14.04.705(19)
<p><b>*Floodway:</b> The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Also referred to as "Regulatory Floodway."</p>	14.04.005 (F)
<p><b>*Functionally dependent use:</b> A use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, and does not include long-term storage or related manufacturing facilities.</p>	14.04.705(22)
<p><b>*Highest adjacent grade:</b> The highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.</p>	14.04.705(23)
<p><b>*Historic structure:</b> Any structure that is:</p> <p>1) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;</p>	14.04.705(24)

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<p>2) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;</p> <p>3) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of Interior; or</p> <p>4) Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:</p> <ul style="list-style-type: none"> <li>a) By an approved state program as determined by the Secretary of the Interior, or</li> <li>b) Directly by the Secretary of the Interior in states without approved programs.</li> </ul> <p><b>*Lowest Floor:</b> The lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or storage in an area other than a basement area, is not considered a building's lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this ordinance (i.e. provided there are adequate flood ventilation openings).</p> <p><b>Manufactured Home:</b> A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" does not include a "recreational vehicle."</p> <p><b>Manufactured Home Park or Subdivision:</b> A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.</p> <p><b>*Mean Sea Level:</b> For purposes of the National Flood Insurance Program, the vertical datum to which Base Flood Elevations shown on a community's Flood Insurance Rate Map are referenced.</p> <p><b>*New construction:</b> For the purposes of determining insurance rates, structures for which the "start of construction" commenced on or after the effective date of an initial Flood Insurance Rate Map or after December 31, 1974, whichever is later, and includes any subsequent improvements</p>	<p>14.04.705(26)</p> <p>14.04.705(27)</p> <p>14.04.705(28)</p> <p>14.04.705(29)</p> <p>14.04.705(31)</p>
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**New Manufactured Home Park or Subdivision:** A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of adopted floodplain management regulations adopted by the community.

**Reasonably Safe from Flooding:** Development that is designed and built to be safe from flooding based on consideration of current flood elevation studies, historical data, high water marks and other reliable data known to the community. In unnumbered A zones where flood elevation information is not available and cannot be obtained by practicable means, reasonably safe from flooding means that the lowest floor is at least two feet above the Highest Adjacent Grade.

- 1) Built on a single chassis;
- 2) 400 square feet or less when measured at the largest horizontal projection;
- 3) Designed to be self-propelled or permanently towable by a light duty truck; and
- 4) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

**14.04.705(35)**

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<p>excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.</p> <p><b>*Structure:</b> For floodplain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home.</p> <p><b>*Substantial Damage:</b> Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.</p> <p><b>*Substantial improvement:</b> Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage," regardless of the actual repair work performed. The term does not, however, include either:</p> <ol style="list-style-type: none"> <li>1) Any project for improvement of a structure to correct previously identified existing violations of state or local health, sanitary, or safety code specifications that have been identified by the local code enforcement official and that are the minimum necessary to assure safe living conditions; or</li> <li>2) Any alteration of a "historic structure," provided that the alteration will not preclude the structure's continued designation as a "historic structure."</li> </ol> <p><b>*Variance:</b> A grant of relief by a community from the terms of a floodplain management regulation.</p> <p><b>Water surface elevation:</b> The height, in relation to the vertical datum utilized in the applicable flood insurance study of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.</p> <p><b>Water Dependent:</b> A structure for commerce or industry that cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operations.</p>	<p>14.04.705(36)</p> <p>14.04.705(37)</p> <p>14.04.705(38)</p> <p>14.04.705(39)</p> <p>14.04.705(41)</p> <p>14.04.705(40)</p>
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<b>Section 3.0 – General Provisions</b>	
<b>3.1 Lands to Which This Ordinance Applies</b> <i>(44 CFR 59.22(a))</i>  This ordinance shall apply to all special flood hazard areas within the boundaries of {Community Name}.	<i>(44 CFR 59.22(a))</i>  14.04.110
<b>3.2 Basis for Establishing the Areas of Special Flood Hazard</b>  The special flood hazard areas identified by the Federal Insurance Administrator in a scientific and engineering report entitled “The Flood Insurance Study (FIS) for {exact title of study}” dated {date}, and any revisions thereto, with accompanying Flood Insurance Rate Maps (FIRMs) dated {date}, and any revisions thereto, are hereby adopted by reference and declared to be a part of this ordinance. The FIS and the FIRM are on file at {community address}. The best available information for flood hazard area identification as outlined in Section 4.3-2 shall be the basis for regulation until a new FIRM is issued that incorporates data utilized under Section 4.3-2.	<i>Mandatory (44 CFR 60.3 (preamble) and 44 CFR 60.2(h)). *In some communities, the phrase “and any revisions thereto” is not considered legally binding and should not be adopted.</i>  14.04.700
<b>3.3 Compliance</b>  All development within special flood hazard areas is subject to the terms of this ordinance and other applicable regulations.	<i>Mandatory (44 CFR 60.2(h))</i>  14.04.700
<b>3.4 Penalties For Noncompliance</b>  No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this ordinance and other applicable regulations. Violations of the provisions of this ordinance by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions), shall constitute a misdemeanor. Any person who violates this ordinance or fails to comply with any of its requirements shall upon conviction thereof be fined not more than _____ or imprisoned for not more than days, or both, for each violation, and in addition shall pay all costs and expenses involved in the case. Nothing herein contained shall prevent the _____ from taking such other lawful action as is necessary to prevent or remedy any violation.	<i>Mandatory (44 CFR 60.2(h))</i>  14.04.725

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<p><b>3.5 Abrogation and Greater Restrictions</b></p> <p>This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance and another ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.</p>	<p><b>14.04.700</b></p>
<p><b>3.6 Interpretation</b></p> <p>In the interpretation and application of this ordinance, all provisions shall be:</p> <ol style="list-style-type: none"> <li>1) Considered as minimum requirements;</li> <li>2) Liberally construed in favor of the governing body; and,</li> <li>3) Deemed neither to limit nor repeal any other powers granted under state statutes.</li> </ol>	<p><i>Recommended (Not mandatory)</i></p>
<p><b>3.7 Warning and Disclaimer of Liability</b></p> <p>The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of {Community Name}, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.</p>	<p><i>Recommended (Not mandatory)</i></p>
<p><b>3.8 Severability</b></p> <p>This ordinance and the various parts thereof are hereby declared to be severable. Should any Section of this ordinance be declared by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the ordinance as a whole, or any portion thereof other than the Section so declared to be unconstitutional or invalid.</p>	<p><i>Mandatory (44 CFR 60.1(b)) The severability cause may be included in the adopting ordinance and left uncodified.</i></p> <p><b>Included in ordinance language, page 42.</b></p>

<b>Section 4.0 – Administration</b>	
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<p><b>4.1 Establishment of Development Permit</b></p> <p><b>4.1-1 Development Permit Required</b></p> <p>A development permit shall be obtained before construction or development begins within any area of special flood hazard established in Section 3.2. The permit shall be for all structures including manufactured homes, as set forth in the "Definitions," and for all development including fill and other activities, also as set forth in the "Definitions."</p>	<p><i>Mandatory (44 CFR 60.3(b)(1))</i></p> <p><b>14.04.720</b></p>
<p><b>4.1-2 Application for Development Permit</b></p> <p>Application for a development permit shall be made on forms furnished by the Floodplain Administrator and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Specifically, the following information is required:</p> <ol style="list-style-type: none"> <li>1) Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures recorded on a current elevation certificate with Section B completed by the Floodplain Administrator.</li> <li>2) Elevation in relation to mean sea level to which any structure has been flood proofed;</li> <li>3) Where a structure is to be flood proofed, certification by a registered professional engineer or architect that the flood proofing methods for any nonresidential structure meet flood proofing criteria in Section 5.2-2;</li> <li>4) Description of the extent to which a watercourse will be altered or relocated as a result of proposed development;</li> <li>5) Where a structure is proposed in a V,V1-30, or VE zone, a V-zone design certificate;</li> <li>6) Where development is proposed in a floodway, an engineering analysis indicating no rise of the Base Flood Elevation; and</li> <li>7) Any other such information that may be reasonably required by the Floodplain Administrator in order to review the application.</li> </ol>	<p><i>Note: The format of Section 4.1-2 is not mandatory but the elevation information in subsection 1 and information in subsections 2 through 7 is mandatory.</i></p> <p><i>Elevation Certificates are not mandatory outside of Community Rating System communities but highly recommended.</i></p> <p><b>14.04.720(D)</b></p>
<p><b>4.2 Designation of the Floodplain Administrator</b></p> <p>The {job title of the appropriate administrative official} is hereby appointed to administer, implement, and enforce this ordinance by granting or denying development permits in accordance with its provisions. The Floodplain Administrator may delegate authority to implement these provisions.</p>	<p><i>Mandatory (44 CFR 59.22(b)(1))</i></p> <p><b>14.04.720(B)</b></p>

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<b>4.3 Duties &amp; Responsibilities of the Floodplain Administrator</b>  Duties of the ( <i>Floodplain Administrator</i> ) shall include, but not be limited to:	Mandatory, (44 CFR 60.1 (b))  14.04.720(C)
<b>4.3-1 Permit Review</b>  Review all development permits to determine that: 1) The permit requirements of this ordinance have been satisfied; 2) All other required state and federal permits have been obtained; 3) The site is reasonably safe from flooding; 4) The proposed development is not located in the floodway. If located in the floodway, assure the encroachment provisions of Section 5.4-1 are met. 5) Notify FEMA when annexations occur in the Special Flood Hazard Area.	Mandatory, (44 CFR 60.1 (b))  14.04.720(C)
<b>4.3-2 Use of Other Base Flood Data (In A and V Zones)</b>  When base flood elevation data has not been provided (in A or V zones) in accordance with Section 3.2, BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD, the Floodplain Administrator shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state, or other source, in order to administer Sections 5.2, SPECIFIC STANDARDS, and 5.4 FLOODWAYS.	Mandatory (44 CFR 60.3(b)(4))  14.04.720(C)(2)(a)
<b>4.3-3 Information to be Obtained and Maintained</b>  1) Where base flood elevation data is provided through the FIS, FIRM, or required as in Section 4.3-2, obtain and maintain a record of the actual (as-built) elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement. 2) Documentation of the elevation of the bottom of the lowest horizontal structural member in V or VE zones. 3) For all new or substantially improved flood proofed nonresidential structures where base flood elevation data is provided through the FIS, FIRM, or as required in Section 4.3-2: a) Obtain and maintain a record of the elevation (in relation to mean sea level) to which the structure was flood proofed.	Required, verbatim (44 CFR 60.3 (b)(5)) (44 CFR 60.3(b)(5)(i) and (iii)) (44 CFR 60.3(e)(2)) (44 CFR 60.3(b)(5)(i) and (iii)) (44 CFR 60.3(b)(5)(ii)) (44 CFR 60.3(b)(5)(iii)) (44 CFR 60.6(a)(6)) (44 CFR 60.3(b)(5)(iii))  1) 14.04.740(A) 2) N/A 3) 14.04.740(B) 3a) 14.04.740(B)(1) 3b) 14.04.750(B)(2) 4) 14.04.750(C) 5) 14.04.750(D) 6) 14.04.750(E) 7) 14.04.750(F)

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<p>b) Maintain the flood proofing certifications required in Section 4.1-2(3).</p> <p>4) Certification required by Section 5.4.1 {or the numbering system used by the community} (floodway encroachments).</p> <p>5) Records of all variance actions, including justification for their issuance.</p> <p>6) Improvement and damage calculations.</p> <p>7) Maintain for public inspection all records pertaining to the provisions of this ordinance.</p>	
<p><b>4.3-4 Notification to Other Entities</b></p> <p>Whenever a watercourse is to be altered or relocated:</p> <p>1) Notify adjacent communities and the Department of Ecology prior to such alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administrator through appropriate notification means, and</p> <p>2) Assure that the flood carrying capacity of the altered or relocated portion of said watercourse is maintained.</p>	<p><i>Mandatory</i> (44CFR 60.3(b)(6)) (44CFR 60.3(b)(7))</p> <p><b>14.04.760(A)(1)</b></p>
<p><b>4.3-5 Interpretation of FIRM Boundaries</b></p> <p>Make interpretations where needed, as to exact location of the boundaries of the areas of special flood hazards (e.g. where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation. Such appeals shall be granted consistent with the standards of Section 60.6 of the Rules and Regulations of the NFIP.</p>	<p><i>(This section is not required, but if the Local Administrators are performing this task on a regular basis, it should be adopted.)</i> (44 CFR 59-76)</p> <p><b>14.04.760(A)(2)</b></p>
<p><b>4.3-6 Review of Building Permits</b></p> <p>Where elevation data is not available, either through the FIS, FIRM, or from another authoritative source (Section 4.3-2), applications for floodplain development shall be reviewed to assure that proposed construction will be <i>reasonably safe from flooding</i>. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available.</p> <p>(Failure to elevate habitable buildings at least two feet above the highest adjacent grade in these zones may result in higher insurance rates.)</p>	<p><i>Mandatory</i> (44 CFR 60.3(a)(3))</p> <p><b>14.04.720(C)(2)(b)</b></p>
<p><b>4.3-7 Changes to Special Flood Hazard Area</b></p>	

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<p>1) If a project will alter the BFE or boundaries of the SFHA, then the project proponent shall provide the community with engineering documentation and analysis regarding the proposed change. If the change to the BFE or boundaries of the SFHA would normally require a Letter of Map Change, then the project proponent shall initiate, and receive approval of, a Conditional Letter of Map Revision (CLOMR) prior to approval of the development permit. The project shall be constructed in a manner consistent with the approved CLOMR.</p> <p>2) If a CLOMR application is made, then the project proponent shall also supply the full CLOMR documentation package to the Floodplain Administrator to be attached to the floodplain development permit, including all required property owner notifications.</p>	<p><i>Recommended. However, be aware that 44 CFR 65.3 requires communities to submit new technical information regarding changes affecting flooding conditions. Section 4.3-7 gives a community the authority to require necessary information from project proponents.</i></p> <p><b>14.04.740(G) &amp; (H)</b></p>
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<b>Section 5.0 – Provisions for Flood Hazard Reduction</b>	<i>(Section 5.0 is required)</i>
<p><b>5.1 General Standards</b></p> <p>In all areas of special flood hazards, the following standards are required:</p>	<p><b>14.04.760(A)(3)</b></p>
<p><b>5.1-1 Anchoring</b></p> <p>1) All new construction and substantial improvements, including those related to manufactured homes, shall be anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads including the effects of buoyancy.</p> <p>2) All manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors.</p>	<p><i>Mandatory</i>  <i>(44 CFR 60.3(a)(b))</i>  <i>(44 CFR 60.3(a)(3)(i))</i>  <i>(44 CFR 60.3(b)(8))</i></p> <p><i>For more detailed information, refer to guidebook, FEMA-85, "Manufactured Home Installation in Flood Hazard Areas."</i></p> <p>1) <b>14.04.760(A)(3)(b)(i)</b>  2) <b>14.04.760(A)(3)(b)(ii)</b></p>
<p><b>5.1-2 Construction Materials and Methods</b></p> <p>1) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.</p> <p>2) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.</p>	<p><i>Mandatory</i>  <i>(44 CFR 60.3(a)(3)(ii-iv))</i></p> <p>1) <b>14.04.760(A)(3)(c)(i)</b>  2) <b>14.04.760(A)(3)(c)(ii)</b>  3) <b>14.04.760(A)(3)(c)(iii)</b></p>

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<p>3) Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.</p>	
<p><b>5.1-3 Storage of Materials and Equipment</b></p> <p>1) The storage or processing of materials that could be injurious to human, animal, or plant life if released due to damage from flooding is prohibited in special flood hazard areas.</p> <p>2) Storage of other material or equipment may be allowed if not subject to damage by floods and if firmly anchored to prevent flotation, or if readily removable from the area within the time available after flood warning.</p>	<p><i>(recommended)</i></p>
<p><b>5.1-4 Utilities</b></p> <p>1) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems;</p> <p>2) Water wells shall be located on high ground that is not in the floodway;*</p> <p>3) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters;</p> <p>4) Onsite waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.</p>	<p><i>Mandatory</i>  <i>(44 CFR 60.3(a)(5)(6))</i>  <i>*WAC 173-160-171 prohibits new water wells in floodways.</i></p> <p><b>14.04.760(A)(3)(d)</b></p>
<p><b>5.1-5 Subdivision Proposals and Development</b></p> <p>All subdivisions, as well as new development shall:</p> <p>1) Be consistent with the need to minimize flood damage;</p> <p>2) Have public utilities and facilities, such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage;</p> <p>3) Have adequate drainage provided to reduce exposure to flood damage.</p> <p>4) Where subdivision proposals and other proposed developments contain greater than 50 lots or 5 acres (whichever is the lesser) base flood elevation data shall be included as part of the application.</p>	<p><i>Mandatory</i>  <i>(44 CFR 60.3(a)(4) and (b)(3))</i></p> <p><b>14.04.760(A)(3)(j)</b></p>
<p><b>5.2 Specific Standards</b></p> <p>In all areas of special flood hazards where base flood elevation data has been provided as set forth in Section 3.2, BASIS FOR ESTABLISHING THE AREAS</p>	<p><i>Mandatory</i>  <i>(44 CFR 60.3(c)(1))</i>  <i>(Additional standards were clarified in FEMA Technical Bulletin 11-01 to allow below-grade crawlspace construction for buildings located in the special flood hazard areas. However, the standards in 11-01 must be</i></p>

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<p>OF SPECIAL FLOOD HAZARD, or Section 4.3-2, USE OF OTHER BASE FLOOD DATA. The following provisions are required:</p>	<p><i>specifically adopted, and adopting them can result in a 20% increase in flood insurance premiums.)</i></p> <p><b>14.04.760(A)(3)(c)(iv)</b></p>
<p><b>5.2-1 Residential Construction</b></p> <ol style="list-style-type: none"> <li>1) In AE and A1-30 zones or other A zoned areas where the BFE has been determined or can be reasonably obtained, new construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one foot or more above the BFE. Mechanical equipment and utilities shall be waterproof or elevated least one foot above the BFE.</li> <li>2) New construction and substantial improvement of any residential structure in an AO zone shall meet the requirements in Appendix A.</li> <li>3) New construction and substantial improvement of any residential structure in an Unnumbered A zone for which a BFE is not available and cannot be reasonably obtained shall be reasonably safe from flooding, but in all cases the lowest floor shall be at least two feet above the Highest Adjacent Grade.</li> <li>4) New construction and substantial improvement of any residential structure in a V, V1-30, or VE zone shall meet the requirements in Appendix B.</li> <li>5) Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs must meet or exceed the following minimum criteria: <ol style="list-style-type: none"> <li>a) Have a minimum of two openings with a total net area of not less than one square inch for every square foot of enclosed area subject to flooding.</li> <li>b) The bottom of all openings shall be no higher than one foot above grade.</li> <li>c) Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwater.</li> <li>d) A garage attached to a residential structure, constructed with the garage floor slab below the BFE, must be designed to allow</li> </ol> </li> </ol>	<p><i>Mandatory</i>  <i>(44 CFR 60.3(c)(2) and (5))</i>  <i>(44 CFR 60.3(c)(7))</i>  <i>(44 CFR 60.3(b)(2))</i>  <i>(44 CFR 60.3(e))</i>  <i>(44 CFR 60.3(c)(5))</i></p> <p><b>14.04.760(A)(3)(g)</b></p>

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<p>for the automatic entry and exit of floodwaters.</p> <p>Alternatively, a registered engineer or architect may design and certify engineered openings.</p>	
<p><b>5.2-2 Nonresidential Construction</b></p> <p>New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall meet the requirements of subsection 1 or 2, below.</p> <p>1) New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall meet all of the following requirements:</p> <p>a) In AE and A1-30 zones or other A zoned areas where the BFE has been determined or can be reasonably obtained: New construction and substantial improvement of any commercial, industrial, or other nonresidential structure shall have the lowest floor, including basement, elevated one foot or more above the BFE, or elevated as required by ASCE 24, whichever is greater. Mechanical equipment and utilities shall be waterproofed or elevated least one foot above the BFE, or as required by ASCE 24, whichever is greater.</p> <p>b) If located in an AO zone, the structure shall meet the requirements in Appendix A.</p> <p>c) If located in an Unnumbered A zone for which a BFE is not available and cannot be reasonably obtained, the structure shall be reasonably safe from flooding, but in all cases the lowest floor shall be at least two feet above the Highest Adjacent Grade.</p> <p>d) If located in a V, V1-30, or VE zone, the structure shall meet the requirements in Appendix B.</p> <p>e) Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:</p> <p>i) Have a minimum of two openings with a total net area of not less than one square inch for every square foot of enclosed area subject to flooding.</p> <p>ii) The bottom of all openings shall be no higher than one foot above grade.</p> <p>iii) Openings may be equipped with screens, louvers, valves, or other coverings or</p>	<p><i>Mandatory</i> (44 CFR 60.3(c)(3) and (4))</p> <p><b>14.04.760(A)(3)(h)</b></p>

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<p>devices provided that they permit the automatic entry and exit of floodwater.</p> <p>iv) A garage attached to a residential structure, constructed with the garage floor slab below the BFE, must be designed to allow for the automatic entry and exit of floodwaters.</p> <p>Alternatively, a registered engineer or architect may design and certify engineered openings.</p> <p>2) If the requirements of subsection 1 are not met, then new construction and substantial improvement of any commercial, industrial or other nonresidential structure shall meet all of the following requirements:</p> <p>a) Be dry flood proofed so that below one foot or more above the base flood level the structure is watertight with walls substantially impermeable to the passage of water or dry flood proofed to the elevation required by ASCE 24, whichever is greater;</p> <p>b) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;</p> <p>c) Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the official as set forth in Section 4.3-3(2);</p> <p>d) Nonresidential structures that are elevated, not flood proofed, must meet the same standards for space below the lowest floor as described in 5.2-1(2);</p> <p>(Applicants who are flood proofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the flood proofed level (e.g. a building flood proofed to the base flood level will be rated as one foot below). Flood proofing the building an additional foot will reduce insurance premiums.)</p>	
<p><b>5.2-3    Manufactured Homes</b></p> <p>1) All manufactured homes to be placed or substantially improved on sites shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated one foot or more above the base flood elevation and be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement*. This applies to manufactured homes:</p>	<p style="text-align: center;"><i>Mandatory</i> (44 CFR 60.3(c)(6)(12))</p> <p style="text-align: center;">(* If this phrase is applied to all manufactured homes in the floodplain, then the remaining verbiage is not necessary to adopt.)</p> <p style="text-align: center;">14.04.760(A)(3)(i)</p>

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<ul style="list-style-type: none"> <li>a) Outside of a manufactured home park or subdivision,</li> <li>b) In a new manufactured home park or subdivision,</li> <li>c) In an expansion to an existing manufactured home park or subdivision, or</li> <li>d) In an existing manufactured home park or subdivision on a site which a manufactured home has incurred "substantial damage" as the result of a flood; and</li> </ul> <p>2) Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision that are not subject to the above manufactured home provisions be elevated so that either:</p> <ul style="list-style-type: none"> <li>a) The lowest floor of the manufactured home is elevated one foot or more*</li> <li>b) The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above grade and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.</li> </ul>	
<p><b>5.2-4 Recreational Vehicles</b></p> <p>Recreational vehicles placed on sites are required to either:</p> <ul style="list-style-type: none"> <li>1) Be on the site for fewer than 180 days, or</li> <li>2) Be fully licensed and ready for highway use, on wheels or jacking system, attached to the site only by quick disconnect type utilities and security devices, and have no permanently attached additions; or</li> <li>3) Meet the requirements of 5.2-3, above.</li> </ul>	<p style="text-align: center;"><i>Mandatory</i> (44 CFR 60.3(c)(14))</p> <p><b>14.04.760(A)(3)(I)</b></p>
<p><b>5.2-5 Enclosed Area Below the Lowest Floor</b></p> <p>If buildings or manufactured homes are constructed or substantially improved with fully enclosed areas below the lowest floor, the areas shall be used solely for parking of vehicles, building access, or storage.</p>	<p style="text-align: center;">(44 CFR 60.3(c)(5))</p> <p><b>14.04.160(A)(3)(g)(iv)</b></p>
<p><b>5.2-6 Appurtenant Structures (Detached Garages &amp; Small Storage Structures)</b></p> <p>For A Zones (A, AE, A1-30, AH, AO):</p> <ul style="list-style-type: none"> <li>1) Appurtenant structures used solely for parking of vehicles or limited storage may be constructed such that the floor is below the BFE, provided the structure is designed and constructed in accordance with the following requirements:</li> </ul>	<p style="text-align: center;"><i>Recommended</i></p> <p><b>14.04.760(A)(3)(m)</b></p>

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<ul style="list-style-type: none"> <li>a) Use of the appurtenant structure must be limited to parking of vehicles or limited storage;</li> <li>b) The portions of the appurtenant structure located below the BFE must be built using flood resistant materials;</li> <li>c) The appurtenant structure must be adequately anchored to prevent flotation, collapse, and lateral movement;</li> <li>d) Any machinery or equipment servicing the appurtenant structure must be elevated or flood proofed to or above the BFE;</li> <li>e) The appurtenant structure must comply with floodway encroachment provisions in Section 5.4-1;</li> <li>f) The appurtenant structure must be designed to allow for the automatic entry and exit of floodwaters in accordance with Section 5.2-1(5).</li> <li>g) The structure shall have low damage potential, and</li> <li>h) If the structure is converted to another use, it must be brought into full compliance with the standards governing such use.</li> <li>i) The structure shall not be used for human habitation.</li> </ul> <p>2) Detached garages, storage structures, and other appurtenant structures not meeting the above standards must be constructed in accordance with all applicable standards in Section 5.2-1.</p> <p>3) Upon completion of the structure, certification that the requirement of this section have been satisfied shall be provided to the Floodplain Administrator for verification.</p>	
<p><b>5.3 AE and A1-30 Zones with Base Flood Elevations but No Floodways</b></p> <p>In areas with BFEs (when a regulatory floodway has not been designated), no new construction, substantial improvements, or other development (including fill) shall be permitted within zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.</p>	<p style="text-align: center;"><i>Mandatory</i> (44 CFR 60.3(c)(10))</p> <p><b>14.04.720(C)(1)(d)</b></p>
<p><b>5.4 Floodways</b></p> <p>Located within areas of special flood hazard established in Section 3.2 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters</p>	<p style="text-align: center;"><i>(Note the more restrictive language for floodway development per RCW 86.16)</i></p> <p><b>14.04.760(A)(3)(k)</b></p>

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that can carry debris, and increase erosion potential, the following provisions apply:	
<p><b>5.4-1 No Rise Standard</b></p> <p>Prohibit encroachments, including fill, new construction, substantial improvements, and other development, unless certification by a registered professional engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels during the occurrence of the base flood discharge.</p>	<p>(44 CFR 60.3(d)(3))</p> <p><b>14.04.760(A)(3)(k)(i)</b></p>
<p><b>5.4-2 Residential Construction in Floodways</b></p> <p>Construction or reconstruction of residential structures is prohibited within designated floodways*, except for (i) repairs, reconstruction, or improvements to a structure which do not increase the ground floor area; and (ii) repairs, reconstruction or improvements to a structure, the cost of which does not exceed 50 percent of the market value of the structure either, (A) before the repair, or reconstruction is started, or (B) if the structure has been damaged, and is being restored, before the damage occurred. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or to structures identified as historic places, may be excluded in the 50 percent.</p> <p>1) Replacement of Farmhouses in Floodway Repairs, reconstruction, replacement, or improvements to existing farmhouse structures located in designated floodways and that are located on lands designated as agricultural lands of long-term commercial significance under RCW 36.70A.170 may be permitted subject to the following:</p> <ul style="list-style-type: none"> <li>a) The new farmhouse is a replacement for an existing farmhouse on the same farm site;</li> <li>b) There is no potential building site for a replacement farmhouse on the same farm outside the designated floodway;</li> <li>c) Repairs, reconstruction, or improvements to a farmhouse shall not increase the total square footage of encroachment of the existing farmhouse;</li> <li>d) A replacement farmhouse shall not exceed the total square footage of encroachment of the farmhouse it is replacing;</li> </ul>	<p><i>Mandatory (RCW 86.16.041) However, subsections 1 and 2 can be eliminated at local option.</i></p> <p><b>14.04.760(A)(3)(k)(iii)</b></p>

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<ul style="list-style-type: none"> <li>e) A farmhouse being replaced shall be removed, in its entirety, including foundation, from the floodway within ninety days after occupancy of a new farmhouse;</li> <li>f) For substantial improvements and replacement farmhouses, the elevation of the lowest floor of the improvement and farmhouse respectively, including basement, is a minimum of one foot higher than the BFE;</li> <li>g) New and replacement water supply systems are designed to eliminate or minimize infiltration of floodwaters into the system;</li> <li>h) New and replacement sanitary sewerage systems are designed and located to eliminate or minimize infiltration of floodwater into the system and discharge from the system into the floodwaters; and</li> <li>i) All other utilities and connections to public utilities are designed, constructed, and located to eliminate or minimize flood damage.</li> </ul> <p>2) Substantially Damaged Residences in Floodway</p> <ul style="list-style-type: none"> <li>a) For all substantially damaged residential structures, other than farmhouses, located in a designated floodway, the Floodplain Administrator may make a written request that the Department of Ecology assess the risk of harm to life and property posed by the specific conditions of the floodway. Based on analysis of depth, velocity, flood-related erosion, channel migration, debris load potential, and flood warning capability, the Department of Ecology may exercise best professional judgment in recommending to the local permitting authority repair, replacement, or relocation of a substantially damaged structure consistent with WAC 173-158-076. The property owner shall be responsible for submitting to the local government and the Department of Ecology any information necessary to complete the assessment. Without a favorable recommendation from the department for the repair or replacement of a substantially damaged residential structure located in the regulatory floodway, no repair or replacement is allowed per WAC 173-158-070(1).</li> <li>b) Before the repair, replacement, or reconstruction is started, all requirements of the NFIP, the state requirements adopted pursuant to 86.16 RCW, and all applicable local regulations must be satisfied. In addition, the following conditions must be met:</li> </ul>	
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<ul style="list-style-type: none"> <li>i) There is no potential safe building location for the replacement residential structure on the same property outside the regulatory floodway.</li> <li>ii) A replacement residential structure is a residential structure built as a substitute for a legally existing residential structure of equivalent use and size.</li> <li>iii) Repairs, reconstruction, or replacement of a residential structure shall not increase the total square footage of floodway encroachment.</li> <li>iv) The elevation of the lowest floor of the substantially damaged or replacement residential structure is a minimum of one foot higher than the BFE.</li> <li>v) New and replacement water supply systems are designed to eliminate or minimize infiltration of floodwater into the system.</li> <li>vi) New and replacement sanitary sewerage systems are designed and located to eliminate or minimize infiltration of floodwater into the system and discharge from the system into the floodwaters.</li> <li>vii) All other utilities and connections to public utilities are designed, constructed, and located to eliminate or minimize flood damage.</li> </ul>	
<p><b>5.4-3 All Other Building Standards Apply in the Floodway</b></p> <p>If Section 5.4-1 is satisfied or construction is allowed pursuant to Section 5.4-2, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Section 5.0, Provision For Flood Hazard Reduction.</p>	<p style="text-align: center;"><i>Mandatory (44 CFR 60.3(d)(1-4)</i></p> <p><b>17.04.760(A)(3)(k)(iv)</b></p>
<p><b>5.5 General Requirements for Other Development</b></p> <p>All development, including manmade changes to improved or unimproved real estate for which specific provisions are not specified in this ordinance or the state building codes with adopted amendments and any {community name} amendments, shall:</p> <ul style="list-style-type: none"> <li>1) Be located and constructed to minimize flood damage;</li> <li>2) Meet the encroachment limitations of this ordinance if located in a regulatory floodway;</li> <li>3) Be anchored to prevent flotation, collapse, or lateral movement resulting from hydrostatic</li> </ul>	<p style="text-align: center;"><i>(Optional Provision)</i></p> <p><b>17.04.760(B)</b></p>

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<p>loads, including the effects of buoyancy, during conditions of the design flood;</p> <p>4) Be constructed of flood damage-resistant materials;</p> <p>5) Meet the flood opening requirements of Section 5.2-1(5), and</p> <p>6) Have mechanical, plumbing, and electrical systems above the design flood elevation or meet the requirements of ASCE 24, except that minimum electric service required to address life safety and electric code requirements is permitted below the design flood elevation provided it conforms to the provisions of the electrical part of building code for wet locations.</p>	
<p><b>5.6 Critical Facility</b></p> <p>Construction of new critical facilities shall be, to the extent possible, located outside the limits of the SFHA (100-year floodplain). Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet above BFE or to the height of the 500-year flood, whichever is higher. Access to and from the critical facility should also be protected to the height utilized above. Flood proofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the BFE shall be provided to all critical facilities to the extent possible.</p>	<p><i>(Optional Provision)</i></p>
<p><b>5.7 Livestock Sanctuary Areas</b></p> <p>Elevated areas for the for the purpose of creating a flood sanctuary for livestock are allowed on farm units where livestock is allowed. Livestock flood sanctuaries shall be sized appropriately for the expected number of livestock and be elevated sufficiently to protect livestock. Proposals for livestock flood sanctuaries shall meet all procedural and substantive requirements of this chapter.</p> <p>Note: To be “elevated sufficiently to protect livestock” typically means to be elevated at least one foot above the BFE.</p>	<p>Required by RCW 86.16.190. This section should be included by all counties. A city that does not allow livestock can forgo this section. While state law requires that local governments make provision for critter pads, it is extremely important to note that RCW 86.16.190 does not relax NFIP standards, including the no rise standard in floodways, in any way.</p>

<b>Section 6.0 - Variances</b>	
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<ul style="list-style-type: none"> <li>e) Upon a determination that failure to grant the variance would result in exceptional hardship to the applicant;</li> <li>f) Upon a showing that the use cannot perform its intended purpose unless it is located or carried out in close proximity to water. This includes only facilities defined in Section 2.0 <b>{or the numbering system used by the community}</b> of this ordinance in the definition of “Functionally Dependent Use.”</li> </ul> <p>2) Variances shall not be issued within any floodway if any increase in flood levels during the base flood discharge would result.</p> <p>3) Generally, variances may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the BFE, provided the procedures of Sections 4.0 and 5.0 <b>{or the numbering system used by the community}</b> of this ordinance have been fully considered. As the lot size increases beyond one-half acre, the technical justification required for issuing the variance increases.</p>	
<p><b>6.2 Variance Criteria</b></p> <p>1) In considering variance applications, the <b>{Governing Body}</b> shall consider all technical evaluations, all relevant factors, all standards specified in other sections of this ordinance, and:</p> <ul style="list-style-type: none"> <li>a) The danger that materials may be swept onto other lands to the injury of others;</li> <li>b) The danger to life and property due to flooding or erosion damage;</li> <li>c) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;</li> <li>d) The importance of the services provided by the proposed facility to the community;</li> <li>e) The necessity to the facility of a waterfront location, where applicable;</li> <li>f) The availability of alternative locations for the proposed use, which are not subject to flooding or erosion damage;</li> <li>g) The compatibility of the proposed use with existing and anticipated development;</li> <li>h) The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;</li> <li>i) The safety of access to the property in time of flood for ordinary and emergency vehicles;</li> <li>j) The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters expected at the site; and,</li> </ul>	<p><i>Recommended. However, any variance provisions need to meet the standards in 44 CFR 60.6</i></p> <ul style="list-style-type: none"> <li>1) <b>14.04.770(F)</b></li> <li>1)a) <b>14.04.770(F)(1)</b></li> <li>1)b) <b>14.04.770(F)(2)</b></li> <li>1)c) <b>14.04.770(F)(3)</b></li> <li>1)d) <b>14.04.770(F)(4)</b></li> <li>1)e) <b>14.04.770(F)(5)</b></li> <li>1)f) <b>14.04.770(F)(6)</b></li> <li>1)g) <b>14.04.770(F)(7)</b></li> <li>1)h) <b>14.04.770(F)(8)</b></li> <li>1)i) <b>14.04.770(F)(9)</b></li> <li>1)j) <b>14.04.770(F)(10)</b></li> <li>1)k) <b>14.04.770(F)(11)</b></li> </ul>

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<p>k) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities, such as sewer, gas, electrical, water system, and streets and bridges.</p>	
<p><b>6.3 Additional Requirements for the Issuance of a Variance</b></p> <p>1) Any applicant to whom a variance is granted shall be given written notice over the signature of a community official that:</p> <ol style="list-style-type: none"> <li>The issuance of a variance to construct a structure below the BFE will result in increased premium rates for flood insurance up to amounts as high as \$25 for \$100 of insurance coverage, and</li> <li>Such construction below the BFE increases risks to life and property.</li> </ol> <p>2) The Floodplain Administrator shall maintain a record of all variance actions, including justification for their issuance.</p> <p>3) The Floodplain Administrator shall condition the variance as needed to ensure that the requirements and criteria of this chapter are met.</p> <p>Variances as interpreted in the NFIP are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from flood elevations should be quite rare.</p>	<p><i>Recommended. However, any variance provisions need to meet the standards in 44 CFR 60.6</i></p> <p><b>1) 14.04.770(G)(1)</b>  <b>1)a) 14.04.770(G)(1)(a) – See markups on Bothell code.</b>  <b>1)b) 14.04.770(G)(1)(b)</b>  <b>2) 14.04.770(G)(2)</b>  <b>3) 14.04.770(G)(3)</b></p>

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## Bothell Special Flood Hazard Area Code Amendments

## SEPA Comments and Responses

#	Commenter/Comment(s)	Response
	<b>Karen Walter</b> , Watersheds and Land Use Team Leader <i>Muckleshoot Indian Tribe Fisheries Division, Habitat Program</i>	
1	The proposed code is showing that Special Flood Hazard Area Permits would be "Type 1" permits under BMC 11.04.003. If we recall correctly, Type 1 permits are not publically noticed or available for review by tribes and affected agencies. Is this correct? If so, this is cause for concern as there will be no meaningful way to verify that projects seeking Special Flood Hazard Area Permits do not adversely affect salmon; their habitats and the natural process the create and maintain these habitats which were outlined extensive in NOAA's 2008 Biological Opinion for FEMA's National Flood Insurance Program as carried out in Puget Sound. <a href="https://www.fema.gov/media-library-data/20130726-1900-25045-9907/nfip_biological_opinion_puget_sound.pdf">https://www.fema.gov/media-library-data/20130726-1900-25045-9907/nfip_biological_opinion_puget_sound.pdf</a>	A Special Flood Hazard Area Permit will be required of <u>any</u> permit within the special flood hazard area, even if it is only an interior tenant improvement that might affect the value of a building for flood insurance purposes. Other permits will be required for work that potentially could impact habitats and natural processes, including Critical Areas Alteration Permits, which will require notification and provide for review by tribes and other affected parties. Minor changes have been made to the proposed amendments to clarify this.
2	There is also no mention of the need "to restore and preserve the natural and beneficial values served by floodplains" in the proposed ordinance. There are several areas in Bothell where there is a need to restore and preserve floodplain habitats and functions to support salmon.	If a project proposes to impact floodplain habitats and functions, it will be required to obtain a Critical Areas Alteration Permit and address any requirements to restore and preserve such habitats and functions (see above).
3	Finally, the SEPA checklist for these code amendments notes four projects that have a portion of their sites in the FEMA floodplain (mapping date is not noted in this response). What is the City doing to protect these floodplain areas and processes on these four projects?	The four projects referenced in the SEPA checklist are based on current publicly available project and floodplain data from the City's online interactive mapping system, COBmap. Each of those projects is being reviewed under the existing code protections for floodplain areas and processes. At least one has portions of its parcel that extend into currently mapped 500-year floodplain areas (not the 100-year floodplain that defines Special Flood Hazard Areas, but no actual development activity there.

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City of Bothell™

City Council  
Agenda Bill  
AB # 20-064

**TO:** Mayor Olsen and Members of the Bothell City Council

**FROM:** Bruce Blackburn, Senior Planner

**DATE:** June 2, 2020

**SUBJECT:** Public Hearing and Consideration of an Ordinance Amending the Bothell Municipal Code to Align with State Exceptions for Annual Comprehensive Plan Amendments and to Clarify Procedures for Providing State Environmental Policy Act (SEPA) Documentation to Advisory Bodies.

**POLICY CONSIDERATION:** The Council is being asked to hold a public hearing for the purpose of adopting an Ordinance to amend BMC 11.18.060 and 14.02.220. The amendment to 11.18.060 adds one more exception to the once a year limitation on amending the City's Comprehensive Plan. Currently, the code lists five exceptions, however state law allows six exceptions. This amendment is needed to allow the Council to adopt the 2019 Comprehensive Plan amendments upon resolution of the appeal if the appeal is resolved in the city's favor.

The amendment to 14.02.220 clarifies the type of SEPA documentation that will be provided for legislative (Plan or Code amendments) and quasi-judicial (Development applications) actions. This amendment will also ensure the City's advisory bodies receive environmental information such as the threshold determination, or, if issued, the Draft Environmental Impact Statement (DEIS) when crafting a recommendation for City Council consideration. By providing these SEPA documents it is believed advisory bodies will craft better-informed recommendations for Council consideration and public transparency will be improved.

<b>HISTORY:</b>	<b>DATE</b>	<b>ACTION</b>
	<b>FEBRUARY 4, 2020</b>	Council approves the 2020 Docket of Plan and Code amendments including certain procedural Housekeeping Code amendments.

**DISCUSSION:** The BMC has numerous procedures that regulate the timing and processing of Comprehensive Plan and Code amendments. These procedures are largely based upon state law (Revised Code of Washington (RCW)) as promulgated within the Washington Administrative Code (WAC). The two proposed Code amendments were identified during the processing of the 2019 Plan amendments and the Canyon Park Subarea Plan update.

The amendment to 11.18.060 is being proposed because a SEPA appeal delayed action on the 2019 Plan amendments during the 2019 calendar year. Under the current language within BMC 11.18.060, the 2019 Plan amendments must now be considered at the same time as the 2020 Plan amendments thereby postponing the 2019 Plan amendments an entire year. However, WAC 365-196-640 contains an exception to the once-a-year amendment cycle which addresses this situation by allowing a jurisdiction to adopt a Comprehensive Plan amendment during a subsequent calendar year provided the Comprehensive plan amendment was considered during the prior year. The current 11.18.060 does not currently include this exception allowed by state law.

This proposal would align city code with state law and offer more flexibility to the City Council when amending the Comprehensive Plan. It would also address the current inability to adopt the 2019 Comprehensive Plan amendments that have been appealed.

The amendment to 14.02.220 was identified by the City's Canyon Park SEPA consultant. The current 14.02.220 was crafted in 1996 when advisory bodies issued some quasi-judicial decisions (Conditional Use Permits, Variances, and others) but was not updated in 2000 when the City assigned all quasi-judicial decisions to a professional hearing examiner. Advisory bodies are now responsible for providing recommendations on legislative items for Council consideration.

BMC 14.02.220 needs to be amended to clarify the type of SEPA document that will be provided to legislative advisory bodies (Plan or Code amendments), the Hearing Examiner for quasi-judicial (Development) decisions, and to the City Council when the Council adopts a Plan or Code amendment. Further, the current language requires a completed final EIS be provided to advisory bodies. This requirement is inconsistent with current SEPA rules governing a Planned Action EIS which requires advisory bodies to receive the Draft EIS and the legislative decision body (Council) to receive the Final EIS.

Providing the correct type of environmental documentation to advisory bodies will result in better-informed recommendations and increased public transparency for Plan and Code amendments. The proposed amendment will also align city code with state SEPA rules and clarify the process for adoption of the Canyon Park Subarea Plan and future projects.

**FISCAL  
IMPACTS:**

This item has no financial implications.

**City Council**  
**Agenda Bill**  
AB # 20-064

**ATTACHMENTS:** | Att-1. Proposed Ordinance

**RECOMMENDED** | Staff recommends that the Council adopt the attached Ordinance amending BMC  
**ACTION:** | 11.18.060 and 14.02.220.



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**ORDINANCE NO. \_\_\_\_\_ (2020)**

AN ORDINANCE OF THE CITY OF BOTHELL, WASHINGTON, AMENDING TITLE 11 OF THE BOTHELL MUNICIPAL CODE (BMC) RELATING TO THE ADMINISTRATION OF DEVELOPMENT REGULATIONS AND TITLE 14 BMC RELATING TO THE STATE ENVIRONMENTAL POLICY ACT, WITH AMENDMENTS REGARDING THE TIMING AND PROCESSING OF PLAN AND CODE AMENDMENTS.

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WHEREAS, the Growth Management Act requires that the City of Bothell's *Imagine Bothell...* Comprehensive Plan and implementing development regulations contained in the Bothell Municipal Code be subject to continuing review and evaluation; and

WHEREAS, generally RCW 36.70A.130 and the Bothell Municipal Code require the City to review all amendments to the Comprehensive Plan concurrently and no more frequently than once every year, but there are certain exceptions within the statute and code;

WHEREAS, the existing local code does not include the same exceptions as the state statute, preventing the City Council from amending the Comprehensive Plan in a situation allowed by state law; and

WHEREAS, as part of the 2020 Planning Docket approved on February 4, 2020, the City Council initiated consideration of certain Code amendments, including amendments to Titles 11 and 14 regarding the timing and processing of Plan and Code amendments to make the code consistent with state law,; and

WHEREAS, the amendments adopted by this Ordinance are consistent with Sections 365-196-640 and 197-11-055 of the Washington Administrative Code (WAC); and

WHEREAS, upon due consideration and following a public hearing, the City Council finds that adoption of these code amendments is in the public interest and welfare.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BOTHELL, WASHINGTON, DOES ORDAIN AS FOLLOWS:

Section 1. Paragraph B of Section 11.18.060 of the Bothell Municipal Code (BMC) is hereby amended as follows, with new text shown by underline and deleted text shown

by ~~strike through~~; all other provisions of this section shall remain unchanged and in full force:

**11.18.060 Timing and process for consideration of suggested amendments.**

B. The comprehensive plan shall be amended no more often than once each calendar year, except that amendments may be considered more frequently as provided below:

1. ~~f~~For the initial adoption of a subarea plan,
2. For the adoption of a shoreline master program,
3. ~~a~~Amendments to the capital facilities element occurring concurrently with the adoption of the city budget,
4. ~~i~~In cases of emergency, ~~or~~
5. ~~T~~To resolve an appeal of an adopted comprehensive plan filed with a Growth Management Board or with the court; or
6. If the City's final legislative action is taken in a subsequent calendar year, it may still be considered part of the prior year's docket so long as the consideration of the amendments occurred within the prior year's comprehensive plan amendment process.

Section 2. BMC 14.02.220 is hereby amended as follows, with new text shown by underline and deleted text shown by ~~strike through~~; all other provisions of this section shall remain unchanged and in full force:

**14.02.220 SEPA decisions.**

For non-exempt proposals; ~~any DNS or completed final EIS for the proposal shall accompany the city staff's recommendation to any appropriate advisory body such as the planning commission.~~

- A. In a quasi-judicial proceeding by the Hearing Examiner, the determination of non-significance (DNS) or, in the case where an environmental impact statement (EIS) has been required, a final environmental impact statement (FEIS) for the proposal shall accompany the staff recommendation.
- B. In a legislative proceeding before the applicable advisory body, the DNS or, in the case where an EIS has been required, a draft EIS for the proposal shall be provided to the advisory body as part of the record.
- C. The City Council shall receive the DNS or, in the case where an EIS has been required, a FEIS for any legislative action.

Section 3. SEVERABILITY. If any section, sentence, clause, or phrase of this ordinance should be held to be invalid by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause, or phrase of this ordinance.

Section 4. EFFECTIVE DATE. This ordinance, being an exercise of a power specifically delegated to the City legislative body, is not subject to referendum and shall take effect five (5) days after passage and publication of an approved summary thereof consisting of the title.

Section 5. CORRECTIONS. The City Clerk and the codifiers of this ordinance are authorized to make necessary corrections to this ordinance including, but not limited to, the correction of scrivener's/clerical errors, references, ordinance numbering, section/subsection numbers, and any references thereto.

APPROVED:

---

LIAM OLSEN  
MAYOR

ATTEST/AUTHENTICATED:

---

LAURA HATHAWAY  
CITY CLERK

APPROVED AS TO FORM:

---

PAUL BYRNE  
CITY ATTORNEY

FILED WITH THE CITY CLERK: \_\_\_\_\_

PASSED BY THE CITY COUNCIL: \_\_\_\_\_

PUBLISHED: \_\_\_\_\_

EFFECTIVE DATE: \_\_\_\_\_

ORDINANCE NO.: \_\_\_\_\_ (2020)

**SUMMARY OF ORDINANCE NO. \_\_\_\_\_ (2020)**

City of Bothell, Washington

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On the 2<sup>ND</sup> day of June 2020, the City Council of the City of Bothell passed Ordinance No. \_\_\_\_\_ (2020). A summary of the content of said Ordinance, consisting of the title, is provided as follows:

AN ORDINANCE OF THE CITY OF BOTHELL, WASHINGTON, AMENDING TITLE 11 OF THE BOTHELL MUNICIPAL CODE (BMC) RELATING TO THE ADMINISTRATION OF DEVELOPMENT REGULATIONS AND TITLE 14 BMC RELATING TO THE STATE ENVIRONMENTAL POLICY ACT, WITH AMENDMENTS REGARDING THE TIMING AND PROCESSING OF PLAN AND CODE AMENDMENTS.

The full text of this Ordinance will be mailed upon request.

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LAURA HATHAWAY  
CITY CLERK

FILED WITH THE CITY CLERK: \_\_\_\_\_  
PASSED BY THE CITY COUNCIL: \_\_\_\_\_  
PUBLISHED: \_\_\_\_\_  
EFFECTIVE DATE: \_\_\_\_\_  
ORDINANCE NO.: \_\_\_\_\_ (2020)



City of Bothell™

City Council  
Agenda Bill  
AB # 20-065

**TO:** Mayor Olsen and Members of the Bothell City Council

**FROM:** Michael Kattermann, Community Development Director  
Darcey Eilers, Deputy City Attorney

**DATE:** June 2, 2020

**SUBJECT:** Public Hearing on Retaining Interim Ordinance Temporarily Suspending  
Development Application and Permit Timelines

**POLICY  
CONSIDERATION:**

The Council is being asked to hold a public hearing for the purpose of considering whether to retain the Interim Ordinance (Ordinance #2312) adopted by City Council on April 7, 2020, temporarily suspending timelines related to development applications and permits. Because the ordinance was adopted as an emergency measure it is only in effect for six months and can be repealed by Council at any time. Council is required to hold a public hearing within 60 days of adoption. No action is required or recommended at this time.

Development applications and projects are facing potential and actual delays due to the impacts of COVID-19. The nature of the pandemic and the Governor's orders for the gradual re-opening of businesses and construction projects reinforce the need for the Ordinance #2312 to remain in effect for at least the next few months.

Under the provisions of state law (RCW 36.70A.390), cities may enact interim ordinances for a period of six months. The City has 60 days from the adoption of the interim ordinance to conduct a public hearing. The six months will allow staff time to evaluate the need, potential duration, and proposed amendments to the BMC, if needed. Depending on the duration of the crisis, Council can extend the interim ordinance for an additional six months, subject to another public hearing. Council can also repeal the ordinance at any time by a simple motion and affirmative vote.

**HISTORY:**

DATE	ACTION
<b>MARCH 5, 2020</b>	Mayor declared state of emergency due to COVID-19 Virus outbreak
<b>MARCH 16, 2020</b>	City Manager directed as many city staff as possible to work remotely
<b>MARCH 23, 2020</b>	Governor issued stay-at-home order, causing some development projects to stop operations
<b>APRIL 7, 2020</b>	Council adopted Ordinance #2312, temporarily suspending application and permit timelines required in BMC

Bothell has been proactive in anticipating appropriate actions related to this pandemic and implementing them quickly. Retaining Ordinance #2312 allows staff and applicants additional time to determine what additional actions, if any, will be needed to ensure projects can resume when allowed.

**DISCUSSION:** The BMC has numerous timelines regulating the processing of applications and determining whether the status is active, inactive, or expired. Examples include time limits on staff review and the amount of time for applicants to respond to review comments. Similarly, there are time limits on how long an applicant has after approval to pay fees and obtain the permit. Issued permits also have an expiration date by which the project must be completed or a renewal/extension is required. Many of these timelines are required or adopted pursuant to state law, chapter 36.70B RCW. Bothell has numerous active projects in various stages of review, approval and construction at this time. With the uncertainty about the duration and economic impacts of the COVID-19 virus and the Governor's orders to gradually resume activities, there will be applications and permits that will languish and/or expire due to inactivity by applicants and contractors.

In order to assist these sectors of the local economy by encouraging projects to resume as soon as possible and to minimize the number of individual extension requests, staff is recommending that Council retain Ordinance #2312. The suspension and tolling apply to all applications deemed complete and permits active as of January 1, 2020, and it will continue in effect through October 7, 2020, unless repealed by Council.

City staff has had to adjust procedures quickly in response to changes and clarifications of the Governor's orders. To provide City staff with the flexibility to be compliant with these changing circumstances, the Interim Ordinance provides the Community Development Director, Public Works Director, and Fire Marshal with the authority to make administrative interpretations consistent with the purpose of the ordinance.

**FISCAL  
IMPACTS:**

None

**ATTACHMENTS:**

Att-1. Ordinance #2312

**RECOMMENDED  
ACTION:**

Staff recommends that the Council take no action at this time. The Interim Ordinance will remain in effect until October 7, 2020.



## ORDINANCE NO. 2312 (2020)

AN INTERIM ORDINANCE OF THE CITY OF BOTHELL, WASHINGTON, IN RESPONSE TO THE COVID-19 PANDEMIC TEMPORARILY POSTPONING EXPIRATION OF DEVELOPMENT APPLICATIONS AND APPROVED LAND USE ACTIONS AND CONSTRUCTION PERMITS AND TEMPORARILY TOLLING PROCEDURAL DEADLINES; AUTHORIZING ADMINISTRATIVE INTERPRETATIONS; DECLARING THIS A PUBLIC EMERGENCY ORDINANCE PURSUANT TO RCW 35A.13.190; ESTABLISHING AN EXPIRATION DATE CONSISTENT WITH RCW 36.70A.390; AND FIXING AN EFFECTIVE DATE.

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WHEREAS, the World Health Organization has determined that a pandemic exists due to the global spread of a highly contagious virus commonly known as COVID-19; and

WHEREAS, a state of emergency has been declared by the federal, state, county, and municipal governments in response to the pandemic; and

WHEREAS, on March 23, 2020, Governor Jay Inslee issued Emergency Proclamation 20-25 ("Stay Home, Stay Healthy order") requiring all people in Washington State to immediately cease leaving their home or place of residence except to conduct or participate in essential activities and/or for employment in essential business services; and

WHEREAS, on March 25, 2020, Governor Inslee provided official guidance stating that construction activities are not considered essential under Proclamation 20-25, except in limited circumstances; and

WHEREAS, the pandemic and the emergency declarations and proclamations are causing delays for an indeterminate period of time in the construction, inspection, and review of development projects with an active application or permit with the City of Bothell and will cause delays with any project or permit applications filed during the state of emergency; and

WHEREAS, a number of land use and permit review statutes and municipal code provisions, including chapter 36.70B RCW and Title 11 of the Bothell Municipal Code, impose certain time limitations and process requirements, such as public hearings, on development permit applications that are not achievable in the current emergency while complying with the Governor's proclamations; and

WHEREAS, the City Council wishes to encourage a continuation of construction activity delayed by the emergency restrictions and by the economic impacts of the

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pandemic through postponement of the deadlines and expiration dates for applications and permits; and

WHEREAS, the City Council further recognizes the necessity for staff telecommuting, for City compliance with the Governor's restrictions on non-essential activities, and for prioritizing work to address the emergency conditions; and

WHEREAS, this public health and economic crisis creates a time-sensitive emergency requiring the use of an interim zoning ordinance extending development application processing and permit expiration time periods to provide additional time; and

WHEREAS, this interim ordinance is intended to be temporary until public health and economic conditions improve and the provisions of this Ordinance are procedural in nature, in that they only modify the amount of time an application or an issued permit remains viable. Accordingly, this Ordinance is exempt from the requirements of a threshold determination under the State Environmental Policy Act pursuant to WAC 197-11-800(19) and does not require transmittal to the Washington State Department of Commerce for comment; and

WHEREAS, the City Council finds that it is in the public interest to adopt this interim Ordinance and that such Ordinance is necessary for the immediate protection of the public health, safety, property, or peace.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BOTHELL DOES ORDAIN AS FOLLOWS:

Section 1. FINDINGS OF FACT. The Recitals set forth above are adopted as the Findings of Fact required pursuant to RCW 36.70A.390.

Section 2. EXTENSIONS OF DEVELOPMENT APPLICATIONS AND PERMITS.

A. This section relates to all development project applications and permits, including those under Titles 11, 12, 13, 14, 15, 17, 18, and 20 of the Bothell Municipal Code.

B. A permit or development approval (for example, a preliminary subdivision plat or preliminary PUD) that was active and valid as of January 1, 2020, shall not lapse, terminate, or otherwise expire prior to the expiration of this interim Ordinance, and the expiration date of the permit or development approval or time period for meeting a deadline or for performance of a condition of the permit or development approval shall be either the time currently provided by code or the expiration of this interim Ordinance, whichever date is later, unless the specific time period is required by state law and cannot be waived.

C. Any application that is currently actively processing or that is determined to be complete while this interim Ordinance is effective, will not be

lapsed, cancelled, or expired prior to the expiration of this interim Ordinance, and the time period for meeting a deadline or for performance of a condition of the application (including deadlines for obtaining permits that are ready for issuance) shall be either the time currently provided by code or the expiration of this interim Ordinance, whichever date is later, unless the specific time period is required by state law and cannot be waived.

D. Application processing deadlines and timelines relating to project permit applications processed under Title 11 BMC, including but not limited to requirements for issuing a notice of decision, are suspended and will be tolled while the Governor's emergency proclamations are in effect.

Section 3. STATE LAW. The Council recognizes that in addition to the City's local ordinances and regulations there are associated state statutory deadlines and timelines in Chapters 36.70A, 36.70B, 43.21C, 58.17, and 90.58 RCW, among others, which the Council does not have the authority to waive or extend. If the Governor issues an emergency proclamation or other order providing relief from state statutory deadlines and other requirements for development projects, the Council authorizes the Community Development Director, Public Works Director, and/or Fire Marshal, as applicable, to implement or adopt any available measures or relief from those statutory deadlines and requirements provided such interpretations are temporary and consistent with the intent and purpose of this Ordinance.

Section 4. DIRECTOR INTERPRETATIONS. Council further authorizes the Community Development Director, the Public Works Director, and/or the Fire Marshal, as applicable, to issue temporary procedural interpretations to address deadlines or other requirements related to development activities that were not specifically addressed in this Ordinance, provided such interpretations are temporary and consistent with the intent and purpose of this Ordinance.

Section 5. PUBLIC HEARING. Pursuant to RCW 36.70A.390, a public hearing on the interim official controls established by this Ordinance shall be held within sixty (60) days of the adoption of this Ordinance to hear and consider public comment.

Section 6. EFFECTIVE DATE. This Ordinance, passed by at least a majority plus one of the whole membership of the City Council as a public emergency ordinance necessary for the immediate preservation of the public peace, health, property, or safety and for the immediate support of City government and its existing public institutions, shall be effective immediately upon its adoption as provided in RCW 35A.13.190.

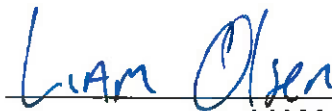
Section 7. EXPIRATION. The City Council adopts this interim regulation under the authority of RCW 36.70A.390. Therefore, the interim controls adopted herein shall be in effect for a period of six (6) months from the effective date of this Ordinance and shall automatically expire after a period of six months, unless extended as provided by statute

or otherwise superseded by action of Council, whichever occurs first. Because this is an interim ordinance only, it shall not be codified.

Section 8. SEVERABILITY. If any section, sentence, clause, or phrase of this ordinance should be held to be invalid by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause, or phrase of this ordinance.

Section 9. CORRECTIONS. The City Clerk is authorized to make necessary corrections to this ordinance including, but not limited to, the correction of scrivener's/clerical errors, references, ordinance numbering, section/subsection numbers, and any references thereto.

APPROVED:



LIAM OLSEN  
MAYOR

ATTEST/AUTHENTICATED:

  
for

LAURA HATHAWAY  
CITY CLERK

APPROVED AS TO FORM:



PAUL BYRNE  
CITY ATTORNEY

FILED WITH THE CITY CLERK: 03/31/2020  
PASSED BY THE CITY COUNCIL: 04/07/2020  
PUBLISHED: 04/10/2020  
EFFECTIVE DATE: 04/07/2020  
ORDINANCE NO.: 2312 (2020)

## SUMMARY OF ORDINANCE NO. 2312 (2020)


City of Bothell, Washington

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On the 7th day of April, 2020, the City Council of the City of Bothell passed Ordinance No. 2312 (2020). A summary of the content of said Ordinance, consisting of the title, is provided as follows:

AN ORDINANCE OF THE CITY OF BOTHELL, WASHINGTON, IN RESPONSE TO THE COVID-19 PANDEMIC TEMPORARILY POSTPONING EXPIRATION OF DEVELOPMENT APPLICATIONS AND APPROVED LAND USE ACTIONS AND CONSTRUCTION PERMITS AND TEMPORARILY TOLLING PROCEDURAL DEADLINES; AUTHORIZING ADMINISTRATIVE INTERPRETATIONS; DECLARING THIS A PUBLIC EMERGENCY ORDINANCE PURSUANT TO RCW 35A.13.190; ESTABLISHING AN EXPIRATION DATE CONSISTENT WITH RCW 36.70A.390; AND FIXING AN EFFECTIVE DATE.

The full text of this Ordinance will be mailed upon request.

  
for LAURA HATHAWAY  
CITY CLERK

FILED WITH THE CITY CLERK: 03/31/2020  
PASSED BY THE CITY COUNCIL: 04/07/2020  
PUBLISHED: 04/10/2020  
EFFECTIVE DATE: 04/07/2020  
ORDINANCE NO.: 2312 (2020)



City of Bothell™

City Council  
Agenda Bill  
AB #20-066

**TO:** Mayor Olsen and Members of the Bothell City Council

**FROM:** Erin Leonhart, Public Works Director  
Nduta Mbuthia, Capital Projects Engineer, Public Works (Presenter)

**DATE:** June 2, 2020

**SUBJECT:** Consideration of an Ordinance Initiating Condemnation of Property Needed for the North Creek Trail Section 4 Project

**POLICY CONSIDERATION:** The City Council previously provided policy direction on this project by adoption of the 2019-2025 Capital Facilities Plan and 2019-2020 Biennial Budget. Specifically, this item asks the City Council to consider if the City should adopt an ordinance initiating condemnation of property needed to implement this project.

The City Council is being asked to establish a legal process by which to acquire the necessary portions of the properties with just compensation, in the event a purchase price cannot be negotiated and mutually agreed upon.

**HISTORY:**

DATE	ACTION
DECEMBER 2015	City entered into a Local Agency Agreement for Design Phase federal grant funding in the amount of \$735,000
APRIL 2016	Council approved a professional services agreement, with Parametrix Inc., for design and Right of Way (ROW) engineering services for North Creek Trail Section 4
FEBRUARY 2019	City Council approved Supplemental Agreement No. 3 in the amount of \$95,283.23 for continued engineering services for North Creek Trail section 4
JULY 2019	City entered into a Local Agency Agreement for Right of Way federal grant funding in the amount of \$1,015,800
FEBRUARY 2020	City Council approved the Right of Way Plan for the North Creek Trail Section 4 project.



This project is a continuation of the City's efforts over the past decade to complete the North Creek Trail between the University of Washington Bothell/Cascadia College and the portion of the trail that will be constructed by Snohomish County. When complete, this trail will connect the Snohomish County Regional Interurban Trail at McCollum Park in Everett with the King County Regional Sammamish River Trail/Burke-Gilman Trail in Bothell. In 2015, the City was awarded a federal grant that allocated up to \$735,000 towards the design phase of this project.

In April 2016, City Council approved a professional services agreement, with Parametrix Inc., in the amount of \$536,146.74, for design and Right of Way (ROW) engineering services for North Creek Trail Section 4. The City Manager approved two supplements to the original contract, Supplement #1, for a time extension, in October 2017 and Supplement #2, to add \$36,650.48 for right of way and engineering services, in March 2018.

In 2017, staff held a public open house specific to this project at the Bothell Operations Center. Approximately 20 people attended the open house. There were some comments and questions that came up but these did not result in any design changes. Questions such as:

- Would the City consider replacing existing wood fence with concrete sound walls?
- Can the City move the proposed trail alignment toward the roadway?
- How much compensation can I get if my property is affected by the trail?

In 2018, the City was awarded a federal grant that allocated up to \$1,015,800 towards the completion of the right of way (ROW) acquisitions for this project.

**DISCUSSION:** North Creek Trail Section 4 is the most northerly segment of the North Creek Trail within the Bothell city limits. It will connect to the planned Snohomish County North Creek Trail north of SR 524 and the completed North Creek Trail Section 3 project in Bothell that spans north-south between 214th St SE and SR 524. The trail will be part of a coordinated regional system that will eventually connect the King County Sammamish River/Burke-Gillman regional trail with the Snohomish County Regional Interurban Trail in Everett. Completion of the North Creek Trail will improve safety for pedestrians and bicyclists as well as encourage non-motorized travel between business/employment centers, transit stops, parks, and residential areas.

The City's consultant on this project will finalize the 100 percent design upon completion of the ROW phase; however, sufficient design has been completed

to determine the right of way (ROW) needed for the project. Construction of the first phase is planned to start in early 2021, and be completed by 2023. In order to maintain the schedule and be eligible to obligate federal construction funds in 2021, staff must complete the right of way acquisitions by the end of this year.

There are seven residential properties along the trail's alignment that require partial takes or temporary construction easements. This accounts for all ROW needs for both phases of construction. In order to build the ten (10) foot wide trail with two (2) foot shoulder, and maintain a five (5) foot buffer (planter strip) between the travel lanes and the trail, several strip takes and temporary construction easements are needed from private properties abutting the trail.

Per the WSDOT design manual, a 12-foot paved trail width is desirable and a 10-foot is minimum standard. During the alternative analysis phase, one option that was considered was 5-foot buffer, 12-foot paved trail with 2-foot shoulder. The paved trail width has been reduced to the minimum 10-foot wide to minimize the ROW take across these properties. Once an agreed-upon amount is reached with the property owner, staff will return to Council for final approval of the acquisition.

It is City practice to exhaust all reasonable efforts to reach a negotiated agreement with owners when property is needed for capital improvement projects. However, if agreement cannot be reached in a reasonable time period, condemnation provides a process by which the City can proceed with the project while the amount of compensation is determined following federal and state requirements.

The City's consultant, Parametrix, Inc. hired a sub-consultant/right of way agent that specializes in right of way services to contact the affected property owners within the project vicinity. An introduction letter was mailed out to property owners the week of January 27th, and the right of way agent followed up with phone calls and individual visits the first week of February. During the one-on-one visits, the right of way agent discussed the project scope and notified the owners about the proposed condemnation ordinance scheduled for City Council consideration in March. The approval of this proposed ordinance authorizes the City Attorney to proceed to condemnation if necessary.

The City will negotiate with the parties to complete the necessary ROW acquisition before proceeding with condemnation. However, it takes a significant amount of time to work through the condemnation process. As such, in order to maintain a reasonable schedule and retain grant funding, it is

important to begin the process while negotiations are ongoing. Furthermore, it is important to note that state law requires the adoption of this ordinance in order for a seller to receive an excise tax exemption on the sale of the property for public purpose.

Since this project contains federal funding, right of way acquisition is very prescriptive, and must comply with requirements as outlined in the Washington State Department of Transportation's Local Agency Manual.

**FISCAL IMPACTS:** This project is included in the Adopted 2019-2020 Budget. For the Right of Way Phase the City's estimated financial contribution of \$230,200 to the project is consistent with the value included in the Adopted Budget and sufficient to fund this agenda item.

**ATTACHMENTS:**

- Att-1. Vicinity Map
- Att-2. Right of Way Plan
- Att-3. Proposed Ordinance

**RECOMMENDED ACTIONS:** Approve an ordinance initiating condemnation of property for the North Creek Trail Section 4 project, and authorize the City Manager to acquire the necessary right-of-way for the project, subject to future Council approval of deeds and easements documenting the acquisitions.





**Project Map - North Creek Trail Section 4**

(From the north terminus of North Creek Trail Section 3 behind the Walgreen Development to Filbert Drive)

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# FILBERT DRIVE TO NORTH CREEK TRAIL SECTION 3 TERMINUS RIGHT OF WAY PLANS FEDERAL AID # 0110(014)

**EXISTING ZONE CLASSIFICATION:**

<u>PARCEL DESIGNATION</u>	<u>USE CODE</u>	<u>DESCRIPTION</u>
100-106	111	SINGLE FAMILY RESIDENCE (DETACHED)

**CONTACT INFORMATION:**

APPLICANT:  
CITY OF BOTHELL  
PUBLIC WORKS DEPARTMENT  
18415 101 AVE NE  
BOTHELL, WA 98011  
(425) 806-6829  
CONTACT: NUTA MBUTHIA  
OWNER:  
KING COUNTY PARKS AND RECREATION DIVISION

ENGINEER:  
PARAMETRIX  
719 2ND AVENUE  
SUITE 200  
SEATTLE, WA 98104  
(206) 394-3700  
CONTACT: YAMMIE HO, P.E.

SURVEYOR:  
PARAMETRIX  
719 2ND AVENUE  
SUITE 200  
SEATTLE, WA 98104  
(206) 394-3700  
CONTACT: DANIEL THIBODEAU, PLS

**PARCEL INFORMATION:**

PLAN	DESIGNATION	ASSESSOR	PARCEL #
101		0110090000	1900
102		0110090000	1800
103		0110090000	1300
104		0110090000	1200
105		0110090000	1100
106		0110090000	1000
107		2705190040	3300

## RIGHT OF WAY REFERENCES

- (RR1) WSDOT RIGHT OF WAY PLAN  
SR 524 JCT. SR 5 TO JCT. SR 527  
OCTOBER 27, 1995
- (RR2) WSDOT RIGHT OF WAY PLAN  
SR 527 MP 2.91 TO MP 3.99  
JCT. SR 405 TO 208TH ST. S.E. VIC.  
NOVEMBER 21, 1988
- (RR3) WSDOT MONUMENTATION MAP  
SR 524 - 196TH STREET VICINITY  
UNDATED
- (RR4) SNOHOMISH COUNTY RIGHT OF WAY PLAN  
196TH ST. S.W. (SR 524)  
I-405 TO S.R. 527  
SEPTEMBER 21, 1999

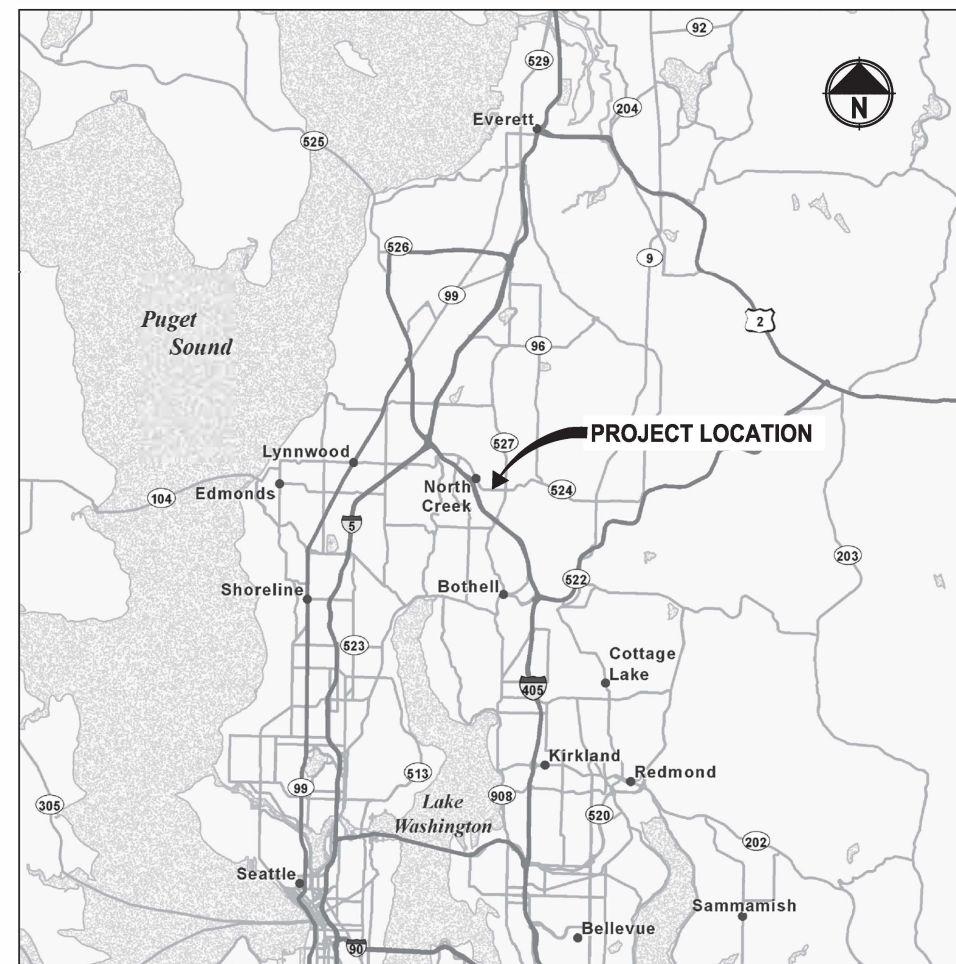
## RIGHT OF WAY NOTES

RIGHT OF WAY DETERMINATIONS FOR THIS PLAN SET, WERE MADE BY ANALYZING A COMBINATION OF EXISTING RIGHT OF WAY PLANS LISTED HEREON IN THE RIGHT OF WAY REFERENCES, TOGETHER WITH RECORDED SURVEYS, SUBDIVISION PLATS, TITLE REPORTS, DEEDS & DEDICATIONS, AND FOUND MONUMENTS.

\*NOTE SEVERAL CASED MONUMENTS FOUND SOUTH OF THE CENTERLINE OF 208TH ST SE, WERE INSTALLED BY WSDOT AS CONSTRUCTION MONUMENTS PER (RR3), THESE WERE NOT INTENDED TO BE HELD FOR RIGHT OF WAY DETERMINATIONS.




**LOCATION MAP**  
NOT TO SCALE



**VICINITY MAP**  
NOT TO SCALE

**WRITTEN DESCRIPTION OF THE PROJECT:**

THE CITY OF BOTHELL PROPOSES TO DEVELOP SECTION 4 OF NORTH CREEK TRAIL—A TRAIL SEGMENT THAT REPRESENTS 0.6 MILES OF MISSING LINK OF NORTH CREEK TRAIL SYSTEM WITHIN THE CITY OF BOTHELL, LOCATED BETWEEN FILBERT DRIVE AND NORTH CREEK TRAIL SECTION 3 TERMINUS.

	REVISIONS	DATE	BY	DESIGNED
				DRAWN S.THOMAS
				CHECKED D.THIBODEAU
				APPROVED Y.LIU

ONE INCH AT FULL SCALE  
IF NOT, SCALE ACCORDINGLY

FILE NAME  
554-1647-030-RW-PLANS

JOB No.  
554-1647-030

DATE  
3-18-2019



PROJECT NAME

**NORTH CREEK TRAIL SECTION 4  
FROM FILBERT DR TO NCT SECTION 3**

BOTHELL, WA

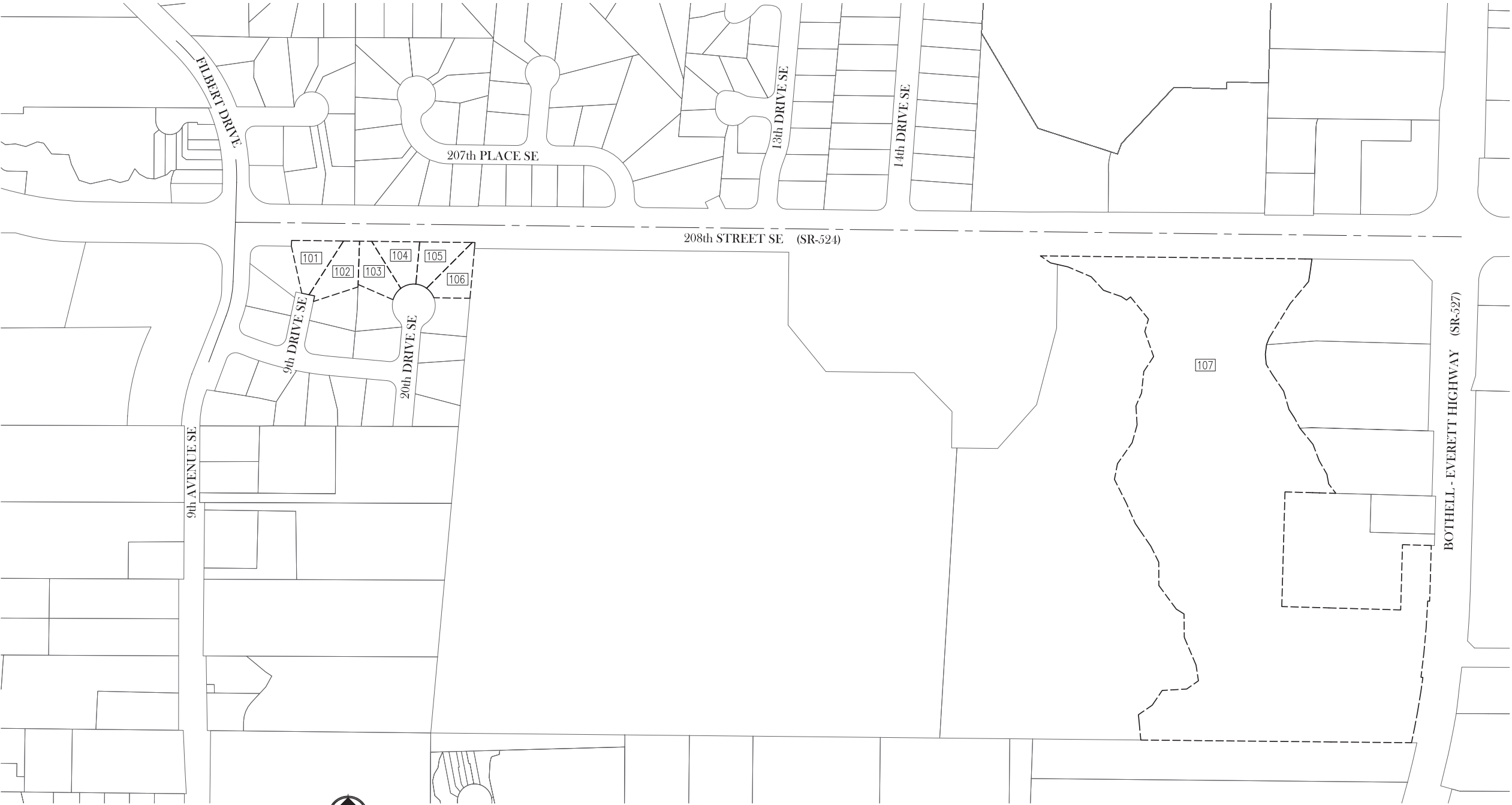
**RIGHT OF WAY PLAN  
COVER SHEET**  
June 2, 2020 Agenda Packet Page 503 of 578

DRAWING NO.  
49 OF 55

**RW1**

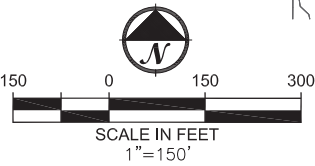
NORTH CREEK TRAIL SECTION 4 RIGHT-OF-WAY PLANS

TOTAL PARCEL DETAIL  
SNOHOMISH COUNTY, WASHINGTON  
SE 1/4 SECTION19, T.27N., R. 5E., W.M.  
SW 1/4 SECTION19, T.27N., R. 5E., W.M.



LEGEND

- 100 IMPACTED PARCEL IDENTIFIER
- IMPACTED PARCEL BOUNDARY LINE
- GIS PARCEL LINES
- STREET CENTERLINE



**BASIS OF BEARING**  
GRID NORTH BASED ON THE WASHINGTON STATE PLANE  
COORDINATE SYSTEM NORTH ZONE (NAD 83/2011).



REVISIONS	DATE	BY	DESIGNED
			DRAWN S. THOMAS
			CHECKED D. THIBODEAU
			APPROVED Y. HO

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY
FILE NAME 554-1647-030-RW-PLANS
JOB No. 554-1647-030
DATE 3-18-2019

**Parametrix**  
ENGINEERING • PLANNING • ENVIRONMENTAL SCIENCES  
719 2ND AVENUE, SUITE 200 | SEATTLE, WA 98104  
P 206.394.3700  
WWW.PARAMETRIX.COM

PROJECT NAME  
**NORTH CREEK TRAIL SECTION 4  
FROM FILBERT DR TO NCT SECTION 3**  
BOTHELL, WA

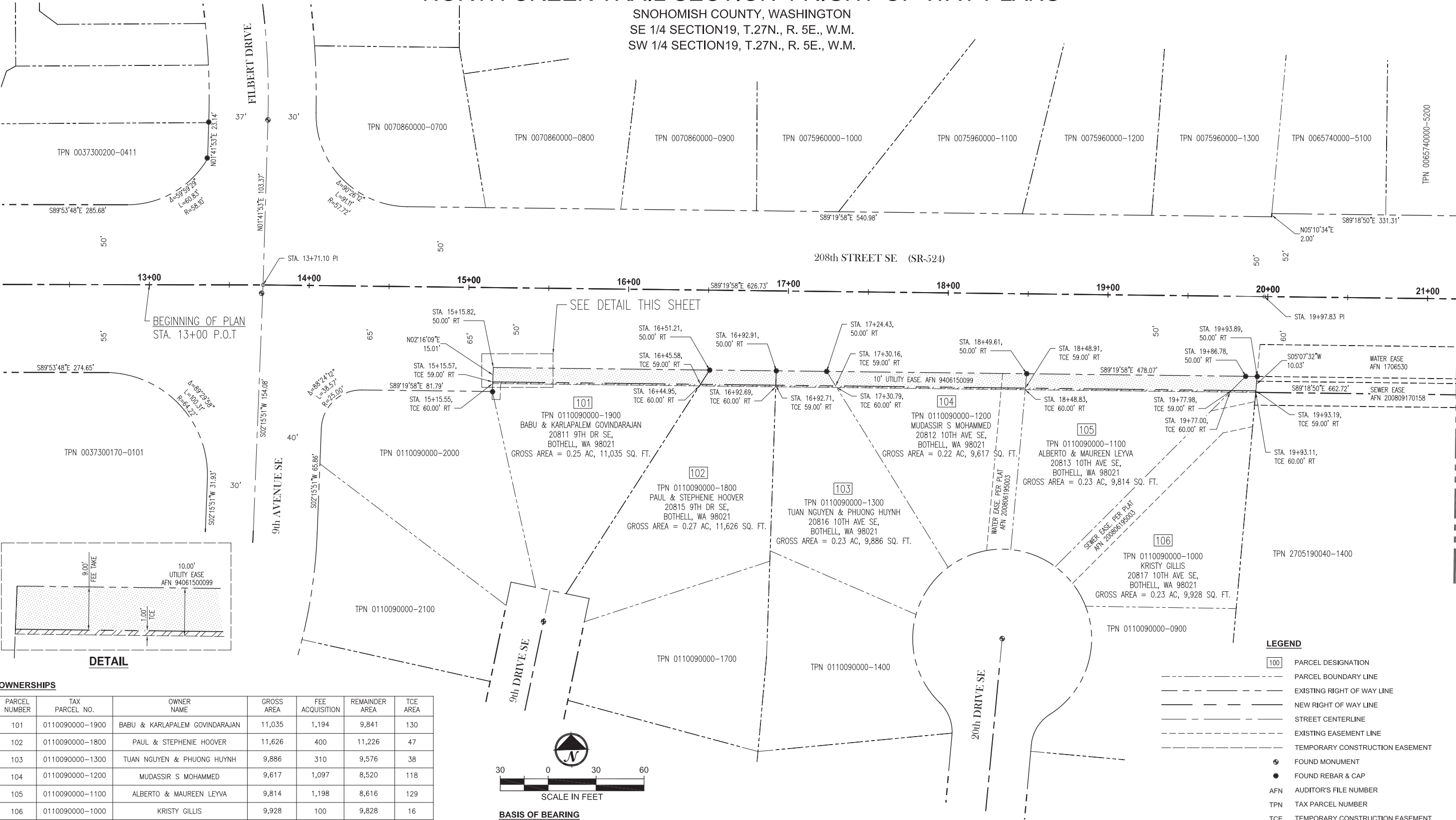
**TOTAL PARCEL DETAIL**  
June 2, 2020 Agenda Packet Page 504 of 578

DRAWING NO.  
50 OF 55  
**RW2**



NORTH CREEK TRAIL SECTION 4 RIGHT-OF-WAY PLANS

SNOHOMISH COUNTY, WASHINGTON  
SE 1/4 SECTION 19, T. 27N., R. 5E., W.M.  
SW 1/4 SECTION 19, T. 27N., R. 5E., W.M.



OWNERSHIPS

PARCEL NUMBER	TAX PARCEL NO.	OWNER NAME	GROSS AREA	FEE ACQUISITION	REMAINDER AREA	TCE AREA
101	0110090000-1900	BABU & KARLAPALEM GOVINDARAJAN	11,035	1,194	9,841	130
102	0110090000-1800	PAUL & STEPHENIE HOOVER	11,626	400	11,226	47
103	0110090000-1300	TUAN NGUYEN & PHUONG HUYNH	9,886	310	9,576	38
104	0110090000-1200	MUDASSIR S MOHAMMED	9,617	1,097	8,520	118
105	0110090000-1100	ALBERTO & MAUREEN LEYVA	9,814	1,198	8,616	129
106	0110090000-1000	KRISTY GILLIS	9,928	100	9,828	16
107	2705190040-3300	MR. KITTY ENTERPRISES LLC	586,750	327	586,423	6,766

PARCEL TOTAL AREAS WERE DERIVED FROM SNOHOMISH COUNTY ASSESSOR REPORTS AND DOES NOT REFLECT A BOUNDARY CALCULATION BY PARAMETRIX

ALL AREAS SHOWN IN SQUARE FEET



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PROJECT NAME

NORTH CREEK TRAIL SECTION 4  
FROM FILBERT DR TO NCT SECTION 3  
BOTHELL, WA

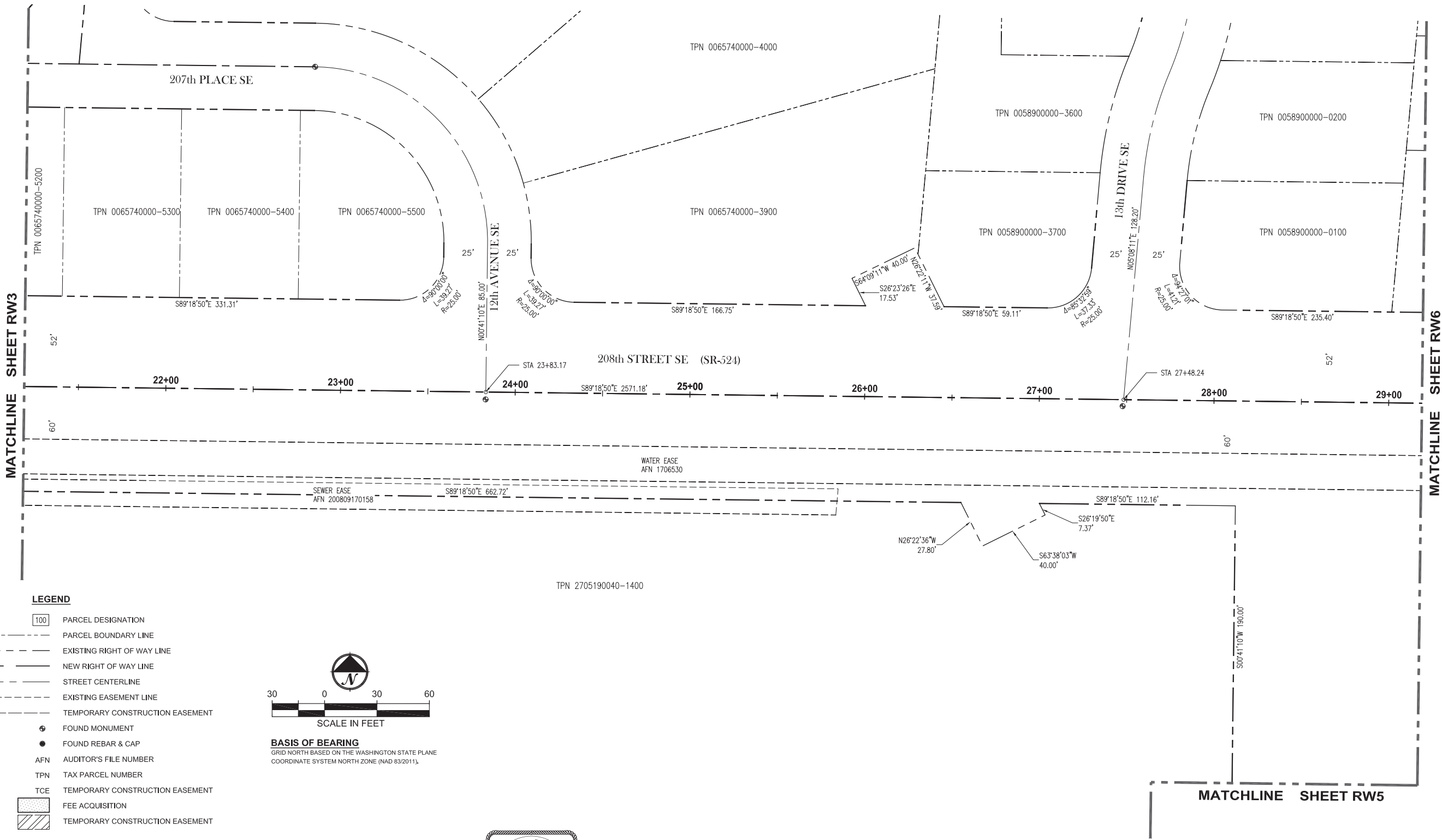
208TH STREET SE  
STA. 13+00 TO 21+20  
June 2, 2020 Agenda Packet Page 505 of 578

DRAWING NO.  
51 OF 55

RW3

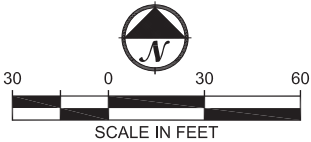
NORTH CREEK TRAIL SECTION 4 RIGHT-OF-WAY PLANS

SNOHOMISH COUNTY, WASHINGTON  
SE 1/4 SECTION19, T.27N., R. 5E., W.M.  
SW 1/4 SECTION19, T.27N., R. 5E., W.M.



LEGEND

- 100 PARCEL DESIGNATION
- PARCEL BOUNDARY LINE
- EXISTING RIGHT OF WAY LINE
- NEW RIGHT OF WAY LINE
- STREET CENTERLINE
- EXISTING EASEMENT LINE
- TEMPORARY CONSTRUCTION EASEMENT
- ⊕ FOUND MONUMENT
- FOUND REBAR & CAP
- AFN AUDITOR'S FILE NUMBER
- TPN TAX PARCEL NUMBER
- TCE TEMPORARY CONSTRUCTION EASEMENT
- ▨ FEE ACQUISITION
- ▨ TEMPORARY CONSTRUCTION EASEMENT



**BASIS OF BEARING**  
GRID NORTH BASED ON THE WASHINGTON STATE PLANE  
COORDINATE SYSTEM NORTH ZONE (NAD 83/2011).



3 - 18 - 2019

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PROJECT NAME

**NORTH CREEK TRAIL SECTION 4  
FROM FILBERT DR TO NCT SECTION 3**  
  
BOTHELL, WA

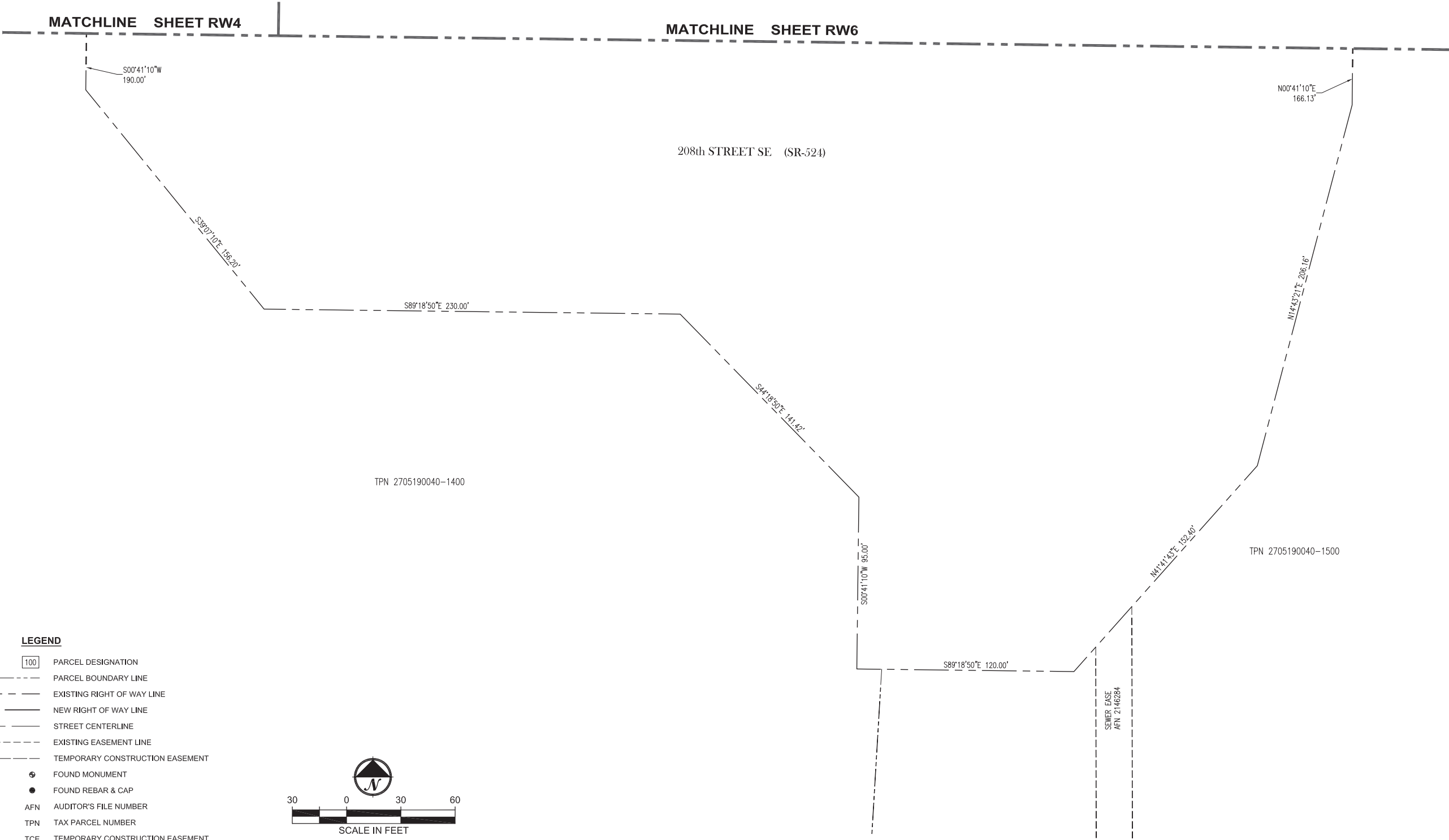
**208TH STREET SE  
STA. 21+20 TO 29+20**  
June 2, 2020 Agenda Packet Page 506 of 578

DRAWING NO.  
52 OF 55

**RW4**

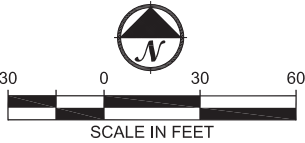
NORTH CREEK TRAIL SECTION 4 RIGHT-OF-WAY PLANS

SNOHOMISH COUNTY, WASHINGTON  
SE 1/4 SECTION19, T.27N., R. 5E., W.M.  
SW 1/4 SECTION19, T.27N., R. 5E., W.M.



LEGEND

- 100 PARCEL DESIGNATION
- PARCEL BOUNDARY LINE
- EXISTING RIGHT OF WAY LINE
- NEW RIGHT OF WAY LINE
- STREET CENTERLINE
- EXISTING EASEMENT LINE
- TEMPORARY CONSTRUCTION EASEMENT
- FOUND MONUMENT
- FOUND REBAR & CAP
- AFN AUDITOR'S FILE NUMBER
- TPN TAX PARCEL NUMBER
- TCE TEMPORARY CONSTRUCTION EASEMENT
- [Pattern] FEE ACQUISITION
- [Pattern] TEMPORARY CONSTRUCTION EASEMENT



**BASIS OF BEARING**  
GRID NORTH BASED ON THE WASHINGTON STATE PLANE  
COORDINATE SYSTEM NORTH ZONE (NAD 83/2011).

REVISIONS	DATE	BY	DESIGNED
			DRAWN S.THOMAS
			CHECKED D.THIBODEAU
			APPROVED Y.HO

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY
FILE NAME 554-1647-030-RW-PLANS
JOB No. 554-1647-030
DATE 3-18-2019



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PROJECT NAME
NORTH CREEK TRAIL SECTION 4 FROM FILBERT DR TO NCT SECTION 3
BOTHELL, WA

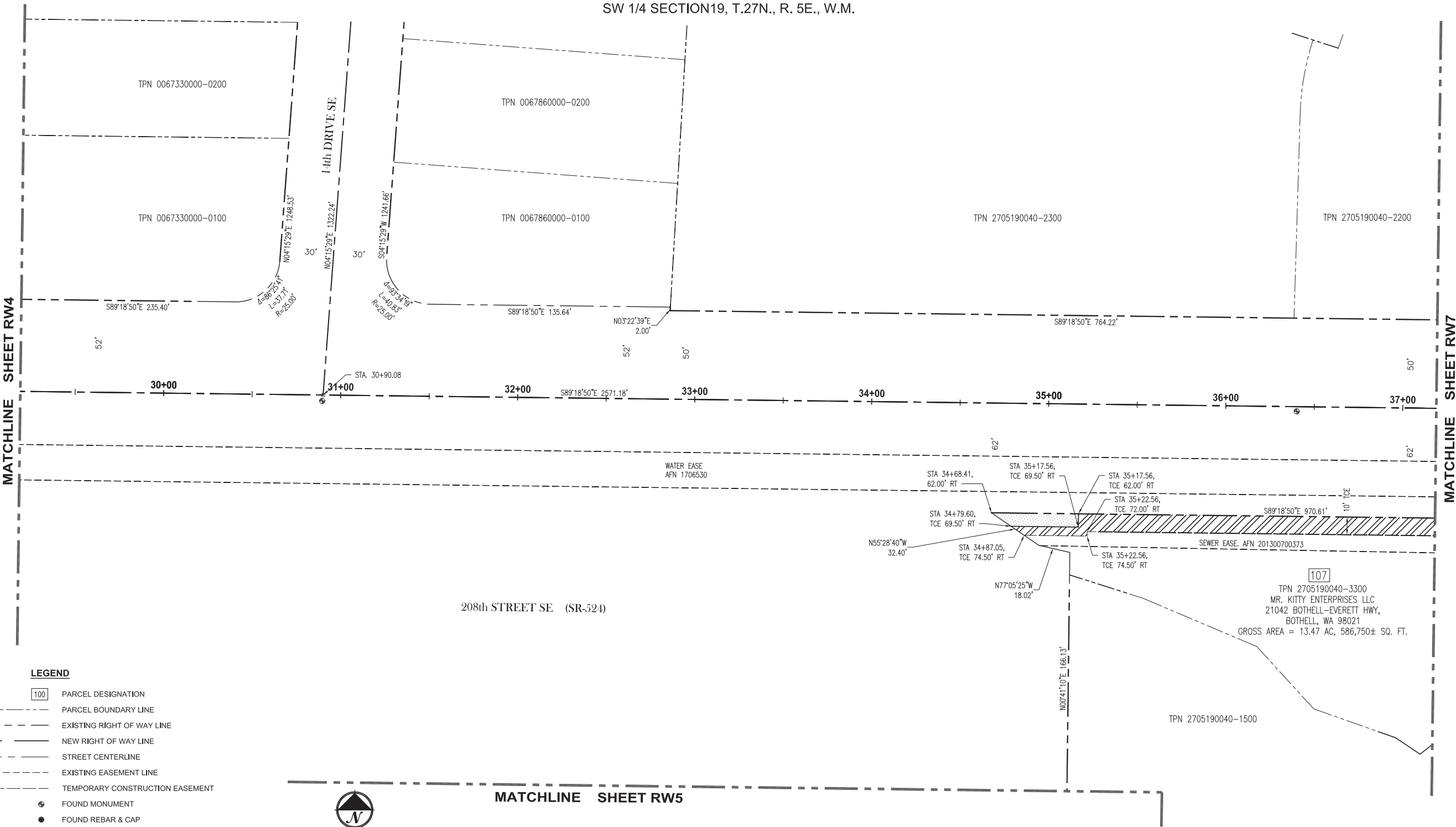
208TH STREET SE  
SOUTH RIGHT OF WAY AREA  
June 2, 2020 Agenda Packet Page 507 of 578

DRAWING NO. 53 OF 55
RW5

LAYOUT: Sheet 5      PATH: U:\P50\Projects\Clients\1647-CityOfBothell\554-1647-030 NCT Seg 4\99Svcs\Survey\00Current\Draw      PLOTTED BY: thibodeau      DATE: Monday, March 18, 2019 6:55:21 PM

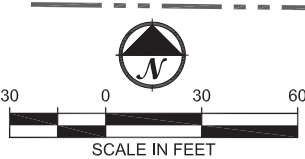
NORTH CREEK TRAIL SECTION 4 RIGHT-OF-WAY PLANS

SNOHOMISH COUNTY, WASHINGTON  
SE 1/4 SECTION 19, T. 27N., R. 5E., W.M.  
SW 1/4 SECTION 19, T. 27N., R. 5E., W.M.



LEGEND

- 100 PARCEL DESIGNATION
- PARCEL BOUNDARY LINE
- EXISTING RIGHT OF WAY LINE
- NEW RIGHT OF WAY LINE
- STREET CENTERLINE
- EXISTING EASEMENT LINE
- TEMPORARY CONSTRUCTION EASEMENT
- FOUND MONUMENT
- FOUND REBAR & CAP
- AFN AUDITOR'S FILE NUMBER
- TPN TAX PARCEL NUMBER
- TCE TEMPORARY CONSTRUCTION EASEMENT
- Fee Acquisition
- Temporary Construction Easement



BASIS OF BEARING  
GRID NORTH BASED ON THE WASHINGTON STATE PLANE  
COORDINATE SYSTEM NORTH ZONE (NAD 83/2011).



REVISIONS	DATE	BY	DESIGNED
			DRAWN S. THOMAS
			CHECKED D. THIBODEAU
			APPROVED Y. HO

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY
FILE NAME 554-1647-030-RW-PLANS
JOB No. 554-1647-030
DATE 3-18-2019

Parametrix

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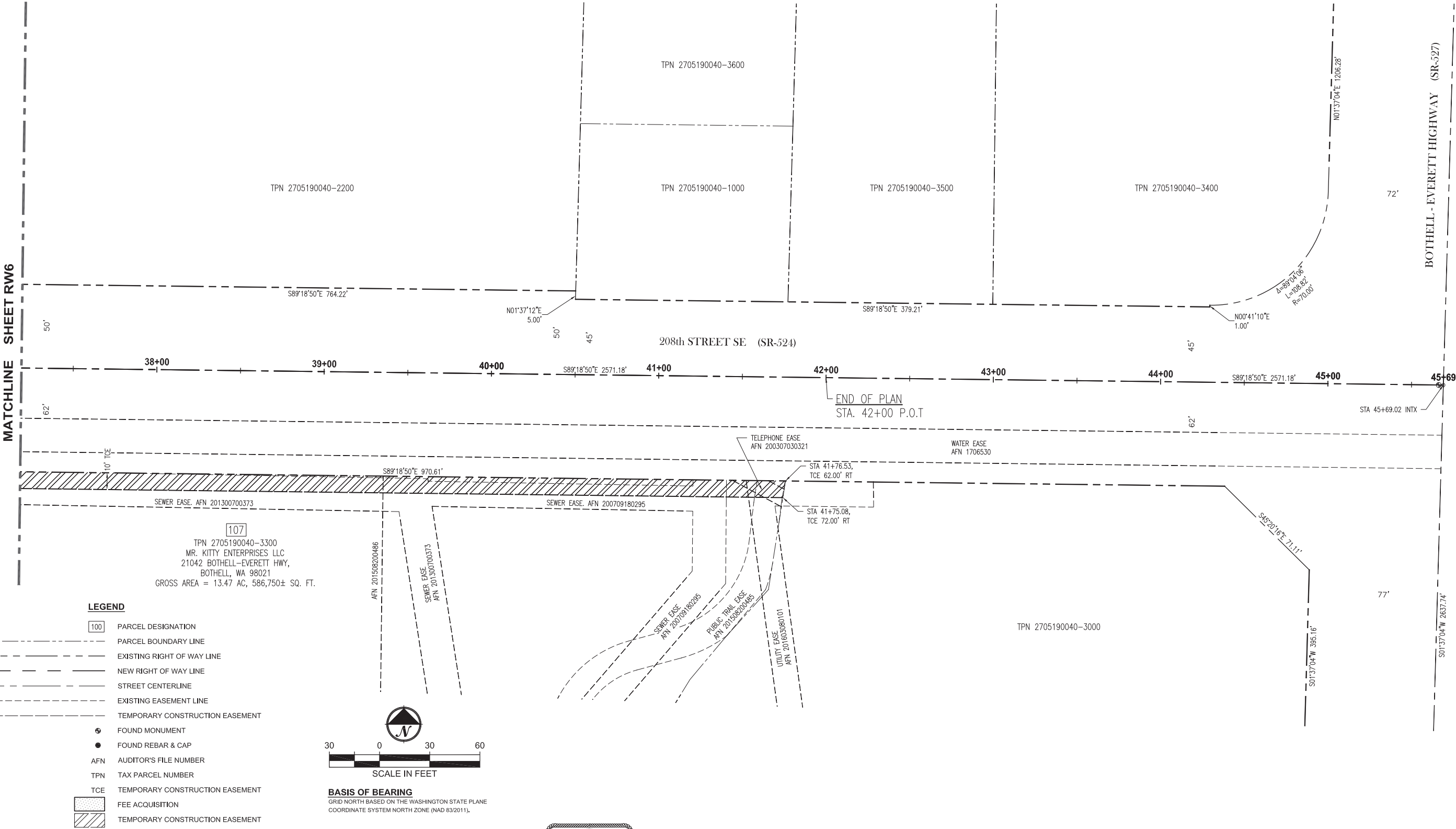
PROJECT NAME  
**NORTH CREEK TRAIL SECTION 4  
FROM FILBERT DR TO NCT SECTION 3**  
BOTHELL, WA

**208TH STREET SE  
STA 29+20 TO 37+20**  
June 2, 2020 Agenda Packet Page 508 of 578

DRAWING NO.  
54 OF 55  
**RW6**

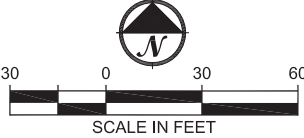
NORTH CREEK TRAIL SECTION 4 RIGHT-OF-WAY PLANS

SNOHOMISH COUNTY, WASHINGTON  
SE 1/4 SECTION 19, T. 27N., R. 5E., W.M.  
SW 1/4 SECTION 19, T. 27N., R. 5E., W.M.

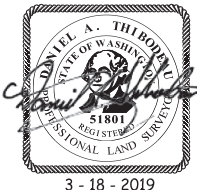


LEGEND

- 100 PARCEL DESIGNATION
- PARCEL BOUNDARY LINE
- EXISTING RIGHT OF WAY LINE
- NEW RIGHT OF WAY LINE
- STREET CENTERLINE
- EXISTING EASEMENT LINE
- TEMPORARY CONSTRUCTION EASEMENT
- FOUND MONUMENT
- FOUND REBAR & CAP
- AFN AUDITOR'S FILE NUMBER
- TPN TAX PARCEL NUMBER
- TCE TEMPORARY CONSTRUCTION EASEMENT
- FEE ACQUISITION
- TEMPORARY CONSTRUCTION EASEMENT



**BASIS OF BEARING**  
GRID NORTH BASED ON THE WASHINGTON STATE PLANE  
COORDINATE SYSTEM NORTH ZONE (NAD 83/2011).



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P 206.394.3700  
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PROJECT NAME  
**NORTH CREEK TRAIL SECTION 4  
FROM FILBERT DR TO NCT SECTION 3**  
BOTHELL, WA

**208TH STREET SE  
STA. 37+20 TO 45+70**  
June 2, 2020 Agenda Packet Page 509 of 578

DRAWING NO.  
55 OF 55  
**RW7**

REVISIONS	DATE	BY	DESIGNED
			DRAWN S. THOMAS
			CHECKED D. THIBODEAU
			APPROVED Y. HO

**ONE INCH AT FULL SCALE.  
IF NOT, SCALE ACCORDINGLY**  
FILE NAME  
554-1647-030-RW-PLANS  
JOB No.  
554-1647-030  
DATE  
3-18-2019

LAYOUT: Sheet 7 PATH: U:\PSO\Projects\Clients\1647-CityOfBothell\554-1647-030 NCT Seg 4\995vcs\Survey\00Current\Drawn.dwg PLOTTED BY: thibodeau DATE: Monday, March 18, 2019 6:59:57 PM

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ORDINANCE NO. \_\_\_\_\_ (2020)

AN ORDINANCE OF THE CITY OF BOTHELL, WASHINGTON, RELATING TO THE ACQUISITION BY EMINENT DOMAIN OF A CERTAIN PORTION OF PROPERTY IN THE CITY OF BOTHELL NECESSARY FOR THE CONSTRUCTION OF NORTH CREEK SECTION 4 PROJECT; DIRECTING STAFF TO EXHAUST ALL REASONABLE NEGOTIATION EFFORTS TO PURCHASE PROPERTY AND PROPERTY RIGHTS NECESSARY FOR THE PROJECT; DESCRIBING THE PUBLIC CONVENIENCE, USE AND NECESSITY OF SUCH PROPERTY; PROVIDING FOR THE CONDEMNATION, APPROPRIATION AND USE OF THE PROPERTY, PROVIDING THE MODE OF PAYMENT OF COST OF ACQUISITION OF THE PROPERTY; AND DIRECTING THE CITY ATTORNEY TO PROSECUTE SUCH ACTION IN KING COUNTY SUPERIOR COURT IN THE EVENT DIRECT PURCHASE EFFORTS ARE NOT SUCCESSFUL

**WHEREAS**, the acquisition of the real properties described in Section 1 below is necessary for the construction of the North Creek Trail Section 4 Project and

**WHEREAS**, the City continues to negotiate the purchase of all necessary property rights for the North Creek Trail Section 4 Project from the property owners, but has yet to conclude the purchase of the properties; and

**WHEREAS**, the City Council finds that said property and property rights are critical to the North Creek Trail Section 4 Project and it is in the public interest to have and use such property for public health, safety, welfare and transportation needs.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BOTHELL, WASHINGTON, DO ORDAIN AS FOLLOWS:

**Section 1. Need for Properties.** The public health, safety, welfare, necessity and convenience demand that North Creek Trail Section 4 be constructed, and that certain properties be condemned, appropriated, taken and damaged for the construction and future maintenance of said improvements, all as provided by this ordinance, including the real properties and improvements thereto situate in Bothell, King County, State of Washington, legally described in Exhibit A, attached hereto.

**Section 2. Declaration of Necessity.** The City Council of the City of Bothell, after hearing the report of the City Staff, and reviewing the planned improvements for the properties, hereby declares that the properties described in **Exhibit A** hereto are necessary for public use, i.e., for the North Creek Trail Section 4 Project, together with all necessary appurtenances, maintenance and related work, collectively known as the North Creek Trail Section 4 Project.



**Section 3. Costs of acquisition.** The costs of the acquisition provided for by this ordinance shall be paid by the capital projects fund of the City of Bothell, or such other funds of the City of Bothell as may be provided by law.

**Section 4. Authority of Attorney.** The City Attorney or special outside legal counsel retained for prosecution of this condemnation action, are hereby directed to exhaust reasonable efforts through direct negotiations to acquire the necessary property. In the event reasonable negotiation efforts are not successful with affected property owners, the City Attorney or special outside legal counsel are hereby authorized and directed to begin and prosecute actions and proceedings in a manner provided by law to condemn, take, damage, and appropriate the real properties necessary to carry out the provisions of this ordinance, described in Section 1 herein. In conducting such condemnation proceedings, the City Attorney or special outside legal counsel are hereby authorized to enter into stipulations for the purpose of minimizing damages.

**Section 5. Severability.** If any section, sentence, clause or phrase of this ordinance should be held to be invalid by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause or phrase of this ordinance.

**Section 6. Effective Date.** This ordinance, being an exercise of a power specifically delegated to the City legislative body, is not subject to referendum, and shall take effect five (5) days after passage and publication of an approved summary thereof consisting of the title.

**Section 7. Corrections.** The City Clerk and the codifiers of this ordinance are authorized to make necessary corrections to this ordinance including, but not limited to, the correction of scrivener's/clerical errors, references, ordinance numbering, section/subsection numbers and any references thereto.

APPROVED:

---

LIAM OLSEN  
MAYOR

ATTEST/AUTHENTICATED:

---

LAURA HATHAWAY  
CITY CLERK

APPROVED AS TO FORM:

---

CITY ATTORNEY

FILED WITH THE CITY CLERK: \_\_\_\_\_  
PASSED BY THE CITY COUNCIL: \_\_\_\_\_  
PUBLISHED: \_\_\_\_\_  
EFFECTIVE DATE: \_\_\_\_\_  
ORDINANCE NO.: \_\_\_\_\_ (2020)

SUMMARY OF ORDINANCE NO. \_\_\_\_\_ (2020)

City of Bothell, Washington

---

On the \_\_\_\_\_ day of \_\_\_\_\_, 2020, the City Council of the City of Bothell passed Ordinance No. \_\_\_\_\_ (2020). A summary of the content of said Ordinance, consisting of the title, is provided as follows:

AN ORDINANCE OF THE CITY OF BOTHELL, WASHINGTON, RELATING TO THE ACQUISITION BY EMINENT DOMAIN OF A CERTAIN PORTION OF PROPERTY IN THE CITY OF BOTHELL NECESSARY FOR THE CONSTRUCTION AND MAINTENANCE OF NORTH CREEK SECTION 4 PROJECT, DIRECTING STAFF TO EXHAUST ALL REASONABLE NEGOTIATION EFFORTS TO PURCHASE PROPERTY NECESSARY FOR THE PROJECT, DESCRIBING THE PUBLIC CONVENIENCE, USE AND NECESSITY OF SUCH PROPERTY; PROVIDING FOR THE CONDEMNATION, APPROPRIATION AND USE OF THE PROPERTY, PROVIDING THE MODE OF PAYMENT OF COST OF ACQUISITION OF THE PROPERTY; AND DIRECTING THE CITY ATTORNEY TO PROSECUTE SUCH ACTION IN KING COUNTY SUPERIOR COURT IN THE EVENT DIRECT PURCHASE EFFORTS ARE NOT SUCCESSFUL

The full text of this Ordinance will be mailed upon request.

---

LAURA HATHAWAY  
CITY CLERK

FILED WITH THE CITY CLERK: \_\_\_\_\_  
PASSED BY THE CITY COUNCIL: \_\_\_\_\_  
PUBLISHED: \_\_\_\_\_  
EFFECTIVE DATE: \_\_\_\_\_  
ORDINANCE NO.: \_\_\_\_\_ (2020)

Exhibit A  
Legal Descriptions

**RIGHT OF WAY ACQUISITION DESCRIPTION**

20817 10<sup>TH</sup> AVENUE SE

TAX PARCEL NUMBER 0110090000-1000

A PORTION OF LOT 10, ACCORDING TO THE PLAT OF MURIEL'S LANDING, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200806195003, RECORDS OF SNOHOMISH COUNTY, WASHINGTON; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE NORTH 9.00 FEET OF SAID LOT 10.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

AREA CONTAINS 101 SQUARE FEET, MORE OR LESS.

**TEMPORARY CONSTRUCTION EASEMENT**

20817 10<sup>TH</sup> AVENUE SE

TAX PARCEL NUMBER 0110090000-1000

A PORTION OF LOT 10, ACCORDING TO THE PLAT OF MURIEL'S LANDING, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200806195003, RECORDS OF SNOHOMISH COUNTY, WASHINGTON; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE NORTH 10.00 FEET OF SAID LOT 10;

EXCEPT THE NORTH 9.00 FEET THEREOF.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

AREA CONTAINS 16 SQUARE FEET, MORE OR LESS.

**RIGHT OF WAY ACQUISITION DESCRIPTION**

20813 10<sup>TH</sup> AVENUE SE

TAX PARCEL NUMBER 0110090000-1100

A PORTION OF LOT 11, ACCORDING TO THE PLAT OF MURIEL'S LANDING, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200806195003, RECORDS OF SNOHOMISH COUNTY, WASHINGTON; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE NORTH 9.00 FEET OF SAID LOT 11.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

AREA CONTAINS 1,198 SQUARE FEET, MORE OR LESS.

**TEMPORARY CONSTRUCTION EASEMENT**

20813 10<sup>TH</sup> AVENUE SE

TAX PARCEL NUMBER 0110090000-1100

A PORTION OF LOT 11, ACCORDING TO THE PLAT OF MURIEL'S LANDING, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200806195003, RECORDS OF SNOHOMISH COUNTY, WASHINGTON; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE NORTH 10.00 FEET OF SAID LOT 11;

EXCEPT THE NORTH 9.00 FEET THEREOF.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

AREA CONTAINS 129 SQUARE FEET, MORE OR LESS.

**RIGHT OF WAY ACQUISITION DESCRIPTION**

20812 10<sup>TH</sup> AVENUE SE

TAX PARCEL NUMBER 0110090000-1200

A PORTION OF LOT 12, ACCORDING TO THE PLAT OF MURIEL'S LANDING, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200806195003, RECORDS OF SNOHOMISH COUNTY, WASHINGTON; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE NORTH 9.00 FEET OF SAID LOT 12.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

AREA CONTAINS 1,098 SQUARE FEET, MORE OR LESS.

**TEMPORARY CONSTRUCTION EASEMENT**

20812 10<sup>TH</sup> AVENUE SE

TAX PARCEL NUMBER 0110090000-1200

A PORTION OF LOT 12, ACCORDING TO THE PLAT OF MURIEL'S LANDING, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200806195003, RECORDS OF SNOHOMISH COUNTY, WASHINGTON; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE NORTH 10.00 FEET OF SAID LOT 12;

EXCEPT THE NORTH 9.00 FEET THEREOF.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

AREA CONTAINS 119 SQUARE FEET, MORE OR LESS.

**RIGHT OF WAY ACQUISITION DESCRIPTION**

20816 10<sup>TH</sup> AVENUE SE

TAX PARCEL NUMBER 0110090000-1300

A PORTION OF LOT 13, ACCORDING TO THE PLAT OF MURIEL'S LANDING, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200806195003, RECORDS OF SNOHOMISH COUNTY, WASHINGTON; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE NORTH 9.00 FEET OF SAID LOT 13.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

AREA CONTAINS 310 SQUARE FEET, MORE OR LESS.

**TEMPORARY CONSTRUCTION EASEMENT**

20816 10<sup>TH</sup> AVENUE SE

TAX PARCEL NUMBER 0110090000-1300

A PORTION OF LOT 13, ACCORDING TO THE PLAT OF MURIEL'S LANDING, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200806195003, RECORDS OF SNOHOMISH COUNTY, WASHINGTON; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE NORTH 10.00 FEET OF SAID LOT 13;

EXCEPT THE NORTH 9.00 FEET THEREOF.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

AREA CONTAINS 38 SQUARE FEET, MORE OR LESS.

**RIGHT OF WAY ACQUISITION DESCRIPTION**

20815 9<sup>TH</sup> DRIVE SE

TAX PARCEL NUMBER 0110090000-1800

A PORTION OF LOT 18, ACCORDING TO THE PLAT OF MURIEL'S LANDING, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200806195003, RECORDS OF SNOHOMISH COUNTY, WASHINGTON; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE NORTH 9.00 FEET OF SAID LOT 18.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

AREA CONTAINS 400 SQUARE FEET, MORE OR LESS.

**TEMPORARY CONSTRUCTION EASEMENT**

20815 9<sup>TH</sup> DRIVE SE

TAX PARCEL NUMBER 0110090000-1800

A PORTION OF LOT 18, ACCORDING TO THE PLAT OF MURIEL'S LANDING, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200806195003, RECORDS OF SNOHOMISH COUNTY, WASHINGTON; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE NORTH 10.00 FEET OF SAID LOT 18;

EXCEPT THE NORTH 9.00 FEET THEREOF.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

AREA CONTAINS 48 SQUARE FEET, MORE OR LESS.

**RIGHT OF WAY ACQUISITION DESCRIPTION**

20811 9<sup>TH</sup> DRIVE SE

TAX PARCEL NUMBER 0110090000-1900

A PORTION OF LOT 19, ACCORDING TO THE PLAT OF MURIEL'S LANDING, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200806195003, RECORDS OF SNOHOMISH COUNTY, WASHINGTON; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE NORTH 9.00 FEET OF SAID LOT 19.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

AREA CONTAINS 1,195 SQUARE FEET, MORE OR LESS.

**TEMPORARY CONSTRUCTION EASEMENT**

20811 9<sup>TH</sup> DRIVE SE

TAX PARCEL NUMBER 0110090000-1900

A PORTION OF LOT 19, ACCORDING TO THE PLAT OF MURIEL'S LANDING, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200806195003, RECORDS OF SNOHOMISH COUNTY, WASHINGTON; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE NORTH 10.00 FEET OF SAID LOT 19;

EXCEPT THE NORTH 9.00 FEET THEREOF.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

AREA CONTAINS 130 SQUARE FEET, MORE OR LESS.

**RIGHT OF WAY ACQUISITION DESCRIPTION**

21042 BOTHELL-EVERETT HWY.

TAX PARCEL NUMBER 2705190040-3300

ALL THAT PORTION OF LOT 4, ACCORDING TO BOTHELL SHORT PLAT NO. 2001-00002, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200307095001, AS AMENDED BY AFFIDAVIT OF CORRECTION TO SHORT PLAT, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200312110191, RECORDS OF SNOHOMISH COUNTY, WASHINGTON, SAID SHORT PLAT LYING IN THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 19, TOWNSHIP 27 NORTH, RANGE 5 EAST, WILLAMETTE MERIDIAN; LYING NORTH AND WEST OF A LINE DESCRIBED AS FOLLOWS:

BEGINNING ON THE SOUTH RIGHT OF WAY LINE OF 208<sup>TH</sup> STREET SE, SAID POINT BEARS SOUTH 89°18'50" EAST, A DISTANCE OF 49.16 FEET FROM THE NORTHWEST CORNER OF SAID LOT;

THENCE SOUTH 00°41'10" WEST, 7.50 FEET;

THENCE NORTH 89°18'50" WEST, 37.97 FEET TO SAID RIGHT OF WAY AND THERE TERMINATING.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

AREA CONTAINS 327 SQUARE FEET, MORE OR LESS.

**TEMPORARY CONSTRUCTION EASEMENT**

21042 BOTHELL-EVERETT HWY.

TAX PARCEL NUMBER 2705190040-3300

A PORTION OF LOT 4, ACCORDING TO BOTHELL SHORT PLAT NO. 2001-00002, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200307095001, AS AMENDED BY AFFIDAVIT OF CORRECTION TO SHORT PLAT, AS RECORDED UNDER AUDITOR'S FILE NUMBER 200312110191, RECORDS OF SNOHOMISH COUNTY, WASHINGTON, SAID SHORT PLAT LYING IN THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 19, TOWNSHIP 27 NORTH, RANGE 5 EAST, WILLAMETTE MERIDIAN; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE NORTH 10.00 FEET OF SAID LOT;

EXCEPT THAT PORTION OF SAID LOT LYING NORTH AND WEST OF A LINE DESCRIBED AS FOLLOWS:

BEGINNING ON THE SOUTH RIGHT OF WAY LINE OF 208<sup>TH</sup> STREET SE, SAID POINT BEARS SOUTH 89°18'50" EAST, A DISTANCE OF 49.16 FEET FROM THE NORTHWEST CORNER OF SAID LOT;

THENCE SOUTH 00°41'10" WEST, 7.50 FEET;

THENCE NORTH 89°18'50" WEST, 37.97 FEET TO SAID RIGHT OF WAY AND THERE TERMINATING.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

AREA CONTAINS 6,766 SQUARE FEET, MORE OR LESS.





City of Bothell™

City Council  
Agenda Bill  
AB # 20-067

**TO:** Mayor Olsen and Members of the Bothell City Council

**FROM:** Chris Bothwell, Finance Director

**DATE:** June 2, 2020

**SUBJECT:** Consideration of a Resolution Temporarily Suspending the Capital Facilities Plan Update Process and Adopting an Abbreviated Process that Satisfies the Requirements of the Growth Management Act.

**POLICY CONSIDERATION:** Should the City temporarily suspend its capital facilities plan update process established by Resolution 1183 and adopt an abbreviated process due to current economic and social conditions?

**HISTORY:**

**DATE ACTION**

**FEBRUARY 21, 2006**

The City Council adopted Resolution 1183 establishing a detailed process for updates to the City's capital facilities plan.

**DISCUSSION:** One of the requirements applicable to cities under the State's Growth Management Act is to establish a Capital Facilities Plan (CFP) that covers a six year period. The GMA also requires periodic CFP updates.

Bothell plans under the State's GMA and the CFP is due for an update in 2020, covering the years 2021-2027. In 2006, the Bothell City Council approved a Resolution that prescribes a detailed process for CFP updates.

Resolution 1183 (2006):

1. Describes projects eligible for inclusion in the CFP;
2. Lists eligible funding sources and states that the CPF will be incorporated into the biennial budget;
3. Calls for the assembly of a CFP committee;
4. Identifies sources for new projects and makes a call for new projects;

5. Describes criteria to be used to evaluate potential projects for inclusion in the CFP; and
6. Recognizes several housekeeping matters, including providing for the ability for off-cycle amendments to the CFP.

COVID-19 has had significant and immediate impacts on city revenues and the ability to gather groups of people, both affecting staff's ability to execute the process prescribed by Resolution. Specifically, two elements of the prescribed process are problematic due to current social and economic conditions:

- (3) The gathering of a CPF committee, and
- (4) The call for new projects.

First, gatherings are prohibited by the current Stay Home Stay Healthy order by the Governor. While, at a minimum, it may be possible to gather a committee virtually, open houses and other events that have historically been used to gather community input cannot be hosted at this time. The second element, call for new projects is more problematic. Current economic conditions are significantly impacting city revenues, including those used to fund capital projects such as Real Estate Excise Tax. As such, the City is facing difficulty funding projects that are currently progressing towards construction or already underway. Staff is of the opinion that it may appear inauthentic to call for new projects due to the expected difficulty identifying funding for projects already in the Adopted CFP. It is expected that many projects in the current Adopted CFP require funding in excess of what will be available based on a revised revenue forecast.

Based on the preceding, staff is proposing to suspend the aforementioned elements of the CFP process established by Resolution 1183 (2006) and instead focus resources towards a recalibration of project scheduling based on a revised revenue forecast. Specifically, the recommendation is to suspend the assembly of a CFP committee and the call for new projects as these elements are compromised by current social and economic conditions. Staff would reinstate the vitally important public process to obtain community input for new projects and convene the CFP committee for the 2022 update in preparation for the 2023-2029 CFP.

**FISCAL  
IMPACTS:**

The first two years of the updated CFP will be included in the adopted budget consistent with the process described by Resolution 1183. There are no costs associated with this agenda item.

**ATTACHMENTS:** |  
1. A Resolution Temporarily Suspending the Capital Facilities Plan Update Process and Adopting an Abbreviated Process that Satisfies the Requirements of the Growth Management Act.  
2. Resolution 1183 (2006)

**RECOMMENDED ACTION:** | Approve the Resolution temporarily suspending the Capital Facilities Plan Update process and adopting an abbreviated process that satisfies the requirements of the Growth Management Act.

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RESOLUTION NO. \_\_\_\_\_ (2020)

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BOTHELL, WASHINGTON TEMPORARILY SUSPENDING THE CAPITAL FACILITIES PLANNING PROCESS ESTABLISHED BY RESOLUTION AND ADOPTING AN ABBREVIATED PROCESS THAT IS CONSISTENT WITH THE REQUIREMENTS OF THE GROWTH MANAGEMENT ACT.

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WHEREAS, State law requires that all cities planning under the State's Growth Management Act (GMA) must have a Capital Facilities Plan (CFP) that has been adopted by the governing body; and

WHEREAS, State law requires that the capital facilities plan must cover a six-year planning period and the plan must be updated at least every two years; and

WHEREAS, the City of Bothell plans under the GMA and is due for an update of its CFP in 2020, the updated plan will include the years 2021-2027 (the 2021-2027 Update); and

WHEREAS, the City's process for the CFP update is prescribed by Resolution 1183 (2006), the specific process contained therein is detailed and is more prescriptive than required by the GMA; and

WHEREAS, the need to provide a safe environment for the public and staff and the current Stay Home, Stay Healthy order and expected slow return to a normal meeting environment would make executing the process prescribed by the aforementioned Resolution nearly impossible; and

WHEREAS, the economic impact of COVID-19 on funding assumed in the current Adopted CFP significantly reduces the revenue forecast in the Adopted CFP and is a significant detriment to the City's ability to deliver planned projects on schedule and a realignment of resources with project schedules is required; and

WHEREAS, there are numerous projects that have already been identified in adopted comprehensive plans that the City is unable to complete within the CFP's seven-year planning period even under normal economic conditions; and

WHEREAS, based on the preceding, it appears reasonable to scale back committee and public involvement to match the expected limited changes to the CFP for the 2021-2027 Update due to the environment created by COVID-19; thereby saving costs, staff and committee time, and reducing unrealistic expectations to all involved.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BOTHELL, WASHINGTON, DOES RESOLVE AS FOLLOWS:

Section 1. The CFP update process prescribed by Resolution 1183 (2006) is suspended for the 2021-2027 CFP update and an abbreviated process is hereby implemented as described in Section 2.

Section 2. The 2021-2027 CFP update shall be accomplished by executing the following steps: Revenues will be re-forecasted for all relevant years; Projects that are already underway but expected to be incomplete at December 31, 2020 will get first priority for funding; Then, other projects in the Adopted CFP will be scheduled in the CFP to align with the availability of funding and consistent with the prioritization criteria contained in Resolution 1183. The committee and public process will be eliminated. However, the update will be brought to the City Council for consideration of adoption and a public hearing will be held thereby allowing some input, if desired, by the public. The public hearing and adoption of the update by the City Council must occur before December 31, 2020.

Section 3. The City Clerk is authorized to make necessary corrections to this resolution including, but not limited to, the correction of scrivener's/clerical errors, references, resolution numbering, section/subsection numbers and any references thereto.

PASSED this \_\_\_\_\_ day of \_\_\_\_\_, 2020.

APPROVED:

\_\_\_\_\_  
Liam Olsen, Mayor

ATTEST/AUTHENTICATED:

\_\_\_\_\_  
Laura K. Hathaway, City Clerk

FILED WITH THE CITY CLERK: \_\_\_\_\_  
PASSED BY THE CITY COUNCIL: \_\_\_\_\_  
RESOLUTION NO.: \_\_\_\_\_ (2020)

RESOLUTION NO. 1183 (2006)

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF BOTHELL,  
WASHINGTON ESTABLISHING A POLICY RELATED TO CAPITAL  
FACILITIES PLAN PROCESS

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WHEREAS, the Washington State Legislature passed, and the Governor signed into law, the Washington State Growth Management Act of 1990 and amendments thereto (hereinafter the Act), requiring selected counties and cities to prepare comprehensive plans consistent with the provisions of the Act, all as generally codified at Chapter 36.70.A RCW; and

WHEREAS, the Act requires municipalities to establish within their comprehensive plans, a Capital Facilities Element, including level of service standards and a six-year minimum financing plan to identify anticipated revenue sources and capital projects, including their anticipated costs, required to meet the established level of service standards; and

WHEREAS, the Capital Facilities Element is contained in the *Imagine Bothell...* Comprehensive Plan (hereinafter the Comp Plan), and the Bothell Municipal Code states the City Council can reserve the authority to consider and act upon any suggested amendment without referring the suggested amendment to the applicable advisory body for recommendation; and

WHEREAS, to be in compliance with the Act and the City's biennial budget process, the Capital Facilities Plan needs to incorporate a seven-year planning period; and;

WHEREAS, the first two years of the Capital Facilities Plan period is designed to be incorporated in the City's budget; and

WHEREAS, in previous years the Planning Commission held a public hearing to obtain public input on the Capital Facilities Element and provided a recommendation to the City Council; and

WHEREAS, the City Council of the City of Bothell is desirous of amending the established process of having the Planning Commission review the Capital Facilities Element annually to be consistent with the City's biennial budget process.



WHEREAS, the City Council has acknowledged through The Roadmap: Setting the Course process that establishment of the Capital Facilities Plan is an essential element to the future financial planning process for the City;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF BOTHELL, WASHINGTON, DOES RESOLVE AS FOLLOWS:

Section 1. The City Council of the City of Bothell hereby adopts a policy for establishing a seven-year Capital Facilities Plan (CFP) with updates conducted no less often than every two years.

Section 2. All capital improvement projects to be included in the CFP must fall within the following project categories with a minimum project cost of \$50,000:

- a) Land acquisition
- b) Permanent improvement of land and/or infrastructure such as:
  - 1) Street construction, transportation improvement, etc.
  - 2) Sidewalk/walkway construction
  - 3) Public facilities
  - 4) Storm water management facilities
  - 5) Sewer facilities
  - 6) Water facilities
  - 7) Office/building remodel
  - 8) Recreational facilities
- c) Special projects such as energy conservation, large scale landscaping projects, neighborhood improvements and other special projects.

Section 3. All capital facilities projects included in the seven-year Capital Facilities Plan shall be funded with revenue anticipated in the year the project is programmed. The first two years of the seven-year Capital Facilities Plan shall be incorporated into the City's biennial budget. The following City funds may be used for capital facilities projects:

- a) General Fund
- b) City Street Fund
- c) Arterial Street Fund
- d) Cable TV Fund

- e) Park Cumulative Reserve
- f) Capital Improvement Fund
- g) Construction & Acquisition Fund
- h) Water Fund
- i) Sewer Fund
- j) Storm Drain Fund
- k) Any new funds established by City Council for specific projects
- l) Federal, state and local grants
- m) Other funding sources such as contributions from private sources

Section 4: The Council shall appoint a Capital Facilities Plan Program Committee made up of the following members:

- a) Three City Council Members
- b) One Planning Commission Member
- c) One Parks & Recreation Board Member
- d) City Manager
- e) Finance Director

Section 5: The CFP process should occur during the second and third quarter of even numbered calendar years so that the CFP is completed prior to the biennial budget process and the annual Comprehensive Plan update process. The process shall be as follows:

- a) The City Manager shall notify all City Boards and Commissions, the general public, the City Council, and City staff members of the specific time period when project request/proposals may be submitted. The notice will include a schedule of dates for all phases of the CFP process.
- b) All proposals shall be submitted to the City Manager for review and comment by the appropriate City department.

- c) The City Finance Department shall prepare a forecast of revenues anticipated for the following seven years to be used by the CFP Committee and the City Council in preparing the seven-year CFP.
- d) Following staff review, the proposed projects shall be submitted to the CFP Committee for review. Based upon the criteria in Section 6, the CFP Committee will review the proposals, establish priorities, identify funding sources, and make recommendations to the City Council.
- e) The City Council shall hold a public hearing on the CFP.
- f) No less than every two years, the City Council shall approve the CFP projects for the following seven calendar years by resolution.
- g) The first two years of the seven-year CFP shall be incorporated into the following biennial City budget.
- h) The seven-year CFP as adopted shall be the financing plan to implement the adopted Capital Facilities Element.

Section 6. All proposed projects will be reviewed according to the following evaluation and criteria guidelines.

- a) The Comprehensive Plan: Is the proposed project consistent with the goals and policies stated in the Comp Plan? Specifically, is the project consistent with the adopted minimum Level of Service (LOS) standards contained in the Comp Plan?
- b) Need: Is the project required to alleviate a known deficiency in regard to the LOS standards established in the Comp Plan? What need other than those identified in the Comp Plan will be met by the project?
- c) Funding: Is the funding necessary for the project reasonably expected to be available during the seven-year planning period?
- d) Extent of Service: How many people will benefit from the project, or conversely how many citizens are being inconvenienced or harmed because the project has not been done?
- e) Public Health and Safety: Is this project of benefit to the environment, safety, and the public's health and welfare?
- f) Public Support: Is the project one that is supported by the community?

- g) Partnering/Outside Funding: Is project partially funded by outside sources? Does project provide benefit to other agencies/services?
- h) Economic Development: Does project provide opportunities for economic development that will add additional one-time or ongoing revenues to the City?
- i) Consistency with Other Programs: Is the project consistent with the 6-Year Transportation Improvement Program, Water Comprehensive Plan, Sanitary Sewer Comprehensive Plan, Storm Water Comprehensive Plan specific criteria and goals? Is the project consistent with the Infrastructure Investment Program (IIP)?
- j) Any other criteria as may be defined by the CFP Committee during the evaluation period. The Committee will inform the public and the City Council of those additional criteria at the time of its recommendation.


Section 7. The adopted CFP will include all capital facility/infrastructure improvements planned to be funded during the seven-year period commencing the calendar year following adoption by the Council. The CFP shall include project costs and appropriations for the first two years of improvements listed in the CFP.

Section 8. The City Council may at any time during a calendar year find it necessary to revise the priorities and projects in the adopted CFP based upon special circumstances. In the event the Council deems it necessary to make a change, they may reconvene the CFP Committee for its evaluation and recommendation


Section 9. The City Clerk is authorized to make necessary corrections to this resolution including, but not limited to, the correction of scrivener's/clerical errors, references, resolution numbering, section/subsection numbers and any references thereto.

PASSED this 21<sup>st</sup> day of February, 2006.

APPROVED:

  
\_\_\_\_\_  
MARK LAMB  
MAYOR

ATTEST/AUTHENTICATED:

  
\_\_\_\_\_  
JOANNE TRUDEL  
CITY CLERK

FILED WITH THE CITY CLERK: February 9, 2006  
PASSED BY THE CITY COUNCIL: February 21, 2006  
RESOLUTION NO.: 1183 (2006)



City of Bothell™

City Council  
Agenda Bill  
AB # 20-068

**TO:** Mayor Olsen and Members of the Bothell City Council

**FROM:** Bruce Kroon, Fire Chief

**DATE:** June 2, 2020

**SUBJECT:** Consideration of an Interlocal Agreement for a North King County Mobile Integrated Healthcare Program

**POLICY CONSIDERATION:** This item asks the City Council to approve the City of Bothell entering into an interlocal agreement (ILA) with the Northshore Fire Department, Woodinville Fire & Rescue, and the Shoreline Fire Department to provide a cooperative Mobile Integrated Healthcare (MIH) program. The program will be funded through the King County EMS Levy.

MIH programs connect low-acuity and vulnerable EMS clients to the appropriate resources to address their complex needs through alternative response and referral strategies. The region collectively identified extending MIH services to all parts of King County as a top priority for the 2020-2025 levy span.

<b>HISTORY:</b>	<b>DATE</b>	<b>ACTION</b>
	<b>SEPTEMBER 15, 2015</b>	City Council approved a Community Medical Technician (CMT) Program partnering Bothell with Woodinville Fire & Rescue and Shoreline Fire Department.

The Community Medical Technician (CMT) model, staffed a vehicle with two CMTs whom hold specific training to address non-emergent issues and concerns. One was position assigned as the Lead CMT and the second filled a support role. The study began on October 1, 2015 and ended December 31, 2017.

**DISCUSSION:** Over time, the current CMT model has proven to be expensive, due to the second CMT support role being funded through overtime. However, King County has committed to continue the MIH model for the four north agencies: the City of Bothell, Woodinville Fire & Rescue, Northshore and Shoreline Fire Departments. This is a referral model response MIH team with one emergency medical technician (EMT) and one social worker. The team works Monday-Friday business hours. The teams focus is on connecting individuals with existing services who are not able to be served efficiently from the local Emergency

Medical Services provider. King County works closely with local fire agencies to mitigate any referrals and or response concerns they have.

**FISCAL IMPACTS:** Each partnering agency will receive their share of King County's MIH funds, of which the City's portion is \$69,275 in 2020. Through the ILA, these funds will be provided to Shoreline Fire Department who will be the lead agency and manage the operational and financial aspects of the program.

**ATTACHMENTS:** Att-1. Interlocal Agreement for North King County Mobile Integrated Healthcare Program

**RECOMMENDED ACTION:** Authorize the City Manager to execute an Interlocal Agreement for a Mobile Integrated Healthcare Program with the City of Bothell, Northshore Fire Department, Woodinville Fire & Rescue, and the Shoreline Fire Department in substantially the same form as presented.



**INTERLOCAL AGREEMENT  
North King County Mobile Integrated Healthcare Program**

**THIS INTERLOCAL AGREEMENT (the “Agreement”) is made and entered into this \_\_\_\_ day of \_\_\_\_\_, 2020, by and between the CITY OF BOTHELL, the NORTHSHORE FIRE DEPARTMENT, the WOODINVILLE FIRE & RESCUE, and the SHORELINE FIRE DEPARTMENT, which are referred to collectively as the “Parties” and individually as a “Party.”**

**RECITALS**

**WHEREAS**, the City of Bothell, the Northshore Fire Department, Woodinville Fire & Rescue, and the Shoreline Fire Department, individually a "Party" and collectively the "Parties," recognize that a Mobile Integrated Healthcare (MIH) program is a critical facet to connect low-acuity and vulnerable EMS clients to the appropriate resources to address their complex needs through alternative response and referral strategies; and

**WHEREAS**, the Parties desire to implement a consolidated MIH program to extend services to a greater part of the region, which is a top priority for the King County 2020-2025 EMS levy span; and

**WHEREAS**, the Parties herein desire to enter into an interlocal agreement to form the North King County Mobile Integrated Healthcare Program ("MIH Program") to operate the MIH Program jointly.

**TERMS AND CONDITIONS**

**NOW, THEREFORE**, in consideration of the mutual promise and benefits contained herein, it is agreed by and between the Parties as follows:

**Section 1. PURPOSE**

The Parties enter into this Interlocal Agreement ("Agreement") to formally establish an MIH program to provide coordinated planning, programming, delivery, and documentation of Mobile Integrated Healthcare services. This Agreement shall replace any previous agreements between the Parties related to MIH or CMT programs.

**Section 2. THE PARTIES**

1. As of the date of execution of this Agreement, the Parties to this Agreement are as follows:

Shoreline Fire Department  
Northshore Fire Department

City of Bothell  
Woodinville Fire & Rescue

2. Any other fire protection district or City may, at a future date, request inclusion into the MIH Program and become a Party to this Agreement pending the following:
  - A. The potential Party agrees to be committed to the terms and conditions of this Agreement for the purposes for which this Agreement is promulgated.
  - B. The potential Party agrees to contribute their EMS Levy MIH allocation toward the cost of service based upon the month it becomes a party to this Agreement.
  - C. Evidence of the addition of a new party shall take the form of a written amendment to this Agreement.

### **Section 3. RESPONSIBILITIES OF THE PARTIES**

1. Each Party to this Agreement agrees to the following participation levels and financial support:
  - A. Financial Support – Each Party shall be responsible for contributing its portion of the EMS Levy MIH allocation. Payments shall be made to the Lead Agency in quarterly installments each year.
  - B. Guidelines – Each Party agrees to participate under the guidance and policies jointly developed and approved by Shoreline Fire Department and King County EMS.

### **Section 4. GOVERNANCE**

1. An administrative entity (Lead Agency), known as the Shoreline Fire Department, is hereby established to administer this Agreement.
  - A. Duties – Subject to the terms of this Agreement, the Lead Agency shall have the responsibility for managing the MIH Program, including, without limitation, the following:
    - i. Creation and adoption of policy and procedures for the MIH Program, as well as any guiding documents or contracts.
    - ii. Develop and adopt the annual MIH budget.
    - iii. Review and approve the MIH Program work plan.
    - iv. Hire and oversee all personnel appointments within the MIH Program.
2. The Partner Agencies shall perform operational oversight.
  - A. Duties:

- i. To identify objectives needed for low acuity and vulnerable EMS clients and recommend any changes in the scope of the MIH Program.
- ii. To provide direction and operational decision making for MIH procedures and documents.
- iii. To establish operational principles to guide MIH personnel in the daily management of the program.
- iv. To provide support and assistance to MIH personnel.

## **Section 5. FINANCES**

1. Fund Established – Pursuant to RCW 39.34.030(4) (b), the Lead Agency is authorized to establish a special fund with their Treasurer, to be designated as the MIH Operating Fund. Such funds will be used to deposit the annual payments of each Party's annual monetary allocation or any other monies received by or on behalf of the MIH Program. Any funds accumulated in said fund shall be utilized solely for the continued operation of the MIH program.
2. Financial Best Practices – The Lead Agency shall provide the financial oversight of the MIH Program in accordance with that Party's financial policies and best practices.

## **Section 6. LEAD AGENCY**

1. Designated – Shoreline Fire Department shall be designated the Lead Agency under this Agreement.
2. Duties – In addition to its responsibilities as a Party to this Agreement, the Lead Agency shall:
  - A. Maintain Books and Records – Maintain books, records and documents, which accurately reflect all direct costs associated with the performance of this Agreement. The Parties shall have access to all books and records upon reasonable notice to the Lead Agency.
  - B. Maintain Separate Fund, Send Invoices and Receive Payments from the Parties – The Lead Agency shall maintain a fund as called for in Section 5.1. and bill each Party accordingly for the costs and expenses approved under this Agreement.
  - C. Maintain insurance records for each Party.
  - D. Maintain all records and documents in accordance with Chapter 42.56 RCW.
  - E. If an employee is hired for the sole purpose of working for the MIH Program, the Lead Agency shall be the employer of record for that employee.

3. Execution and Filing of Agreement – The Lead Agency shall ensure that this Agreement is executed by the Parties and that a certified copy is filed with the King and Snohomish County Auditors, the City Clerks of any cities party to this Agreement pursuant to RCW 39.34.040.

## **Section 7. TITLE TO EQUIPMENT**

Title to all equipment authorized to be purchased under this Agreement shall be in the name of the Lead Agency, subject only to the right therein of the participating Parties upon the termination of this Agreement. Title to all equipment purchased by each Party shall be in the name of the Party purchasing the equipment. On the effective date of any Party's withdrawal, the Lead Agency shall return all equipment in the name of that Party, if any. On the effective date of termination of this Agreement, the Lead Agency shall sell the equipment purchased under this Agreement in the name of the Lead Agency and proceeds of the sale shall be distributed to the Parties according to the EMS Levy MIH allocation in effect at the time of the purchase.

## **Section 8. TERMINATION**

1. The initial term of this Agreement shall be six years in coordination with the King County EMS levy period beginning on January 1, 2020. Thereafter, the Agreement will automatically renew for one year periods unless terminated by Agreement of the Parties pursuant to Section 8.2. below or in the event of the withdrawal under Section 10 by all but a single Party.
2. This Agreement may be terminated by consensus of a majority of the Parties, effective the end of any calendar year, upon giving written notice thereof to the other Parties by July 1 of the preceding year.
3. If a Party consolidates with another municipal or local government entity through merger, annexation, or through the creation of a Regional Fire Authority, the consolidated entity shall become a Party to this Agreement and a successor in interest to the Party's interest on the effective date of the consolidation without any action by the remaining Parties, unless otherwise required.

## **Section 9. DISPUTE RESOLUTION**

1. Prior to any other action, the Parties shall meet and attempt to informally negotiate a resolution to any dispute arising under this Agreement.
2. If the Parties are unable to resolve the dispute through informal negotiation within 30 days, the Parties to such dispute shall promptly engage in mediation with a professional mediator located in King County, Washington, with each Party to the dispute paying a proportionate share of the costs thereof, and bearing their own attorney and consultant fees. If the dispute is still unresolved, any Party may initiate

legal proceedings in any court of competent jurisdiction unless the Parties agree to submit the dispute to arbitration pursuant to Section 9.3.

3. The Parties to a dispute agree to submit any dispute to binding arbitration before the Judicial Arbitration and Mediation Service (“JAMS”) located in Seattle, Washington in accordance with JAMS Comprehensive Arbitration Rules & Procedures in effect at the time of the dispute, unless the Parties agree in writing to an alternative dispute resolution process. The arbitration shall be before a disinterested arbitrator with all Parties to the dispute sharing equally in the cost of the arbitrator. The location of the arbitration shall be mutually agreed or established by the assigned arbitrator in King County, Washington, and the laws of Washington will govern its proceedings. Each Party shall be responsible for its own costs in preparing for and participating in the arbitration, including expert witness fees and reasonable attorney's fees.
4. Unless otherwise agreed in writing, this dispute resolution process shall be the sole, exclusive and final remedy to or for any Party for any dispute regarding this Agreement, and its interpretation, application or breach, regardless of whether the dispute is based in contract, tort, any violation of federal law, state statute or local ordinance or for any breach of administrative rule or regulation and regardless of the amount or type of relief demanded.

#### **Section 10. WITHDRAWAL**

1. Any Party may withdraw from this Agreement without terminating the entire Agreement by giving the the other Parties 365 days' prior written notice. Said withdrawal shall become effective at the end of the 365-day period.
2. Any Party withdrawing from this Agreement shall be responsible for a prorated share of its annual obligation for costs and expenses incurred prior to termination.
3. In the event, a Party withdraws pursuant to this Section 10, but the remaining Parties continue the Agreement, the Party that terminated its participation shall be considered a withdrawing Party that is not entitled to any refund of its prior contributions.

#### **Section 11. LIABILITY AND INDEMNIFICATION**

Each Party is individually responsible for its own employees' acts and omissions arising out of the performance of this Agreement. Further, each of the Parties agrees to indemnify, defend and hold harmless the other parties, their officers, officials, agents, employees, and volunteers from any and all claims, costs, including reasonable attorneys' fees, losses and judgments arising out of the negligent acts or omissions of that Party's officials, officers, agents, employees, and volunteers in connection with the performance of this Agreement.

## **Section 12. INSURANCE**

Each of the Parties hereby agree to obtain and maintain, for the duration of this Agreement, all insurance necessary to cover the liability described in Section 11 – Liability and Indemnification. Each Party of this Agreement shall provide the lead agency with a Certificate of Liability Insurance or Evidence of Coverage, which the lead agency shall maintain on file, provided that any Party that is self-insured will provide a letter of self-insurance as evidence of coverage.

## **Section 13. MODIFICATION**

No changes or modifications of this Agreement shall be valid or binding upon any of the Parties to this Agreement unless such changes or modifications are in writing and executed by all of the Parties.

## **Section 14. NOTICES**

All notices, demands, requests, consents, and approvals which may, or are required to be given by any Party to any other Party hereunder, shall be in writing and shall be deemed to have been duly given if delivered personally, sent by a nationally recognized overnight delivery service, or if deposited in the United States mail and sent by registered or certified mail, return receipt requested, postage prepaid to:

Shoreline Fire Department::	Shoreline Fire Department ATTN: Fire Chief 17525 Aurora Ave N. Shoreline, WA 98133
The City of Bothell:	The City of Bothell ATTN: City Manager 18415 101st Ave NE Bothell, WA 98011
Northshore Fire Department:	Northshore Fire Department ATTN: Fire Chief 7220 NE 181st Street Kenmore, WA 98028
Woodinville Fire & Rescue:	Woodinville Fire & Rescue ATTN: Fire Chief 17718 Woodinville-Snohomish Rd. NE Woodinville, WA 98072

or to such other address as any Party hereto may from time-to-time designate in writing and deliver in a like manner. All notices shall be deemed complete upon actual receipt or refusal to accept delivery.

## **Section 15. INTEGRATION**

This Agreement contains all the terms and conditions agreed upon by the Parties. No other understandings, oral or otherwise, regarding the subject matter of this Agreement shall be deemed to exist or to bind any of the Parties hereto.

## **Section 16. SEVERABILITY**

Should any part, term or provision of this Agreement be determined to be invalid, the remainder of this Agreement shall not be affected, and the same shall continue in full force and effect.

## **Section 17. THIRD PARTY BENEFICIARY**

None of the provisions contained in this Agreement is intended by the Parties, nor shall any be deemed, to confer any benefit on any person not a party to this Agreement.

## **Section 18. INDEPENDENT MUNICIPAL GOVERNMENTS**

The Parties hereto are independent municipal corporations. Except for the specific terms herein, nothing herein shall be construed to limit the discretion of the governing bodies of each Party. Nothing in this Agreement shall be construed to create a joint entity between the Parties.

## **Section 19. COUNTERPARTS**

This Agreement may be executed in any number of counterparts and each such executed counterpart shall be deemed to be an original instrument, but all such executed counterparts together shall constitute one and the same instrument. Any signature page delivered by facsimile or electronic image transmission shall be binding to the same extent as an original signature page. Any Party that delivers a signature page by facsimile or electronic image transmission shall deliver an original counterpart to any other Party that requests such original counterpart.

## **Section 20. EFFECTIVE DATE**

1. This Agreement shall become effective following the occurrence of all of the following actions:
  - A. Approval of the Agreement by the official action of the governing bodies of each of the Parties hereto;
  - B. Signing of the Agreement by the duly authorized representative of each of the Parties hereto;
  - C. The filing of a copy of this Agreement with the following public officials;
    - i. The City Clerks of the participating cities hereto; and



- ii. The King County and Snohomish County Auditors.

IN WITNESS WHEREOF, the undersigned public agencies have executed this Agreement of the date and year set forth below.

**CITY OF BOTHELL**

APPROVED AS TO FORM:

\_\_\_\_\_  
Jennifer Phillips, City Manager

\_\_\_\_\_  
Paul Byrne, City Attorney

Date:\_\_\_\_\_

**ATTEST/AUTHENTICATED:**

\_\_\_\_\_  
Laura Hathaway, City Clerk

**NORTHSHORE FIRE DEPARTMENT**

\_\_\_\_\_  
By:

Date:\_\_\_\_\_

**WOODINVILLE FIRE & RESCUE**

APPROVED AS TO FORM:

\_\_\_\_\_  
By:

\_\_\_\_\_  
Jeff Ganson, District Counsel

Date:\_\_\_\_\_

**SHORELINE FIRE DEPARTMENT**

APPROVED AS TO FORM:

\_\_\_\_\_  
By:

\_\_\_\_\_  
District Counsel

Date: \_\_\_\_\_

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## City of Bothell™

**City Council**  
**Agenda Bill**  
AB # 20-069

**TO:** Mayor Olsen and Members of the Bothell City Council

**FROM:** Jennifer Phillips, City Manager  
Kellye Mazzoli, Assistant City Manager (Presenter)

**DATE:** June 2, 2020

**SUBJECT:** Consideration of Dedicating State-Shared CARES Act Funding to the City for COVID-19 Related Expenses and to the Community for COVID-19 Related Assistance

**POLICY CONSIDERATION:** This item asks the City Council to consider utilizing State CARES Act funds to reimburse the City for COVID-19 related expenses and to proportion an amount for community COVID-19 assistance.

If approved, distribution of the allotted CARES Act funding has the potential to positively impact the Bothell community and economy by supporting the City's response to COVID-19 and assisting in the community's recovery from COVID-19.

**HISTORY:**

DATE	ACTION
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<b>MARCH 05, 2020</b>	Mayor Olsen signed Declaration of Emergency
<b>MARCH 24, 2020</b>	Governor Inslee issued "Stay Home, Stay Healthy" Order
<b>MARCH 27, 2020</b>	Federal government signed the CARES Act into law
<b>MAY 20, 2020</b>	Bothell received Dept. of Commerce CARES Award Letter

In late February, news of COVID-19 (Coronavirus) began to ramp up locally with the first U.S. deaths occurring in this area. On March 2, 2020, the City of Bothell activated the City's Emergency Coordination Center (ECC) to address communications and policy matters related to this event and to begin developing response plans in preparation for any potential escalation. On March 5, 2020, Mayor Olsen signed an Emergency Declaration based on the COVID-19 outbreak.

Shortly thereafter, the Governor and King County Executive announced that they would impose restrictions on large events and gatherings, closing schools statewide and closing restaurants, bars, and other non-essential businesses. The Governor officially issued the "Stay Home, Stay Health" proclamation, ordering residents to stay at home beginning March 24, 2020. The original two-week order was extended twice and is currently in effect until May 31, 2020. As Washington nears the end of the order, the Governor released a "Safe Start"

approach to resume recreational, social, and business activities, with progression based upon monitoring the impacts of reopening in each phase before proceeding with the next phase. The state is currently in Phase 1 with some counties, not including King or Snohomish, authorized to move into Phase 2 (see Att-1 for full plan).

On March 27, 2020, the Federal government signed into law the “Coronavirus Aid, Relief, and Economic Security Act” or “CARES Act” to begin addressing the economic fallout from the coronavirus pandemic. At \$2 trillion, this Act is the largest economic stimulus package ever enacted by the US Government. It provided loans and loan guarantees to small businesses and allocated \$150 billion in direct aid to states and local governments with populations over 500,000 to address COVID-19 expenses.

**DISCUSSION:** The City of Bothell did not qualify for direct funding from the most recent distribution of the CARES Act, but of the \$150 billion shared with states and local governments across the US, the state of Washington received \$2.16 billion. For those cities and counties not eligible to receive direct funding, the State is sharing a portion of their allocation using a population-based formula set at \$30 per capita. Therefore, Bothell is authorized to apply for reimbursement of up to \$1.4 million of qualifying COVID-19 response-related expenses.

#### ELIGIBILITY OF EXPENSES

The Washington Department of Commerce is responsible for contracting with each local government and distributing the reimbursements (full Program details in Att-2). Expenses must be placed into six (6) main categories with sub categories including: medical, public health, payroll, actions to comply with public health measures, economic support, and other covered COVID-19 expenses. Regardless of category, basic qualifications on relief funds are that:

- the costs incurred are necessary expenditures due to the public health emergency resulting from the pandemic,
- the expenditures were not accounted for in the budget most recently approved as of March 27, 2020 (the date of enactment of the CARES Act) for the State or government, and
- the expenses were incurred from March 1, 2020 through October 31, 2020.

Moreover, it is specified that funds may not be used to fill shortfalls in government revenue. Additionally, these distributions are indirect federal grant funds and they will be subject to federal auditing standards of uniform guidance (2 CFR 200). Since the CARES Act award is a reimbursable grant, the City must

have already paid for and/or incurred the obligation to pay in order to receive the reimbursement.

In determining eligibility, each expense must pass a five-point eligibility cost test, with a response of 'true' to each of these statements:

1. The expense is COVID related.
2. The expense is necessary.
3. The expense being submitted is not filling a shortfall in revenue that was intended to cover expenditures that would otherwise not qualify.
4. The expense is for a substantially different purpose than originally intended due to the COVID-19 pandemic.
5. The expense was not in the budget approved as of March 27, 2020.

#### RECOVERY & DOCUMENTATION UNITS

As there are numerous scenarios of allowable uses for these funds, it is also imperative that the City be able to carefully support expenditures submitted for reimbursement with adequate documentation. To assist with these and other related response/ recovery tasks, the City's ECC has activated the Situational Status, Documentation, and Recovery Units found within the Planning Section. Specific to this item, the Cost Recovery Group is working to ensure that the City receives all eligible disaster assistance and disaster recovery funds. The group is outlining the differences between what qualifies for reimbursement under federal, state, and local programs including CARES Act, Public Assistance, etc. and then working closely with the Documentation Unit to ensure the City has the proper documentation to apply for each type of funding. This is an ongoing process that will continue into the foreseeable future as staff anticipates changes to the current programs and possibly even new funding sources.

#### ALLOCATION OF FUNDING

Based upon current information, staff has assessed that there are a number of specific COVID-response expenses which may be eligible for reimbursement with CARES Act funds including, but not limited to: payroll for certain personnel, telecommuting/teleworking setup, personal protection equipment, and staffing of the City's ECC. During the first two months of the emergency, City costs were initially calculated at \$100,000. Using that estimate and adding the additional response measures likely to be needed for reopening in Summer of 2020, eligible expenses are calculated to total \$500,000.

According to program guidelines, the City can support local residents and businesses during this crisis with grant assistance. For individuals facing economic hardship, the funds can be used to allow them to continue accessing

essential services, such as utilities, food, shelter, and other types of human services assistance. Moreover, guidance provides that grants could be made to small businesses from these CARES Act funds to reimburse the costs of business interruption caused by required or voluntary closures to promote social distancing measures.

At this time, staff is recommending an initial allocation of \$500,000 toward a Community Assistance program to address areas of primary concern for the Council including business support, shelter, food insecurity, domestic violence support, utilities assistance, and benefit enrollment. The unallocated \$400,000 could then be slated to come back to Council and to address any unanticipated needs of the City and community which may arise as each sector progresses through the different phases of reopening.

#### **COUNCIL ACTION**

The City Council may choose to dedicate the State-shared CARES Act funding as it sees fit. At this time and based upon the information available, it is recommended that the City Council direct staff to allocate the funding (\$1.4 million) in the following manner:

- \$500,000 to City cost recovery
- \$500,000 to Community response/ assistance programs
- \$400,000 to be allocated in the near future to COVID needs

Making the allocation in this manner allows the City to begin seeking reimbursement for costs it has already incurred responding to COVID and to get much needed assistance out into the community as quickly as possible. Staff is currently surveying non-profits/ agencies serving Bothell residents to determine the areas of greatest need and which agencies are best poised to help distribute funds. Regional surveys have been sent to businesses in Bothell and additional data will soon be available from those. If Council would like to specifically proportion the funds among service areas, staff can bring additional information back on June 9, 2020 for Council consideration.

#### **FISCAL IMPACTS:**

A budget amendment will be required to implement this item, staff will bring a budget amendment forward for City Council consideration after the City Council provides direction on this matter, but before the end of the calendar year". These revenues and associated COVID-19 expenditures are not included in the Adopted 2019-2020 Budget. Depending upon direction given by the City Council, the City may be able to recover qualified expenditures related to COVID-19 response and recovery.



**ATTACHMENTS:** | Att-1. Safe Start Washington Plan – Governor Inslee  
Att-2. Relief Funds Program Guidelines – Department of Commerce

**RECOMMENDED ACTION:** | Direct staff to proportion potential reimbursements to City cost recovery (\$500,000) and Community response efforts (\$500,000), and to bring the remaining funds (\$400,000) back to Council by August 4, 2020 for allocation.

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# Safe Start Washington

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## A Phased Approach to Recovery

ISSUED BY THE OFFICE OF THE GOVERNOR | MAY 4, 2020



## Safe Start Washington

### Governor Jay Inslee

Governor Jay Inslee, in collaboration with the Washington State Department of Health, has established a data-driven approach to reopen Washington and modify physical distancing measures while minimizing the health impacts of COVID-19.

This approach reduces the risk of COVID-19 to Washington's most vulnerable populations and preserves capacity in our health care system, while safely opening up businesses and resuming gatherings, travel, shopping, and recreation. The plan involves assessing COVID-19 activity in the state along with health care system readiness, testing capacity and availability, case and contact investigations, and ability to protect high-risk populations.



### COVID-19 DISEASE ACTIVITY

Before reopening Washington and modifying physical distancing measures, COVID-19 disease burden must be low and decreasing as measured by:

- Number and trend of [COVID-19 cases, hospitalizations and deaths in Washington State](#)
- Modeling data, including [Institute for Disease Modeling](#) on Puget Sound area rates of COVID-19 spread, University of Washington [Institute for Health Metrics and Evaluation](#) modeling, and [Youyang Gu](#) modeling
- Mobility trends in Washington State, including [WSDOT traffic data](#) and [Google Mobility Data](#)

### READINESS AND CAPABILITIES NEEDED

The Department of Health and local public health officials will monitor data to assess our state's readiness for safely reopening and modifying physical distancing measures. In addition to a low and decreasing disease burden, readiness must be achieved in four key areas to proceed from where we are now in the "Stay Home, Stay Healthy" order (Phase I) to Phase II, III and IV of the plan. The four key areas include healthcare system readiness, testing capacity and availability, case and contact investigations, and ability to protect high-risk populations. The overall goals for each area, along with the pertinent data that will be considered, are detailed below.





## 1. Health Care System Readiness

Adequate bed capacity, staffing and supplies in the health care system to handle a surge in COVID-19 cases, measured by:

- Number and percentage of licensed beds and ICU beds available in hospitals
- Number of available ventilators
- Days of personal protective equipment (PPE) supply available at hospitals, long-term care facilities, and other health care settings
- Ability of the state to fill high priority PPE requests from local emergency management agencies
- Ability of hospitals and other health care facilities to surge and coordinate movement of patients



## 2. Testing Capacity and Availability

Ability for everyone with COVID-19 symptoms and those with high-risk exposures to be tested immediately using a polymerase chain reaction (PCR) test and rapidly receive test results as measured by:

- Geographic distribution of testing sites and ability to serve the entire population
- Number and capacity of laboratories in Washington performing COVID-19 testing
- Availability of sufficient swabs, viral transport media, lab reagents, and other materials required for COVID-19 testing
- Number of tests performed per day



## 3. Case and Contact Investigations

Ability to rapidly isolate those with COVID-19, identify and quarantine their contacts, and provide case management services as measured by:

- Number of investigators trained and working
- Plans for case management
- Availability of isolation and quarantine facilities in local jurisdictions
- Percent of cases investigated within 24 hours of receipt of positive test report
- Percent of contact investigations initiated within 48 hours of receipt of positive test report





#### 4. Ability to Protect High-Risk Populations

Ability to immediately respond to outbreaks in congregate settings, such as long-term care facilities, behavioral health facilities, agricultural worker housing, homeless shelters and correctional facilities, and address the needs of other high-risk populations, including the elderly and the medically frail, measured by:

- Number of outbreaks in long-term care facilities
- Demographic data, including race/ethnicity data, on COVID-19 cases, hospitalizations and deaths
- Ability of local or state strike teams with adequate PPE to respond to an outbreak within 24 hours

### ALL INDIVIDUALS AND BUSINESSES

Until there is an effective vaccine, effective treatment or herd immunity, it is crucial to maintain some level of community interventions to suppress the spread of COVID-19 throughout all phases of recovery. This includes heightened protections for the health and safety of workers in essential sectors, people living and working in high-risk facilities (e.g., senior care facilities) and all other workers.

All Washingtonians have a responsibility to protect themselves and others. Each phase, while allowing for additional services to open and return to full capacity, is grounded in the following required basic practices:

#### Guidance for Individuals

All phases – Individuals should continue to:

- Engage in physical distancing, staying at least six feet away from other people
- Wear cloth face coverings in public places when not eating or drinking (cloth face coverings should not be placed on children younger than 2 years of age, anyone who has trouble breathing, or is unconscious, incapacitated or otherwise unable to remove the cover without assistance)
- Stay home if sick
- Avoid others who are sick
- Wash hands frequently with soap and water (use hand sanitizer if soap and water are not available)
- Cover coughs and sneezes
- Avoid touching eyes, nose and mouth with unwashed hands
- Disinfect surfaces and objects regularly



## Requirements for All Employers

All phases – Employers are required to:

- Maintain the six-foot physical distancing requirements for employees and patrons. Adopt other prevention measures such as barriers to block sneezes and coughs when physical distancing is not possible for a particular job task.
- Provide services while limiting close interactions with patrons.
- Provide adequate sanitation and personal hygiene for workers, vendors and patrons. Ensure employees have access to hand washing facilities so they can wash their hands frequently with soap and running water.
- Ensure frequent cleaning and disinfection of the business, particularly of high-touch surfaces.
- Identify personal protective equipment (PPE) and cloth facial coverings in accordance with L&I requirements on facial coverings and industry specific COVID-19 standards. Provide the necessary PPE and supplies to employees.
- Identify strategies for addressing ill employees, which should include requiring COVID-19 positive employees to stay at home while infectious, and potentially restricting employees who were directly exposed to the COVID-19 positive employee. Follow CDC cleaning guidelines to deep clean after reports of an employee with suspected or confirmed COVID-19 illness. This may involve the closure of the business until the location can be properly disinfected.
- Educate employees about COVID-19 in a language they best understand. The education should include the signs, symptoms and risk factors associated with COVID-19 and how to prevent its spread.
- On a case-by-case basis, as directed by federal, state and local public health and workplace safety officials, implement other practices appropriate for specific types of businesses, such as screening of employees for illness and exposures upon work entry, requiring non-cash transactions, etc.
- Follow requirements in [Governor Inslee's Proclamation 20-46 High-Risk Employees – Workers' Rights](#).
- Keep a safe and healthy facility in accordance with state and federal law, and comply with COVID-19 worksite-specific safety practices, as outlined in Governor Inslee's "Stay Home, Stay Healthy" Proclamation 20-25, and in accordance with the Washington State Department of Labor & Industries [General Coronavirus Prevention Under Stay Home, Stay Healthy Order](#) and the Washington State Department of Health [Workplace and Employer Resources & Recommendations](#).
- Challenge Seattle and the Washington Roundtable have developed a [business checklist](#) which is a great starting point for businesses as they prepare for a Safe Start. Our shared goal is to establish clear requirements that everyone can understand and apply — employers, workers and customers.

Businesses are also expected to implement any additional requirements developed specifically for their industry, such as those that have been established for construction.



## PHASED APPROACH TO REOPENING WASHINGTON AND MODIFYING PHYSICAL DISTANCING MEASURES

Phase I of reopening Washington begins on May 5, 2020. When COVID-19 disease burden is low and decreasing and the four above capabilities are met, the Governor will issue an order for the state to move into future phases. The state will stay in every phase for a **minimum of three weeks**. During that time, the Department of Health and the Governor will re-evaluate the above indicators and determine if the state should remain in the current phase, advance to the next phase or return to the previous phase. No phase will last less than three weeks before moving to the next phase, in order to allow one complete disease incubation period plus an additional week to compile complete data and confirm trends.

The following table shows the phased approach for reopening businesses and resuming activities not authorized under Proclamation 20-25. **This phased approach may be adjusted as the pandemic evolves.** The industries listed are not an exclusive or exhaustive list of industries. Businesses listed in each phase of the plan will have industry-specific guidance and safety criteria developed to ensure workplace safety and public health are maintained. Those business activities are not authorized to open until the industry-specific guidance and safety criteria are issued.

A number of different factors were considered when deciding which activities could be resumed and which businesses could be reopened in various phases. These factors included:

- Risk of disease spread during the individual or business activity
- Number of people who could potentially be infected during the individual or business activity
- Economic benefits to opening the business
- Individual benefits to opening the business

Additional plans for a phased approach to restarting health care and educational activities are under development.

Families are adjusting to a new way of life, and we understand the impacts this is having on them. The connection between education, childcare, youth sports, summer programs and extracurricular activities is critical and must be viewed from a holistic lens to ensure equity and high quality of life. As we prepare for what the reopening of school looks like, we will be working closely with the Department of Health, Office of the Superintendent for Public Instruction, Department of Children, Youth and Families, and parents to release plans in the future.

While childcare is currently an essential business activity and a key component to the reopening plan, we know there is more to do. The state will continue efforts to ensure adequate access and affordability for families.





# WASHINGTON'S PHASED APPROACH

## Modifying Physical Distancing Measures as we Reopen the State

INDIVIDUALS AND BUSINESSES SHOULD FOLLOW ALL REQUIREMENTS LISTED ABOVE DURING ALL PHASES



### Phase 1



### Phase 2



### Phase 3



### Phase 4

#### High-Risk Populations\*

Continue to Stay Home, Stay Healthy

Continue to Stay Home, Stay Healthy

Continue to Stay Home, Stay Healthy

Resume public interactions, with physical distancing

#### Recreation

Some outdoor recreation (hunting, fishing, golf, boating, hiking)

Outdoor recreation involving 5 or fewer people outside your household (camping, beaches, etc.)

- Outdoor group rec. sports activities (50 or fewer people)
- Recreational facilities at <50% capacity (gyms, public pools, etc.)
- Professional sports without audience participation (horseracing, baseball, etc.)

Resume all recreational activity

#### Gatherings (social, spiritual)

- None
- Drive-in spiritual service with one household per vehicle

Gather with no more than 5 people outside your household per week

Allow gatherings with no more than 50 people

Allow gatherings with >50 people

#### Travel

Essential travel and limited non-essential travel for Phase I permissible activities

Essential travel and limited non-essential travel for Phase I & II permissible activities

Resume non-essential travel

Continue non-essential travel

#### Business/ Employers

- Essential businesses open
- Existing construction that meets agreed upon criteria
- Landscaping
- Auto/RV/boat/ORV sales
- Retail (curb-side pick-up orders only)
- Car washes
- Pet walkers

- Remaining manufacturing
- Additional construction phases
- In-home/domestic services (nannies, housecleaning, etc.)
- Retail (in-store purchases allowed with restrictions)
- Real estate
- Professional services/office-based businesses (telework remains strongly encouraged)
- Hair and nail salons/barbers
- Pet grooming
- Restaurants/taverns <50% capacity table size no larger than 5 (no bar-area seating)

- Restaurants/taverns <75% capacity/ table size no larger than 10
- Bar areas in restaurant/taverns at <25% capacity
- Movie theaters at <50% capacity
- Customer-facing government services (telework remains strongly encouraged)
- Libraries
- Museums
- All other business activities not yet listed except for nightclubs and events with greater than 50 people

- Nightclubs
- Concert venues
- Large sporting events
- Resume unrestricted staffing of worksites, but continue to practice physical distancing and good hygiene

\* High-risk populations are currently defined by CDC as: persons 65 years of age and older; people of all ages with underlying medical conditions (particularly not well controlled), including people with chronic lung disease or moderate to severe asthma, people who have serious heart conditions, people who are immunocompromised, people with severe obesity, people with diabetes, people with chronic kidney disease undergoing dialysis, and people with liver disease; people who live in a nursing home or long-term care facility.

## COUNTY VARIANCE REQUESTS

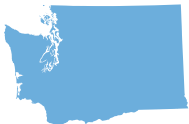
The Department of Health recognizes that there are currently some small counties with a population of less than 75,000 that have not identified a resident with COVID-19 for the past three weeks. These counties have the opportunity to apply for a variance to move to Phase II of this plan before the rest of the state. To apply for a variance, the local jurisdiction must follow the below process and submit the following materials to the Department of Health. County variance applications will be approved or denied by the Secretary of Health.

### **1. The process must adhere to the following steps:**

- a. The local public health officer must submit a signed recommendation to the local board of health with one of the following recommendations: not request a variance and stay in Phase I, request a variance to include all of the Phase II modifications above, or request a variance to include a subset of Phase II modifications.
- b. The local board of health, if they choose to move forward with a variance request, must vote on such a request.
- c. The local hospital(s) must submit a letter certifying that they have adequate bed capacity to serve their community and adequate PPE supplies to keep their workers safe.
- d. The county commission/council must request to move to Phase II (or a subset of Phase II) of the plan.

### **2. The county commissioner must submit a letter requesting a variance, the letter from the local hospital certifying they have adequate bed capacity to serve their community and adequate PPE supplies to keep their workers safe, and a document that includes the following information to the Department of Health:**

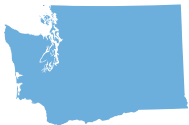
- a. Plans to make COVID-19 testing available and accessible to everyone in the county with symptoms consistent with COVID-19.
- b. The number of tests performed by week over the past three weeks.
- c. The number of people trained and ready to perform case investigations and contact tracing.
- d. Plans to house people in isolation or quarantine who do not have a home or wish to isolate or quarantine themselves outside of their home.
- e. Plans to provide case management services to cases and contacts in isolation and quarantine.
- f. Plans to rapidly respond to outbreaks in congregate settings.



**3. Included with this application are documents demonstrating approvals and endorsements for all of the following:**

- a. The local public health officers' recommendation to the Board of Health.
- b. Documentation of the vote of the Board of Health, including the motion and the vote totals.
- c. Letters from all hospitals used by the county certifying their bed capacity for COVID-19 patients and PPE supplies.
- d. Documentation of the vote of the county commission, including the vote totals.

In the next two weeks, the Department of Health and Governor Inslee will consider additional criteria which could include cases per capita for allowing other counties to apply for a variance. Local jurisdictions will be allowed to partially implement a phase.



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# Coronavirus Relief Funds for Local Governments Program Guidelines

CARES Act Funds for Local Governments  
In Washington State

Administered by the Department of Commerce  
Local Government Division

*P.O. Box 42525  
Olympia, WA 98504-2525*

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*This publication is available in an alternative format upon request. Events sponsored by Commerce are accessible to persons with disabilities. Accommodations may be arranged with a minimum of 10 working days' notice by calling 360-725-3087*

# Coronavirus Relief Funds (CRF) for Local Governments Program Guidelines

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# General Information

## 1. Source of Funds

You have been awarded funds through the state's Coronavirus Relief Funds (CRF). The funds are available under section 601(a) of the Social Security Act, as added by section 5001 of the Coronavirus Aid, Relief, and Economic Security Act ("CARES Act").

Your grant is funded entirely through the federal stimulus funding under the CARES Act provided by the U.S. Department of Treasury (US Treasury) to the Governor via the Office of Financial Management (OFM).

On April 27, 2020 Governor Inslee announced the award of nearly \$300 million to local governments in CRF from the state's allocation of the CARES Act funding.

## 2. Allocation Formula

OFM developed the allocation methodology and determined the jurisdiction amounts. The allocations were based on 2019 population estimates for each jurisdiction.

Funds will be provided to cities and counties with populations under 500,000 that were ineligible to receive direct funding under the CARES Act. Each county will receive a minimum distribution of \$250,000 and each city will receive a minimum distribution of \$25,000.

Cities and counties with populations over 500,000 did not receive a direct allocation from the state. Instead these jurisdictions received a direct allocation from the US Treasury (i.e. city of Seattle, King Co., Pierce Co., Snohomish Co., etc.).

For a complete list of cities and counties and their allocations, click [here](#).

## 3. Period of Performance

The Coronavirus Relief Funds may only be used for costs incurred by local governments in response to the COVID-19 public health emergency during the period of March 1, 2020 thru October 31, 2020.

The [US Treasury's Guidance](#) provides an end date of December 30, 2020. This is the end date in which the state must have reimbursed all "recipients of the funds" (grantees) their costs incurred in response to the COVID-19 emergency. In order to allow time for Commerce to process final payments and conduct contract closeouts; and for OFM to fully utilize any unspent funds before they expire, expenditures are only being accepted on costs incurred through October 31, 2020.

***All final requests for reimbursement must be submitted no later than November 15, 2020.***

## 4. Intended Use

Under the CARES Act, the Coronavirus Relief Funds (CRF) may be used to cover costs that:

1. Are necessary expenditures incurred due to the public health emergency with respect to the Coronavirus Disease 2019 (COVID-19); **AND**
2. Are **NOT** accounted for in the budget most recently approved as of March 27, 2020 (the date of enactment of the CARES Act) for the State or local government. The "most recently



approved” budget refers to the enacted budget for the relevant fiscal period for the particular government. A cost meets this requirement if:

- a) The cost cannot lawfully be funded using a line item, allotment, or allocation within that budget; *OR*
  - b) The cost is for a substantially different use from any expected use of funds in such a line item, allotment, or allocation.
3. A cost is not considered to have been accounted for in a budget merely because it could be met using a budgetary stabilization fund, rainy day fund, or similar reserve account.

Funds may **NOT** be used to fill shortfalls in government revenue to cover expenditures that would not otherwise qualify under the statute. Although a broad range of uses is allowed, revenue replacement is not a permissible use of Fund payments.

The use of these funds are very broad and flexible, and can be used for both operating and **capital expenditures**.

If funds are being used for capital expenditures such as acquisition of real property or construction / renovation costs, please contact us immediately. We will provide you with further information and guidance. Utilizing CRF for these purposes will require additional Federal and state provisions being applied to the project such as:

- All projects must be reviewed under a Federal Section 106 review for archaeological and cultural resources if the project: acquires property, disturbs ground, and/or involves structures more than 50 years old. Grantees must submit documentation to the project manager when the review is complete. Section 106 supersedes the [Governor's Executive Order 05-05](#) review.
- Construction / renovation projects may be required to meet high-performance building standards and document they have entered the state's LEED certification process.
- Construction / renovation projects will be required to follow Federal Davis Bacon and state prevailing wage laws, rules, and regulations.

Additionally, grantees must ensure all capital expenditures are only for costs incurred through the limited timeframe of March 1, 2020 thru October 31, 2020.

## **5. Eligible costs**

There are six (6) primary eligible cost categories. These cost categories and their eligible cost sub-categories are as follows:

1. **Medical expenses** such as:
  - COVID-19-related expenses of public hospitals, clinics, and similar facilities.
  - Expenses of establishing temporary public medical facilities and other measures to increase COVID-19 treatment capacity, including related construction costs.
  - Costs of providing COVID-19 testing, including serological testing.
  - Emergency medical response expenses, including emergency medical transportation, related to COVID-19.

- Expenses for establishing and operating public telemedicine capabilities for COVID-19-related treatment.
2. **Public health expenses** such as:
    - Expenses for communication and enforcement by State, territorial, local, and Tribal governments of public health orders related to COVID-19.
    - Expenses for acquisition and distribution of medical and protective supplies, including sanitizing products and personal protective equipment, for medical personnel, police officers, social workers, child protection services, and child welfare officers, direct service providers for older adults and individuals with disabilities in community settings, and other public health or safety workers in connection with the COVID-19 public health emergency.
    - Expenses for disinfection of public areas and other facilities, e.g., nursing homes, in response to the COVID-19 public health emergency.
    - Expenses for technical assistance to local authorities or other entities on mitigation of COVID-19-related threats to public health and safety.
    - Expenses for public safety measures undertaken in response to COVID-19.
    - Expenses for quarantining individuals.
  3. **Payroll expenses** for public safety, public health, health care, human services, and similar employees whose services are substantially dedicated to mitigating or responding to the COVID-19 public health emergency.
  4. **Expenses of actions to facilitate compliance with COVID-19-related public health measures**, such as:
    - Expenses for food delivery to residents, including, for example, senior citizens and other vulnerable populations, to enable compliance with COVID-19 public health precautions.
    - Expenses to facilitate distance learning, including technological improvements, in connection with school closings to enable compliance with COVID-19 precautions.
    - Expenses to improve telework capabilities for public employees to enable compliance with COVID-19 public health precautions.
    - Expenses of providing paid sick and paid family and medical leave to public employees to enable compliance with COVID-19 public health precautions.
    - COVID-19-related expenses of maintaining state prisons and county jails, including as relates to sanitation and improvement of social distancing measures, to enable compliance with COVID-19 public health precautions.
    - Expenses for care for homeless populations provided to mitigate COVID-19 effects and enable compliance with COVID-19 public health precautions.
  5. **Expenses associated with the provision of economic support** in connection with the COVID-19 public health emergency, such as:
    - Expenditures related to the provision of grants to small businesses to reimburse the costs of business interruption caused by required closures.
    - Expenditures related to a state, territorial, local, or Tribal government payroll support program.
    - Unemployment insurance costs related to the COVID-19 public health emergency if such costs will not be reimbursed by the federal government pursuant to the CARES Act or otherwise.

6. **Any other COVID-19-related expenses** reasonably necessary to the function of government that satisfy the Fund's eligibility criteria.

## 6. *Ineligible costs*

Non-allowable expenditures include, but are not limited to:

1. Expenses for the state share of Medicaid.
2. Damages covered by insurance.
3. Payroll or benefits expenses for employees whose work duties are not substantially dedicated to mitigating or responding to the COVID-19 public health emergency.
4. Expenses that have been or will be reimbursed under any federal program, such as the reimbursement by the federal government pursuant to the CARES Act of contributions by states to state unemployment funds.
5. Reimbursement to donors for donated items or services.
6. Workforce bonuses other than hazard pay or overtime.
7. Severance pay.
8. Legal settlements.

## 7. *Eligible cost test*

Grantees are charged with determining whether or not an expense is eligible based on the [US Treasury's Guidance](#) and as provided in the grantee's contract scope of work with Commerce.

To assist grantees with this determination, Commerce has developed an eligibility cost test. This test gives each grantee full authority to make the appropriate call for each circumstance.

**TEST** – If all responses for the particular incurred cost are “true” for all five statements below, then a jurisdiction can feel confident the cost is eligible:

1. The expense is connected to the COVID-19 emergency.
2. The expense is “necessary”.
3. The expense is not filling a short fall in government revenues.
4. The expense is not funded thru another budget line item, allotment or allocation, as of March 27, 2020.
5. The expense wouldn't exist without COVID-19 OR would be for a “substantially different” purpose.

It is the responsibility of each grantee to define “**necessary**” or “**substantially different**”, giving the grantee the authority and flexibility to make their own determination.

**Additional consideration** – The intent of these funds is to help jurisdictions cover the immediate impacts of the COVID-19 emergency. Both direct costs to the jurisdiction and costs to their communities. There are many possible eligible costs.

Many costs are clearly eligible and others are in more of a grey area. One could probably justify some of the “grey area” costs based on the test, but are they directly addressing the immediate impacts? Possibly not. In these situations it may be safer and more appropriate to utilize the funds in one of the many other eligible cost categories that more clearly meet the intent of the funds. Again, each grantee has the full authority to make the final call based on their circumstances and justification.

## 8. Cost reimbursement

Funds are available on a reimbursement basis only, and cannot be advanced under *any* circumstances. If funds are being used for the acquisition of real property or construction / renovation costs, please contact us immediately. Reimbursable costs are those that a Grantee has already incurred. We may only reimburse grantees for eligible costs incurred in response to the COVID-19 public health emergency during the period of March 1, 2020 thru October 31, 2020.

### Final Date of Reimbursements

In order to ensure all awardees and their costs incurred in response to the COVID-19 emergency are paid out by December 30, 2020 per the [US Treasury's Guidance](#), expenditures are only being accepted on costs incurred through **October 31, 2020**.

***All final requests for reimbursement must be submitted no later than November 15, 2020.***

Grantees will not be required to submit a proposed budget prior to contract execution. Grantees will have the discretion and flexibility to determine where these funds may best serve their communities.

Each grantee will determine eligible costs to submit for reimbursement. For reporting purposes, expenditures must be tracked at the sub-category level for the six (6) primary eligible cost categories, as follows:

1. Medical Expenses
  - A. Public hospitals, clinics, and similar facilities
  - B. Temporary public medical facilities & increased capacity
  - C. COVID-19 testing, including serological testing
  - D. Emergency medical response expenses
  - E. Telemedicine capabilities
  - F. Other
2. Public Health Expenses
  - A. Communication and enforcement of public health measures
  - B. Medical and protective supplies, including sanitation and PPE
  - C. Disinfecting public areas and other facilities
  - D. Technical assistance on COVID-19 threat mitigation
  - E. Public safety measures undertaken
  - F. Quarantining individuals
  - G. Other
3. Payroll expenses for public employees dedicated to COVID-19
  - A. Public Safety
  - B. Public Health
  - C. Health Care
  - D. Human Services
  - E. Economic Development
  - F. Other
4. Expenses to facilitate compliance with COVID-19 measures
  - A. Food access and delivery to residents
  - B. Distance learning tied to school closings
  - C. Telework capabilities of public employees

- D. Paid sick and paid family and medical leave to public employees
- E. COVID-19-related expenses in county jails
- F. Care and mitigation services for homeless populations
- G. Other

5. Economic Supports

- A. Small Business Grants for business interruptions
- B. Payroll Support Programs
- C. Other

6. Other COVID-19 Expenses

No receipts or proof of payment for costs incurred will be required to be submitted to Commerce. Grantees are still required to maintain sufficient accounting records in accordance with state and federal laws. Monitoring visits may be scheduled.

# Process and Procedure to Obtain Funds

## 1. Award Letter

Commerce strives to administer funds expediently and with a minimum of red tape. We do so within the policies and procedures established by the US Treasury and state's Legislature, OFM, Commerce, and the Office of the Attorney General. Prior to receiving funds, a contract will need to be executed with Commerce.

Award letters with instructions to initiate the contracting process will be emailed to each city and county receiving an allocation by no later than May 22<sup>nd</sup>. Emails to cities will be sent to mayors and any other contacts obtained with the assistance of the Association of Washington Cities. Emails to counties will be sent to the county commissioners and any other contacts obtained with the assistance of the Washington State Association of Counties.

Included with the award letter will be:

- CRF Program Guidelines
- A draft contract template for review and to initiate the public process for authorization to execute once the final contract is available for execution
- Working Papers

## 2. Working papers

Your grant award packet includes *Working Papers*. The *Working Papers* ask for basic information needed to create a contract:

- Contact information for the person who will administer the grant once the contract is signed. Grant documents and correspondence will be sent to this person.
- Your Statewide Vendor Number (SWV#)
- Your Federal Indirect Rate
- Your fiscal year end date
- Name and title for the person authorized by the jurisdiction to sign the contract

Please complete and return the *Working Papers* to the Commerce project manager identified in the award letter as soon as possible, even if you do not plan to begin drawing your funds for a while. Your project manager will manage your contract until project completion. Feel free to give us a call if you have any questions as you fill out the form (see contact information on previous page).

## 3. Contract

Once the completed *Working Papers* have been received by the Commerce project manager identified in the award letter, a contract will be prepared and sent to you for signature. Have the authorized representative sign the contract and then return a scanned pdf copy to your project manager. Then the project manager will route the contract for Commerce's signature. It generally takes two to four weeks to fully execute a contract. Once executed by Commerce a fully executed copy will be scanned and a pdf copy emailed to the jurisdiction and you will have access to your funds.

Commerce is working to make the contracting process as quick and easy as possible.

#### 4. Reimbursements

This is a reimbursement-style grant, meaning no advance payments. Funds are available once a contract is executed. All grantees are required to set up a SWV number so funds may be sent electronically. Grantees have the flexibility to cash out their grant or draw down funds as frequently as once a month as long as you have incurred documented eligible costs in response to the COVID-19 public health emergency during the period of March 1, 2020 thru October 31, 2020. All final requests for reimbursement must be submitted no later than November 15, 2020.

Commerce has moved to electronic vouchering through their Contracts Management System (CMS) Online A-19 Portal. Requests for reimbursement must be submitted online through the CMS System by an individual authorized by the Grantee's organization. Online electronic vouchering provides for grantees to receive reimbursements as quickly as possible. Grantees with barriers to using the online A-19 portal, may request an A-19 form from their Commerce project manager.

Access to CMS is available through the Secure Access Washington (SAW) portal. You will need to create a SAW account if you do not already have one. Please find detailed instructions here: [Office of Financial Management](#). It may take up to three weeks after you submit this information for an electronic transfer account to be set up. We will automatically receive your SWV number from the office that sets them up.

Once logged into SAW, add the Department of Commerce to your 'services' and submit an [Online A-19 External User Request form](#). Then Commerce will add you as a new external user in CMS; and the CMS system will generate and email a registration code to you to complete the CMS registration.

For additional grantee support, refer to the [Commerce Online A-19 Webpage for External Users](#), which includes SAW resources and the CMS manual for external users.

The A-19 voucher must include a detailed breakdown of the costs incurred within each eligible budget category and the total reportable eligible expenses in response to the COVID-19 public health emergency. Accompanying with each voucher must be an executed A-19 certification and A-19 activity report. Incomplete or improperly prepared submissions may result in payment delays. After receipt and acceptance of a fully completed A-19 voucher submittal, grantees can expect electronic reimbursements within 7-10 days.

No receipts or proof of payment for costs incurred will be required to be submitted to Commerce. Grantees are still required to maintain sufficient accounting records in accordance with state and federal laws; and are responsible for maintaining clear and accurate program records, and making them accessible to Commerce and the State Auditor.

***Monitoring visits may be scheduled.***

#### 5. A-19 Certification and Activity Report

In order to receive reimbursement for eligible expenses incurred, each A-19 Voucher must include:

1. A completed **A-19 Certification**:
  - An individual authorized to execute on behalf of the local government must certify by signing this document under penalty of perjury that the items and costs listed herein and on the accompanying Commerce A-19 Voucher are eligible charges for necessary expenditures incurred due to the COVID-19 public health emergency that were not previously accounted for in the most recent approved budget as of March 27, 2020,

and that the funds were used in accordance with section 601(a) of the Social Security Act, as added by section 5001 of the Coronavirus Aid, Relief, and Economic Security Act ("CARES Act").

2. A completed **A-19 Activity Report** (*instructions included in document*):

- Must be submitted as an Excel spreadsheet, not a PDF.
- Include a detailed breakdown of the individual eligible expenditures reported by each sub-category of the six (6) primary budget categories. Each primary budget category includes sub-categories and provides an option to add "other" sub-categories.
- Include the total amount of all previous reimbursement requests for each applicable sub-category.
- Include the total amount of funds being requested in the current reimbursement request for each applicable sub-category.
- Include a brief description of the use of the funds being requested for each applicable sub-category. Keep descriptions as concise as possible, but include adequate context to demonstrate how these funds addressed the COVID-19 emergency. If applicable, please consider:
  - Providing a brief description of the specific activities performed.
  - Identifying specific populations served.
  - Identifying specific programs created or utilized.
  - Including any known or intended outcomes, results, or community impacts.

A certification and activity report must be completed and returned with each reimbursement voucher.

After the contract is executed, you will receive additional instructions on how to submit electronic reimbursement requests with the A-19 certification and A-19 activity report.





City of Bothell™

City Council  
Agenda Bill  
AB # 20-070

**TO:** Mayor Olsen and Members of the Bothell City Council

**FROM:** Jennifer Phillips, City Manager

**DATE:** June 2, 2020

**SUBJECT:** Consideration of options for public street and private property uses in response to COVID-19

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<b>POLICY CONSIDERATION:</b>	The Council is asked to consider three policy matters that could aid in the community's recovery from the Governor's Orders related to preventing the spread of COVID-19: <ol style="list-style-type: none"><li>1. For the summer months, maximizing use of Main Street to allow outdoor dining and safe social distancing by either closing Main Street or implementing all flex zones at no cost to businesses;</li><li>2. Amending the Bothell Municipal Code through an interim ordinance to allow restaurants to use private property/parking lots for outdoor dining;</li><li>3. Closing residential streets to support outdoor activities and safe social distancing.</li></ol>
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<b>DISCUSSION:</b>	<p>The COVID-19 outbreak began in Washington in early March and by mid-March the Governor began issuing orders to reduce the spread of this highly contagious virus. As with so many other states in America and nations around the world, the impacts of stay at home orders have been difficult on both businesses and individuals. This item provides the City Council with policy options that involve the City's infrastructure and private property that could aid in the community's recovery as King and Snohomish counties begin transitioning into the Governor's phases of reopening.</p>
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	<p>The first policy consideration is regarding the use of Main Street to allow outdoor dining and safe social distancing by either closing Main Street or implementing all flex zones at no cost to businesses beginning in early June through September 6 or coinciding with the beginning of school, whichever occurs first. Of the four restaurants on Main Street directly impacted by this decision, two expressed interest in expanding service to the flex zones and/or sidewalks.</p>
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To further support the downtown businesses, staff reached out to Recology to increase trash service in the downtown. The containers will now be emptied late on Fridays, early Monday mornings and Wednesdays, the maximum number of service pick-ups available in the current contract. The contract also provides for a maximum number of trash containers, which is 58. Currently Bothell has 50 containers being serviced by Recology. Staff plans to evaluate if use of Neighborhood Reduction Rewards funds, provided by Recology, can be used to purchase more containers and replace lids. These funds have historically been used for summer outreach programs, which will not be occurring this year.

**POLICY CONSIDERATION 1: Main Street**

*Main Street Option 1 – Flex Zones*

Main Street, between 101<sup>st</sup> and 102<sup>nd</sup> Avenues NE, was designed with Flex Zones, which are parking stalls that can be converted to usable space for dining and relaxing. The planters in between the parking stalls were designed for seating and enjoying the outdoors while still being protected by the bollards. Option 1 is to open all the flex spaces on this block of Main Street enabling businesses to expand into the open spaces to provide social distancing for customers. Permit applications would be required to ensure compliance with regulations. However, no flexible zone permit fees or monthly use charges would be imposed, which requires Council to temporarily waive the existing “flexible zone” permit fees and monthly charges contained in the 2020 fee resolution. The cost of this option is the loss of revenue of \$458 per Flex Zone or \$6,412 for the 14 unused Flex Zones in permit fees (which includes staff time to relocate the bollards) and the loss of \$14.40 per month per space in revenue that would normally be charged to businesses for use of the flex spaces. If all 16 Flex Zones are utilized for three summer months without charge, the total lost revenue is \$8,985.60.

*Main Street Option 2 - Closure*

Closing Main Street between 101st and 102nd Avenues NE would allow businesses to utilize the sidewalk and provide open space for pedestrians to walk and social distance. Ecology blocks would be installed as hard barricades at both ends of Main Street at 101st and 102nd. The estimated cost for time and materials to deploy the closure and restore the roadway at the end of the summer is \$7,200. Permit applications would be required to ensure compliance with regulations, which would typically cost \$128 per application. Transit agencies have been contacted and understand that if this option is selected, they would be required to re-route buses and move one bus stop each for two bus routes to accommodate the closure. If Council chooses to exercise the option of closing Main Street, it should be noted any entity desiring to host an event

utilizing public property would still be required to follow the special event permit process.

It should also be noted that staff researched the option of closing the Bothell Way Access Lanes where feasible. Staff estimates this closure option would cost approximately \$14,200 in time and materials, using water-filled barricades which are costlier than ecology blocks. Businesses impacted by these closures were contacted by staff and their response was either neutral, indicating they did not object but would not use the open space or negative stating the closure would negatively impact their business.

**POLICY CONSIDERATION 2: Outdoor Dining on Private Property**

The second policy consideration for the City Council is to direct staff to return with an interim ordinance that would allow restaurants to utilize private property for outdoor dining. Current Bothell Municipal Code regulations require a certain number of parking stalls based on the seating capacity of the dining area. Phases 2 and 3 of reopening reduce the seating capacity to 50% and 75% respectively, effectively reducing the parking need as well. Waiving parking regulations during the reopening phases would offer Bothell restaurants citywide the option of adding outdoor dining tables to comply with social distancing requirements. Health, safety and accessibility standards would still be required to be maintained. It is unknown how many restaurants would avail themselves of this option. Staff has been working on this ordinance change, most importantly on what the process would be if adopted by Council and can be prepared to bring this item back to the City Council on June 9 for consideration.

**POLICY CONSIDERATION 3: Residential Streets**

The third policy consideration for the City Council is to discuss the option of closing residential streets to provide social distancing venues for pedestrians and bicyclists. One public comment was received on this topic and the Mayor asked that the item be agendaized for Council discussion. If Council is interested in pursuing this option, staff would conduct the necessary research, identify potential residential streets, provide cost estimates, develop a neighborhood communication and feedback plan, and create a safety plan for Council consideration. It is anticipated based on current workload that staff could return to City Council by mid-July with this information.

**FISCAL  
IMPACTS:**

Costs depend upon Council direction and are provided in the Discussion section of this Agenda Bill.

**ATTACHMENTS:** | None

**RECOMMENDED ACTION:** | Provide direction to the City Manager to:

1. Either, close Main Street or implement flex zones between 101<sup>st</sup> and 102<sup>nd</sup> Avenues NE at no cost to businesses. To open all flex zones without cost to businesses, Council will need to pass a motion to waive the 2020 flexible zone permit fees and monthly charge;
2. Return on June 9 with an interim ordinance to amend the Bothell Municipal Code allowing restaurants to use private property/parking lots for outdoor dining;
3. Return by mid-July with information and cost estimates to close residential streets to support outdoor activities and safe social distancing.



## City of Bothell™

**City Council**  
**Agenda Bill**  
AB # 20-071

**TO:** Mayor Olsen and Members of the Bothell City Council

**FROM:** Jennifer Phillips, City Manager  
Jeanie Ashe, Economic Development Manager (Presenter)

**DATE:** June 2, 2020

**SUBJECT:** Consideration of the King County Council's Economic Development Relief Funds for Phase 2 Reopening Kits

**POLICY CONSIDERATION:** This item asks the City Council to consider providing support to small businesses preparing for Phase 2 reopening during the COVID-19 pandemic. Utilizing funds from King County Council's Economic Development Relief funds, the City of Bothell will distribute Phase 2 reopening kits to help minimize reopening costs to those businesses hardest hit by the global pandemic – restaurants, bars, salons, and gyms.

HISTORY:	DATE ACTION	
	DATE	ACTION
	<b>MARCH 23, 2020</b>	Governor Jay Inslee signed the "Stay Home, Stay Healthy" order, a proclamation that closed all businesses except for essential businesses.
	<b>MAY 12, 2020</b>	King County Council approved a \$60 million funding package for continued response to the COVID-19 pandemic. The adopted budget includes a \$3 million package of direct support to every city outside of Seattle for economic development purposes. King County Council acknowledged that cities know what is best for their communities, providing cities discretion for how to spend the gift of funds "to support economic development activities in response to the COVID-19 public health emergency." The City of Bothell's estimated allotment is \$45,267.00.

**DISCUSSION:** Restaurants, bars, retail, salons and gyms have been the hardest hit by COVID-19. Although the federal CARES Act has provided some relief to those businesses successful in securing a grant and loan, small businesses' revenue has been severely impacted. The restaurant industry in the Puget Sound region, for example, has seen a 67% decline in revenue.

Cities throughout the region are using general fund dollars or CDBG CARES grant dollars to assist their small businesses. Everett is one community that is using \$500,000 HUD CDBG funds for their Everett CARES grant program. As a city with a population of less than 50,000, Bothell does not qualify to receive direct distribution of CDBG funds. Additionally, the loss of sales tax revenue from bars, restaurant, and salons has severely impacted the City's general fund revenue. The ability to utilize the King County Council gift of approximately \$45,000 to provide assistance to small businesses as they prepare for Phase 2 reopening would have a meaningful impact.

Phase 2 reopening limits restaurants and taverns to less than 50% capacity, and all businesses must adhere to increased health precautions and cleaning regimens. These requirements add to small businesses' operating costs. City staff evaluated numerous options to support businesses, but many require businesses to expend funds and then be reimbursed. Staff is recommending Phase 2 reopening kits because it directly supports businesses reopening and does not require businesses to expend money. A Phase 2 reopening kit, purchased by the City and distributed to restaurants, bars, salons, and gyms, would help defray additional costs of reopening. Each kit would include:

- 2 wall-mounted hand sanitizer dispensers
- 2 gallons of hand sanitizer
- 40 reusable cloth masks
- 11" diameter floor decals promoting social distancing for businesses
- 11 x 17 printed "We Are Open" posters
- 5" x 6" "Bothell Strong" window cling

Each Phase 2 Reopening Kit has an approximate value of \$310. Utilizing the King County Council grant, the City can support 150 businesses with these kits.

**FISCAL**  
**IMPACTS:** One-time expenditures utilizing King County Council gift

**City Council**  
**Agenda Bill**  
AB # 20-071

**ATTACHMENTS:** | None

**RECOMMENDED ACTION:** | Provide direction to Staff regarding the expenditure of King County Council's 2020 Emergency Fund for Businesses Impacted by COVID-19.

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