City of Renton Plan Annex

Introduction

Brief History

Originally an important fishing area for Native Americans, Renton experienced a migration of people of European descent in the 1850s, leading to the displacement of the Duwamish people. As the influx of settlers continued, the early Renton economy developed around coal, timber and clay production from the surrounding hills. In 1911 a major flood provided the impetus for diverting the channel of the Cedar River to prevent future flooding in the city. The building of the Renton Boeing plant during World War II brought thousands to Renton for jobs. Renton is also home to several other major corporations and important regional government facilities.

Climate

The climate of Renton is moderate, with mild winters, averaging 154 precipitation days per year, and warm, dry summers. Annual temperatures range from 37 to 78 degrees, rarely going below 28 degrees or above 87 degrees. Annual rainfall is 38 inches. Monthly precipitation varies from 6 inches November through January to less than an inch in July and August. Average annual snowfall is 12 inches. Humidity varies between 44 percent and 95 percent in summer and winter, respectively. Winds are variable and prevail from the south/southeast at an average speed of 7 miles per hour, seldom exceeding 22 miles per hour.

City of Renton Profile

Date of Incorporation: 9/6/1901

Governance: Optional municipal code city governed by a Mayor/Council form of government

Population as of 4/1/2019: 104,700

Area: 24 square miles

Location and Description: Western Washington State, Central Puget Sound, south King County

Jurisdiction Point of Contact:

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Development Trends

Renton has a mix of land uses throughout the City. Industrial and commercial uses are located primarily in the Green River valley and downtown areas of Renton. The city center area includes mixed-use residential and commercial land, with both single and multi-family homes. Single family residences dominate the eastern and southeastern portions of the City, where most residential growth is still occurring. In addition, there are pockets of mixed-use commercial centers aimed at providing services for residents along the eastern edges of the City.

The Comprehensive Plan provides a vision for Renton's development 20 years into the future. 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. This infill has increased the number of residents living in the 500 year flood plain of the Cedar River.

Renton's language diversity continues to increase, which creates additional challenges in communicating risk to the population.

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City of Renton Risk Summary

Hazard Risk and Vulnerability Summary

HAZARD	RISK SUMMARY	VULNERABILITY SUMMARY	IMPACT SUMMARY
Avalanche	n/a	n/a	n/a
Dam Failure	There are two major dams on the Green River and Cedar River respectively, and numerous levees along both rivers. A failure of either a dam or a levee would cause severe flooding not seen since the two dams were built. A dam failure with a full-pool scenario will likely be much more severe than a typical flooding scenario.	Renton is near or at the end of the drainage basin for the Green River and the Cedar River. As a relatively low-lying area, it becomes the collector for floodwaters along those rivers. The Green River Valley is a thriving commercial and industrial area. The area around the Cedar River is primarily developed as residential. There are schools and several senior residential communities in the floodplain. There is great potential for loss of life for those not able to evacuate ahead of the flood waters.	In the Green River Valley hundreds of millions dollars of real property would be destroyed in in Renton, primarily businesses, causing them to permanently close their doors, with a loss of revenue for the city. A Chester Morse Dam failure on the Cedar River would destroy hundreds of millions dollars of mostly residential property, leaving many homeless.
Earthquake	The city is subject to a major earthquake generated by the Seattle Fault to the north, and the Cascadia Subduction Zone offshore to the west, which is capable of generating an earthquake in the 8.0-9.0 range. Additional minor faults may generate smaller earthquakes, and faults further away can still cause damage.	Much of the historic downtown area is comprised of unreinforced masonry (URM) buildings that are vulnerable to collapse and present a life safety hazard. Most of Renton's commercial development, including the historic downtown, is built on soils with high liquefaction risk. Many homes were built before seismic code was changed acknowledge the seismic risk of the area, which will lead to extensive damage of many structures.	The city was damaged in 1965 from the 6.7 Puget Sound quake, with severe damage to the Boeing plant. In 2001 the city was again damaged by the 6.8 Nisqually quake, primarily cracked masonry and collapsed chimneys, but with no deaths in Renton. More structures and residents are at risk today because of multifamily infill development in the liquefaction zone.
Flood	Much of Renton's commercial and institutional development is located within the floodplain of either the Green River or Cedar River, and a considerable amount of residential development within the Cedar River floodplain. 6.35% of the total land area of the city is within the	Renton is near or at the end of the drainage basin for the Green River and the Cedar River. As a relatively low-lying area, it becomes the collector for floodwaters along those rivers. The Green River Valley is a thriving commercial and industrial area. The annual risk of a catastrophic flood in that area is 1:140. The area around the Cedar River is primarily developed as residential. There are schools and several senior residential communities in the 100 year floodplain, as well as the city's	In the last two decades, the city has experienced repeated moderate flood events causing nearly $22 million in damages and response costs. As climate change and development has changed the floodplain, more structures are thought to be at risk to a similar event today.

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	Special Flood Hazard Area. The city has good floodplain management regulations and has limited development; however, there are many structures already present in the floodplain.	largest employer. The historic downtown area is located within the 500 year flood plain.	
Landslide/ Sinkholes/ Ground subsidence	Areas of steep slopes and high erosion hazard can be found throughout the city. As a former coal-mining town, many abandoned coal mines criss-cross the underground landscape. There is a high water table and some of the city's soil types are known to be prone to landslide or subsidence.	Some landslide prone areas had already been developed prior to institution of stricter regulations. The Maple Valley Highway has experienced repetitive landslide issues that have forced its closure at times. Smaller landslides occur more regularly in other areas of the city. Sinkholes in roadways and pipeline right-of-ways have occurred within the past five years compromising public safety.	Climate change predictions include shifting rainfall patterns to include greater bursts in short periods, increasing the landslide risk over time. As soils continue to settle, there will likely be an increase in the frequency of sinkhole formation and coal mine collapse, which can be related.
Severe Weather	Tornados are rare in this region, but the city is prone to damaging high winds during seasonal storms. Trees frequently fall during such storms. Some neighborhoods are built entirely within large stands of tall trees. Lightning storms create additional risk of fire. High summer temperatures cause health problems for those without air-conditioning, and drought is a potential consequence.	The majority of power lines in Renton are overhead rather than underground. Wind damage often results in power outages and road closures due to falling trees. Due to the usually mild summers, many homes in Renton do not have air-conditioning, increasing health risks for vulnerable individuals. Many also do not have basements in which to take refuge from a rare tornado event.	Over time, the increasing average annual temperature will create additional health risks due to extreme heat, and generate an increase in thunderstorm activity with lightning/wildfire risk and localized high winds, including tornado potential. The risk of drought could impact the city's water supply which is 98% dependent upon groundwater sources (wells and springs). Seattle Public Utilities provides approximately 2% of the city's water supply. The City's Water Utility supplies water to73% of the total city area. The remaining 27% of the area within the City is served by adjacent water districts (Soos Creek Water and Sewer District, Water District #90 and others).

Severe Winter Weather	The local Renton climate produces a significant snowfall or ice event every few years. Freezing temperatures are not uncommon for several days in the winter, although prolonged hard freezes in the 20's or below are rare.	The majority of power lines in Renton are overhead rather than underground. Snow and ice damage often results in power outages and blocked roads from fallen trees. Hazardous driving conditions cause accidents. Businesses suffer economic losses. People can be housebound for days, compromising the ability to get food, pharmaceuticals, and medical care. Freezing temperatures can result in broken pipes to residents and businesses, which interrupts sprinkler fire protection systems for some buildings. In a significant snow or ice event, roof collapse can become a risk. For the homeless populations, life safety is at stake if they cannot take shelter during cold weather.	Severe winter weather will continue to recur, causing transportation disruption, personal injury, economic injury, and property damage.
Tsunami	n/a	n/a	n/a
Volcano	Although the city is outside of a direct lahar flow from any volcano, secondary flooding on the Green River could be the result of a Mt. Rainier eruption. Rainier, and potentially other area volcanoes, depending on wind direction, can generate ashfall that significantly impacts the City of Renton.	Ashfall causes premature wear and failure of automobile engines and electronics. It disrupts air travel, shorts out electricity on power lines causing widespread power outages, clogs gutters and causes property damage, accumulates on flat roofs creating roof collapse risk, creates slippery road surfaces resulting in traffic accidents, and triggers significant health issues in vulnerable individuals.	The risk of an ashfall event from the nearest volcano, Mt. Rainier, remains constant over time. The power outages, damage to homes and businesses, compromised automobiles and electronics, and health risks to some residents would have a significant impact on the city.
Wildfire	Power lines, railroad cars, structure fires, lightning, and human behavior can start fires anywhere. Parts of the City of Renton are heavily treed or covered in brush, and some are in the Wildland/Urban Interface putting residents and businesses there even more at risk.	Some areas of Renton have poor evacuation options and limited access for fire apparatus. A wind-driven structure fire like the Regency Woods apartment fire of 2004 can rapidly engulf neighboring homes, trapping residents in areas without sufficient road capacity to handle an evacuation, and threatening critical electrical infrastructure.	As climate change generates higher average temperatures annually and increased drought risk, the fire danger for Western Washington is increasing. Climatologist predict that eventually Western Washington fire risk will equal that of Eastern Washington.

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Hazard and Asset Overview Maps

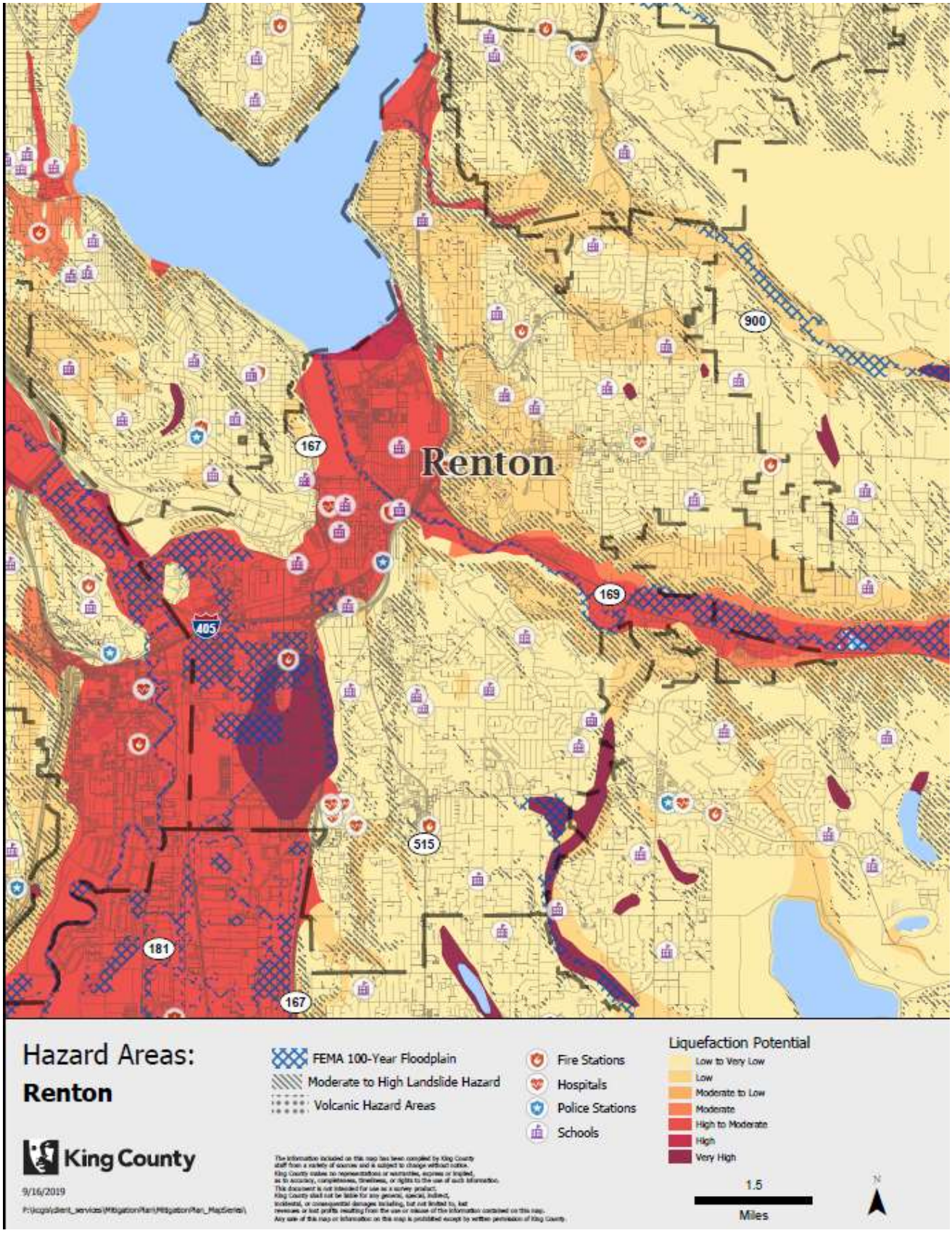

Figure 1: Composite hazard map of Renton.

Sensitive Areas - Liquefaction Susceptibility

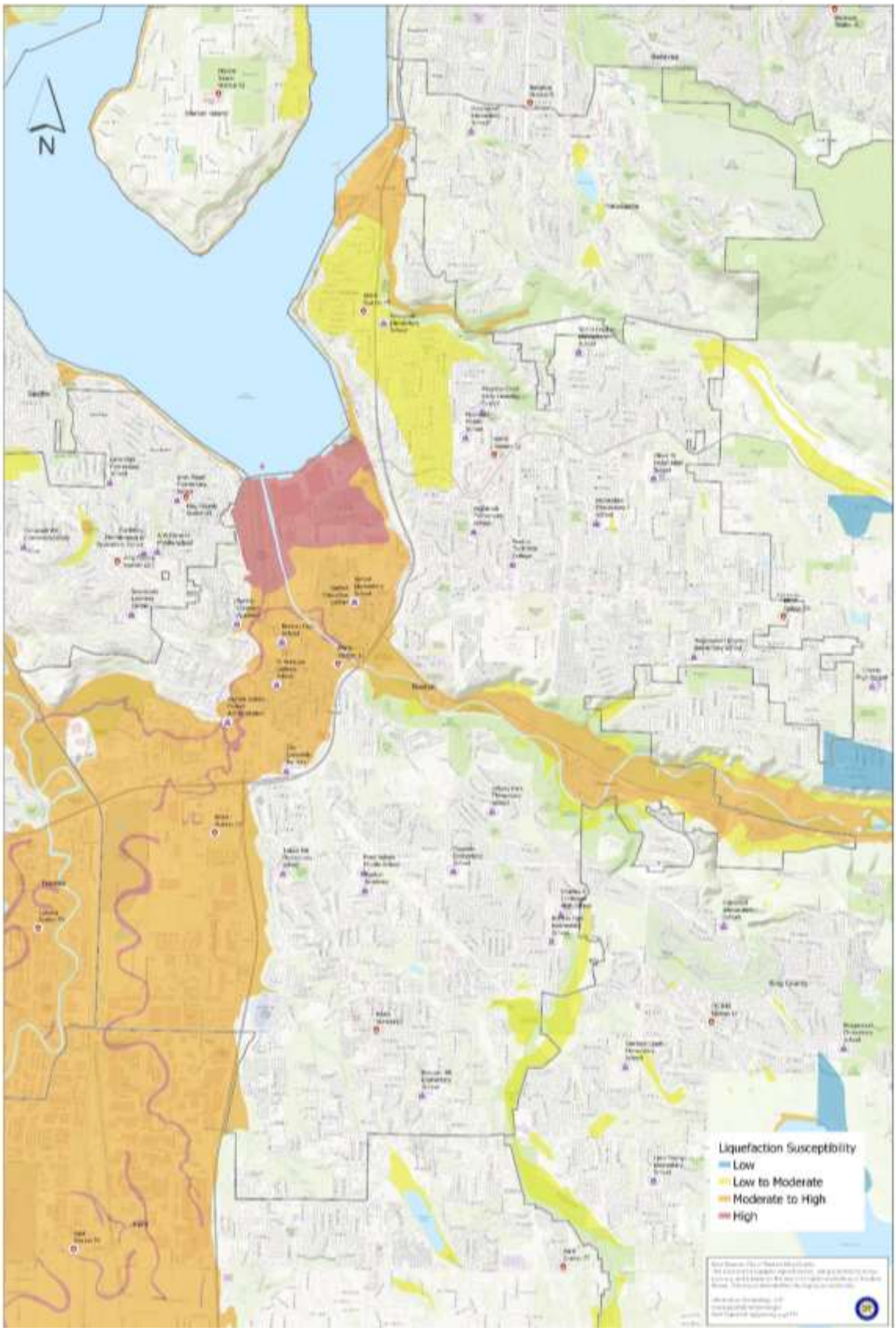

Figure 2: Earthquake liquefaction susceptibility.

Sensitive Areas - Flood Hazard

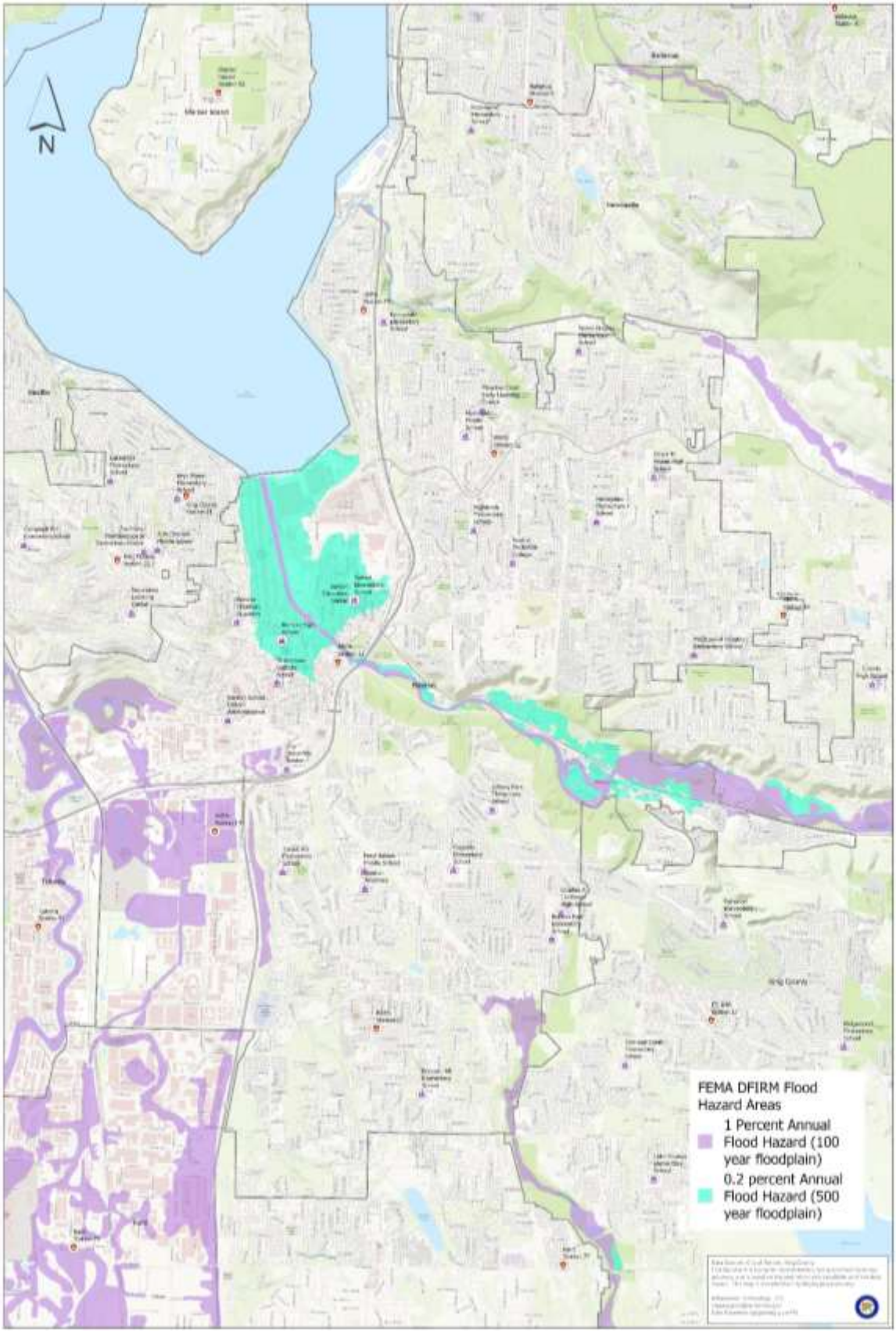

Figure 3: Flood hazard areas in the mapped floodplains.

Sensitive Areas - Landslide Hazard

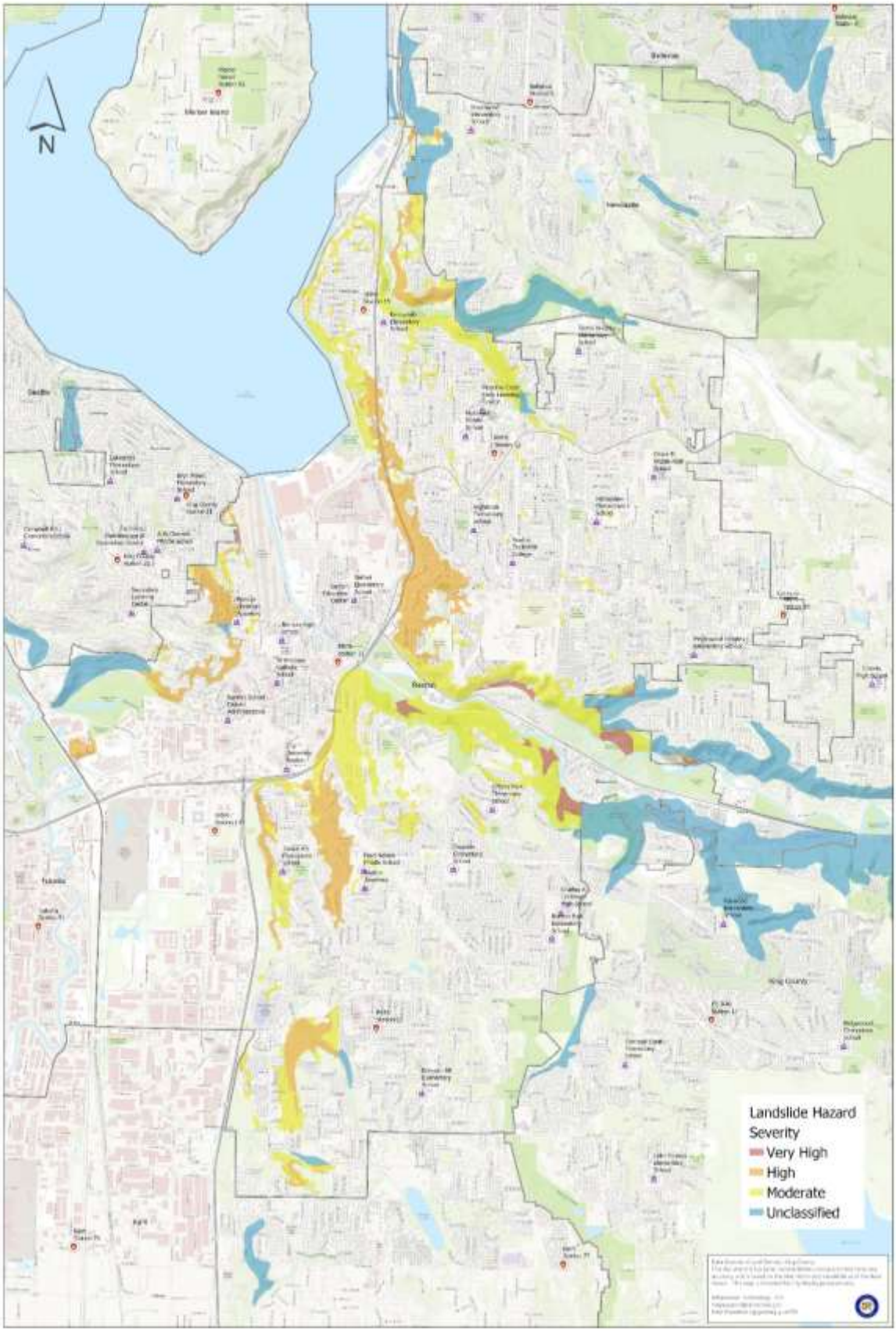

Figure 4: Known landslide hazard areas.

Sensitive Areas - Coal Mine Hazard

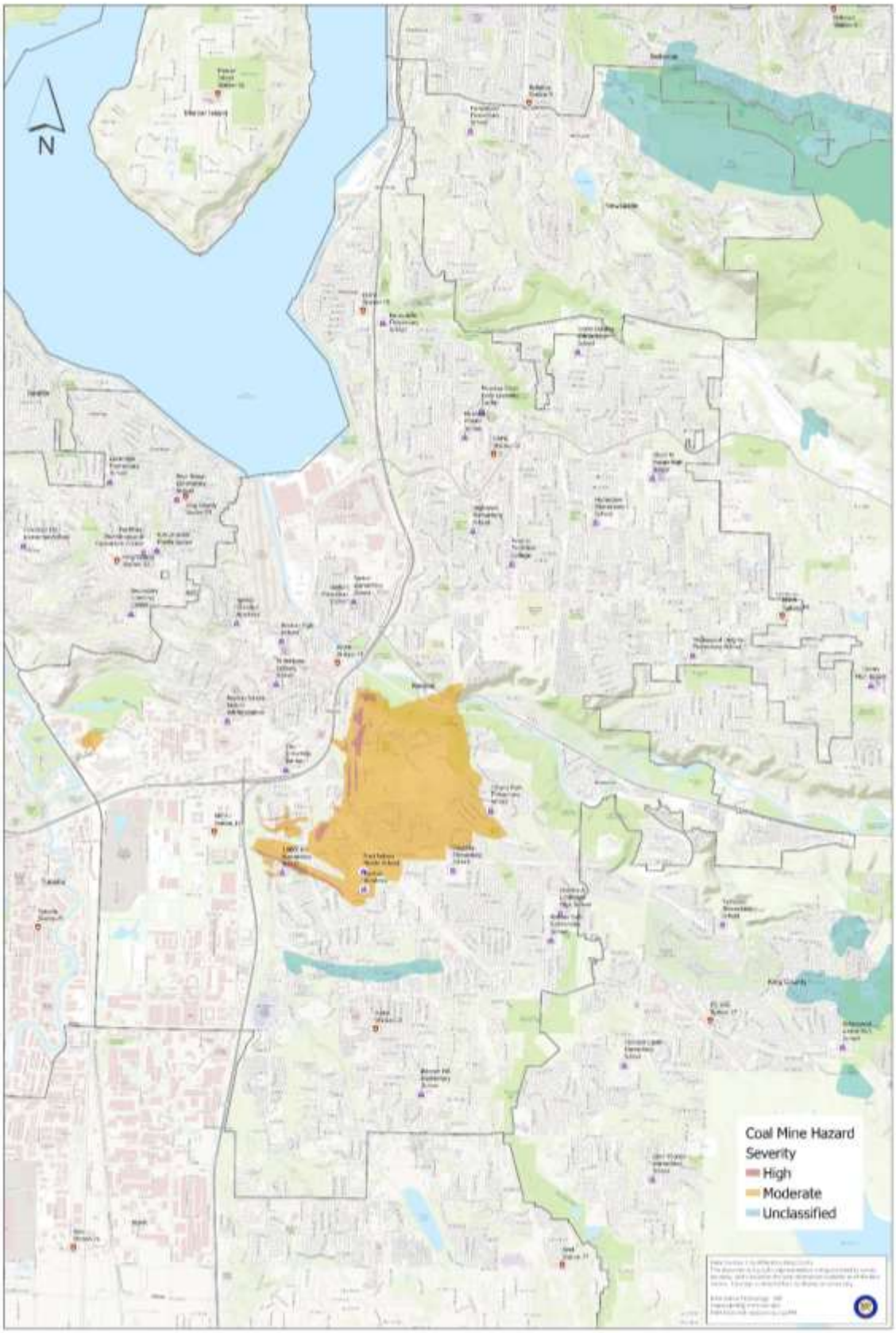

Figure 5: Known coal mine hazard areas.

Plan Update Process

To convene the planning team, the city expanded the existing Emergency Management Group's membership, which has representation from each department and the Renton Regional Fire Authority. The invitation included neighboring water utilities and additional stakeholders and subject matter experts who could contribute to the plan.

The planning process began with some staff attending the King County Hazard Mitigation Plan kickoff meeting and workshops. The planning team met twice in joint work sessions to review assets and infrastructure, to determine threats and assess risk, and to identify mitigation solutions to reduce those risks. Planning team members then worked outside of the group session to develop the mitigation strategies that are included in this plan revision.

Jurisdiction Planning Team

NAME	TITLE	ORGANIZATION	CONTRIBUTION
Deborah Needham	Emergency Management Director	City of Renton	Strategy discussions, worksheets, share information, plan review
Jillian Edge	Emergency Management Coordinator	City of Renton	Strategy discussions, worksheets, share information, plan review
Amy Shaffer	Court Services Supervisor	City of Renton	Strategy discussions, worksheets, share information, plan review
Al Findlay	Building Plan Reviewer	City of Renton	Strategy discussions, worksheets, share information, plan review
Dave Neubert	Communications Manager	City of Renton	Strategy discussions, worksheets, share information, plan review
Krista Kolaz	Risk Management Analyst	City of Renton	Strategy discussions, worksheets, share information, plan review
Mehdi Sadri	IT Director	City of Renton	Strategy discussions, worksheets, share information, plan review
Jennifer Henning	Planning Director	City of Renton	Strategy discussions, worksheets, share information, plan review
Katie Nolan	Civil Engineer III	City of Renton	Strategy discussions, worksheets, share information, plan review
Ron Straka	Utility Systems Director	City of Renton	Strategy discussions, worksheets, share information, plan review
Jason Anderson	Assistant Airport Manager	City of Renton	Strategy discussions, worksheets, share information, plan review
Harry Barrett	Airport Manager	City of Renton	Strategy discussions, worksheets, share information, plan review
Will Adams	Civil Engineer II	City of Renton	Strategy discussions, worksheets, share information, plan review
Robert Homan	Battalion Chief	Renton Regional Fire Authority	Strategy discussions, worksheets, share information, plan review
Eric Cutshall	Transportation Maintenance Manager	City of Renton	Strategy discussions, worksheets, share information, plan review
Cailin Hunsaker	Parks & Trails Director	City of Renton	Strategy discussions, worksheets, share information, plan review
Alex Tuttle	Assistant City Attorney	City of Renton	Strategy discussions, worksheets, share information, plan review
Tim Moore	GIS Manager	City of Renton	Strategy discussions, worksheets, share information, plan review

Vangie Garcia	Transportation Planning Manager	City of Renton	Strategy discussions, worksheets, share information, plan review
Maryjane Van Cleave	Recreation & Neighborhoods Director	City of Renton	Strategy discussions, worksheets, share information, plan review
George Stahl	Water Maintenance Manager	City of Renton	Strategy discussions, worksheets, share information, plan review
Patrick Zellner	Street Maintenance Manager	City of Renton	Strategy discussions, worksheets, share information, plan review
Richard Marshall	Surface Water/Waste Water Manager	City of Renton	Strategy discussions, worksheets, share information, plan review
Tim Moore	GIS Manager	City of Renton	Mapping support for strategy discussion
Kelsey Ternes	Risk Manager	City of Renton	Strategy discussions, worksheets, share information, plan review
Gary Del Rosario	GIS Analyst II	City of Renton	Map production for open house and plan
Dan Gravelle	Water/Sewer Technician	Coal Creek Utility District	Participate in strategy discussions
Steve Moye	Water/Sewer Technician	Coal Creek Utility District	Participate in strategy discussions
Darcy Peterson	General Manager	King County Water District 90	Participate in strategy discussions

Plan Update Timeline

PLANNING ACTIVITY	DATE	SUMMARY	ATTENDEES
Hazard Mitigation Risk Assessments	12/13/2018	Joint development of risk assessments	Renton and neighbors/partners: Auburn, Bellevue, Coal Creek Utility District, Kent, KC Water District 90, King County, Newcastle, Puget Sound Fire, Renton School District, Soos Creek Water and Sewer District, Tukwila, Valley Medical Center, and others in the region
Hazard Mitigation Annex Kickoff	4/17/2019	Orientation to planning process and partner expectations	Renton and neighbors/partners: King County, Skyway Water and Sewer, and others in the region
Hazard Mitigation Planning Support Meeting	6/10/2019	Guidance on plan development, organization, and narratives	Renton and neighbors/partners: Auburn, Bellevue, King County, Skyway Water and Sewer, and others in the region
Hazard Mitigation Strategy Workshop	7/25/2019	Guidance on development of strategy worksheets	Renton and neighbors/partners: Auburn, Bellevue, Coal Creek Utility District, FEMA, KC Water District 90, King County, Puget Sound Fire, Renton School District, Tukwila, WA Dept. of Ecology, WA Dept. of Natural Resources, WA State Emergency Management, and others in the region
City of Renton Hazard Mitigation Planning Group Workshop	8/1/2019	Risk assessment, hazard identification and introduction of strategy worksheets	City of Renton Hazard Mitigation Planning Group

City of Renton Hazard Mitigation Planning Group Meeting	9/5/2019	Strategy worksheet development and prioritization	City of Renton Hazard Mitigation Planning Group
Breakout sessions of City of Renton Hazard Mitigation Planning Group as needed	9/6/2019-9/27/2019	Reference and integrate with other plans, data collection related to floodplain administration questions, review and updates to past mitigation strategies	Select City of Renton Hazard Mitigation Planning Group members
City of Renton Hazard Mitigation Planning Group Meeting	10/3/2019	Review compiled draft plan, prioritize citywide projects, identify gaps	City of Renton Hazard Mitigation Planning Group

Public Outreach

Public Outreach Events

EVENT	DATE	SUMMARY	ATTENDEES
Announcement at televised City Council meeting for public education campaign	8/19/2019	EM Director made a televised speech before Council that focused the annual Ready in Renton campaign on mitigation measures for the public and announced the date of the Hazard Mitigation Plan Open house and the coming direct mailer to every household in Renton.	All City Council members, the Mayor, approximately 20 anonymous/non-registered public attendees at the Council meeting, an unknown number of members of the Channel 21 television audience, and 34 web site visitors to the Council video archive.
Special web page and online survey published	8/29/2019	Published a new informational web page on mitigation and the mitigation plan revision. Published a survey to gather resident/business input for the plan revision. Solicited input from the public on hazard mitigation.	154 anonymous web page visitors and 16 survey completions between 8/29/19 and 9/29/2019.
Direct mailer to every address in Renton and/or inclusion in the electronic utility bill mailer	8/30/2019	Published an article about mitigation and the upcoming plan revision within Renton City News and direct-mailed or emailed to every utility customer in Renton, directing people to the new web page and survey.	Approximately 28,400 paper or email newsletters mailed out to Renton residents and business.
Social media posts about hazard mitigation plan update and open house	9/5/2019	Published an announcement and invitation for input to the plan revision on Facebook and Twitter.	Received 7,075 post impressions and interactions combined.

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Information table and activity at Multicultural Festival	9/14/2019	Staffed a table at a public event and solicited	An estimated 1500 members of the public attended the festival. Participants who interacted at the information table indicated which hazards concerned them most by a dot voting exercise.
Email announcement of open house and hazard mitigation plan update	9/17/2019	Emailed Open House and Hazard Mitigation Plan announcement with the Byte of Renton newsletter	Sent to 20,940 subscribers.
Hazard Mitigation Plan Open House	9/19/2019	Held a two hour open house for the public with subject matter experts, maps, and draft plan materials for comment and review.	6 Renton residents and 3 nonresidents (including staff) attended the open house. Participants indicated which hazards concerned them most by a dot voting exercise.
Web page updated with information and draft plan ready for submittal to King County	11/5/2019	Continued solicitation of comments and feedback from the public via email.	No web hits data available at time of draft plan submission.

Public Priorities for Hazard Mitigation

Information collected from public input meetings, open houses, and online comments indicate that the top two hazards of greatest concern to residents of Renton are earthquakes and landslides/sinkholes/ground subsidence. High public awareness of earthquake risk can be attributed to regional education efforts and the 2001 Nisqually earthquake which highlighted the region's earthquake risk. The SR530 mudslide, often called the Oso landslide, in 2014, followed by several recent minor landslides and sinkholes in Renton, has likely added to local concerns about those geologic risks.

The detailed ranking of concern compiled from the online survey and public input meetings is as follows:

1) earthquake
2) landslides, sinkholes, and ground subsidence
3) severe storms (including high winds)
4) winter storms
5) floods
6) wildfires
7) volcano
8) dam failure
9) other hazards not mentioned in this plan

Other hazards of concern mentioned by members of the public include transportation emergencies (plane, truck, or train crashes), explosions and hazardous materials releases (including gas line ruptures), and long term power outages. Although this revision of the Hazard Mitigation Plan focuses exclusively on natural hazards, future revisions will address technological or human-caused hazards such as these. Other issues outside of the scope of this plan (crime, traffic problems) were brought up in the public comments, but are outside of the scope of a Hazard Mitigation Plan and have been referred to the Police Department to address.

City of Renton Hazard Mitigation Program

Hazard mitigation strategies were developed through a two-step process. The City of Renton met with an internal planning team, an expansion of the existing Emergency Management Group that meets monthly in the city, 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.

Each department or agency that has submitted a strategy plan will continue to work towards progress on that strategy. This includes advocacy for budget allocations, workload assignments, and grant applications that support accomplishment of those strategies.

King County Overall 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

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 a participant in the 2020 update to the Regional Hazard Mitigation Plan, the City of Renton 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. This will be a breakout session of members of the city's Emergency Management Group that will convene in July, August and/or September to conduct this review.

When King County Emergency Management sends federal notices of funding opportunity for the Hazard Mitigation Assistance Grant Program, the city will evaluate the viability of projects eligible for such grants, and will submit grant applications if appropriate to align with the priorities of the Hazard Mitigation Plan. This will be a key strategy to implement the plan.

The next plan update is expected to be due in April 2025. The City of Renton will submit a letter 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.

Continued Public Participation

The City of Renton 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 Renton 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.

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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
Comprehensive Plan	City of Renton Community and Economic Development Department	Community & Economic Development Administrator Planning Director	Includes policies applicable to sensitive areas and principles for future development
Comprehensive Emergency Management Plan	City of Renton Office of Emergency Management	Emergency Management Director	Comprehensive Emergency Management Plans currently include mitigation approaches with roles/ responsibilities of city departments and community partners
Capital Facilities Plan	City of Renton Community Services Department Administrative Services Department Public Works Department	Community Services Administrator Administrative Services Administrator Public Works Administrator	Identifies critical facilities and major improvement or construction projects that need to consider hazards/vulnerabilities, and appropriate mitigation measures

Programs, Policies, and Processes

PROGRAM/POLICY	RESPONSIBLE AGENCY	POINT OF CONTACT	RELATIONSHIP TO HAZARD MITIGATION PLAN
Building Codes	City of Renton Community and Economic Development Department	City of Renton Building Official	Building code development depends on the same understanding of hazards
Emergency Management Program	City of Renton Executive Department/Emergency Management Division	Emergency Management Director	Tracking of disaster impacts, new or changing hazards, public engagement around mitigation.
Critical Areas Ordinance	Community and Economic Development	Community & Economic Development Administrator Planning Director	Regulates development in sensitive areas
Fire Code	Renton Regional Fire Authority	Fire Marshall	Fire code development depends on the same understanding of hazards

Entities Responsible for Hazard Mitigation

AGENCY/ORGANIZATION	POINT OF CONTACT	RESPONSIBILITY(S)
Community and Economic Development Department	Community and Economic Development Administrator Planning Director	Policy and planning input to decrease community vulnerability over time, and react to emergencies.
Community Services Department	Community Services Administrator	Mitigating damage to city facilities and natural resources
Executive Department, Emergency Management Division	Emergency Management Director	Public education and engagement, planning process oversight
Public Works	Public Works Administrator	Critical infrastructure mitigation (roads, bridges, utilities, etc.), flood plain management, hazard emergency response and recovery.
Renton Regional Fire Authority	Fire Chief	Wildfire mitigation, public education and engagement, fire code development and enforcement

National Flood Insurance Program

The City of Renton is a member and actively participates in the National Flood Insurance Program, which makes flood insurance available to Renton property owners. The City oversees compliance with the National Flood Insurance Program requirements for new construction and provides information to property owners in Special Flood Hazard Areas regarding flood insurance requirements.

National Flood Insurance Program Compliance

What department is responsible for floodplain management in your community?	Shared responsibility and partnership between the Community and Economic Development Department and the Public Works Department.
Who is your community's floodplain administrator? (title/position)	Community and Economic Development Department Administrator
What is the date of adoption of your flood damage prevention ordinance?	May 8, 1981 (Ordinance 3537), last update on July 5, 2015 Ord. 5757.
When was the most recent Community Assistance Visit or Community Assistance Contact?	June 17, 2019, Matt Gerlach, Regional NFIP Coordinator and Dave Radabaugh, Washington State Department of Ecology Shorelands and Environmental Assistance Program
Does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are?	No outstanding NFIP compliance violations.
Do your flood hazard maps adequately address the flood risk within your community? If so, please state why.	Once the new King County DFIRM following the letter of final determination from FEMA, the flood hazard maps will adequately address flood risks in Renton except for in the portion of the Green River floodplain in Renton. The Green River floodplain is identified as a seclusion area in the DFIRM that still utilizes the old FEMA Flood Insurance Rate Maps until and an updated Flood Insurance Study and map is completed.

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?	Yes, overview of NFIP current requirements for new and existing employees. Training on the information needed and how to complete the updated Building Elevation Certificate and training needed for becoming a certified floodplain manager.
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?	Yes. CRS Classification 5. The City of Renton is seeking to maintain this rating and possibly improve our rating as part of the next CRS verification review.
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?	n/a

Hazard Mitigation Strategies

The city has made notable progress in mitigation projects over the past five years. Major accomplishments include completion of a major dredging project on the Cedar River to prevent flooding, funding of and participation in the 2015-2016 LiDAR study to better identify landslide-prone areas, securing of funding for the design, permitting and construction of improvements to the levees and floodwalls needed for certification, obtaining a grant to reduce flood hazards associated with Madsen Creek, and seismic retrofitting and repainting of three downtown area bridges funded by three separate grants.

In the reformatting of this plan, several strategies have been reevaluated, and some have been deprecated. Others have been converted into the new format of strategies. Those changes have been indicated in the tables below.

2015 Hazard Mitigation Strategy Status

Strategy	Description	Priority	Status
RN #1	Maintain good standing under NFIP	Medium	Maintained. Dropping as a specific strategy as compliance is institutionalized, and embedded in multiple new flood-related strategies
RN#2	Pursue funding for mitigation	High	Have applied for multiple mitigation grants. Dropping and rolling into new strategy combined with RN#3, converting to "Funding/Partnership Mitigation Strategy"
RN#3	Public/private partnerships	Low	Dropping and rolling into new strategy combined with RN #2, "Funding Partnership Strategies", also incorporate into "Water System Risk Assessment"
RN#4	Detailed inventories of seismically at-risk buildings/infrastructure	Low	Dropping as a specific strategy. Data exists but no staff assigned to compile it further for buildings. Infrastructure component has been converted to "Water System Risk Assessment"
RN#5	Integrate with planning and regulatory documents	Medium	Has been institutionalized as a standard practice. Dropping as a specific strategy.

RN#6	Enforce Critical Area and Shoreline Master Program regulations	Medium	Has been institutionalized as a standard practice. Dropping as a specific strategy.
RN#7	Dredging, maintenance of floodwalls and levees	High	Converting to "Cedar River Gravel Removal Project", "Cedar River Section 205 Flood Hazard Reduction Project – Operation and Maintenance", and "Cedar River Section 205 Levee Certification Project"
RN#8	Surface Water Utility programs for flood hazard management	High	Converting to "Cedar River Gravel Removal Project", "Cedar River Section 205 Flood Hazard Reduction Project – Operation and Maintenance", and "Cedar River Section 205 Levee Certification Project"
RN#9	Member of FEMA Community Rating System, seeking to improve	Medium	Increased to CRS Classification 5. Dropping this formal strategy, as maintaining this classification and seeking to improve it is institutionalized.
RN#10	Re-evaluate future land use in floodplain	Medium	Dropping, as this is now standard practice
RN#11	Underground power for new developments	Medium	Dropping, as this is now required in code
RN#12	Seismic evaluation and prioritization of city owned buildings/ infrastructure	Medium	Specific strategies will be developed to replace this. Currently focusing on new strategy, "Airport Earthquake and Seismic Mitigation"
RN#13	FEMA information distribution on seismic retrofit	Low	Dropping, as this information is always available to customers
RN#14	Funding for seismic retrofit	High	Converting to current focus, "Airport Earthquake and Seismic Mitigation"
RN#15	Support county-wide mitigation initiatives	Medium	Converting/rolling together with #16 into "Regional Planning Mitigation Strategy"
RN#16	Plan maintenance	Medium	Converting/rolling together with #15 into "Regional Planning Mitigation Strategy"

The following strategies emerged as the best mitigation focus for the City of Renton over the next five years, with some projects, such as the Cedar River Gravel Removal Project, in a monitoring status to determine longer range mitigation needs 10 years out or more.

2020 Hazard Mitigation Strategies

STRATEGY	LEAD AGENCY/POC	TIMELINE	PRIORITY
Airport Earthquake and Seismic Mitigation	Renton Public Works/Airport Manager	2020-2022	High
Cedar River Section 205 Flood Hazard Reduction Project – Operation and Maintenance	Renton Public Works/ Surface Water Engineering Manager	Ongoing	Medium
Cedar River Gravel Removal Project	Renton Public Works/ Surface Water Engineering Manager	2031-2037	Medium
Cedar River Section 205 Levee Certification Project	Renton Public Works/ Surface Water Engineering Manager	2025	Medium

Coal Mine Study Mitigation Strategy	Renton Community and Economic Development/Planning Director and Building Plan Reviewer	2020	Low
Funding/Partnership Mitigation Strategy	Renton Emergency Management/Emergency Management Director	2022	Low
Lower Cedar River Flood Risk Reduction Feasibility Study	Renton Public Works/ Surface Water Engineering Manager	2025	Medium
Maintenance Facility Standby Emergency Power	Community Services Department Facilities Director	2025	High
Regional Planning Mitigation Strategy	Renton Emergency Management/Emergency Management Director	2025	Medium
Utility Pumping Facilities Back-Up Power	Renton Public Works/ Maintenance Services Director and Utility Systems Director	2022	High
Volcanic Ash & Wildfire Smoke Mitigation Strategy	Renton Emergency Management/Emergency Management Director	2021	Low
Water System Risk Assessment	Renton Public Works/ Water Utility Engineering Manager and Water Maintenance Manager	2022-2025	Medium
Water Utility Seismic Resilience	Renton Public Works/ Water Utility Engineering Manager and Water Maintenance Manager	2022-2025	High

Future Hazard Mitigation Plan Revisions

The City of Renton participated in a King County Tree Canopy Assessment at the end of 2018. The City of Renton is analyzing this data for areas that fall within the City of Renton's boundaries. This data will be incorporated into a Wildfire Fuels Map that will be included in the next major revision of the plan. It will help identify those areas within the city most at risk from a Wildland/Urban Interface wildfire.

Information is being gathered for non-natural hazards that were not included in the 2019-2020 revision of this plan. Future revisions of this plan will address cybersecurity threats to infrastructure as well as hazardous materials release or explosion threats from several sources.

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Airport Earthquake and Seismic Mitigation

Lead POC	Partner Points of Contact	Hazards Mitigated / Goals Addressed	Funding Sources / Estimated Costs
Jason Anderson, Asst. Airport Manager Harry Barrett Airport Manager William Adams Airport Engineer	• FAA • FEMA	Hazards: Earthquake; Landslide/Sinkhole • Safe operation of Air Traffic Control Tower and Seaplane Base (Critical Infrastructure) • Uninterrupted Transportation of goods/supplies • Economic Development Goals: 4, 6, 8	$1.8M Retrofit cost $650,000 City Cost FEMA Grants FAA AIP, CIP, Small Airports Program

Strategy Vision/Objective

Mitigate the seismic impact of the Air Traffic Control Tower in future events and repair current damage from the past 1994 event(s). The Tower in not currently rated for either Collapse Prevention, Life Safety or Immediate Occupancy in case of a seismic event. Generally, an Immediate Occupancy performance level is assigned to a building that is deemed an essential facility and is required to be functional shortly after the design-level earthquake. The 2012 International Building Code (IBC) classifies aviation control towers and air traffic control centers as essential facilities.

Mitigation Strategy

The Renton Municipal Airport's Air Traffic Control Tower, built in the 1960's, does not meet current structural code. Recent engineering studies have identified the following deficiencies; excessive horizontal drift ratios, inadequate beam connections to the weak axes of columns, inadequate panel zone shear capacities, lack of beam bottom flange bracing, impacts of site liquefaction, lack of connection between the timber piles and the concrete pile caps to resist uplift forces due to an earthquake, which is of particular concern for a building with the height-to-base width aspect ratio of a control tower. To remedy the tower to an ASCE 41-13, Retrofit Standard BSE-2E, Tier III, Risk III, "Limited Safety Structural Performance, Non-Structural Performance not considered" (Life Safety) rating, an exoskeleton and bracing will be fitted. As per the last official notice Wiley Post Seaplane Base is considered a strategic asset according to the Puget Sound Transportations Recovery Annex. Recent survey has identified the Seaplane Ramp is settling and developed significant cracking due to a developed void underneath, the Airport needs to rebuild/reinforce ramp. Multiple Conduits and water mains are routed under the runway. Reinforcing this infrastructure to resist seismic activity would prevent loss of air traffic control communication capabilities and hydraulic mining under the runway surface.

2-Year Objectives	5-Year Objectives	Long-Term Objectives
• Apply for funding through FEMA (PDM) • Complete retrofit of Tower Mitigation Project • Apply for FAA Funding, Master Plan	• Evaluate remaining life and determine appropriateness of complete replacement. • Conduct siting study for new tower • Relocate/fix Seaplane Base • Reinforce communication conduit	• Maintain Air Traffic Control Tower to a Critical Infrastructure Standard, Non-Structural to be considered

Implementation Plan/Actions

- Combine FEMA grants (PDM) and Airport funds to the Airport Tower Mitigation Project
- Plan for future siting and building of new tower

Performance Measures

- Successfully eliminate the structural seismic concern at the airport by retrofitting and/or building a new facility

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Cedar River Section 205 Flood Hazard Reduction Project – Operation and Maintenance

Lead POC	Partner Points of Contact	Hazards Mitigated / Goals Addressed	Funding Sources / Estimated Costs
City of Renton Surface Water Engineering Manager	• King County Flood Alerts • Renton Municipal Airport • Boeing	Hazards: Dam Failure, Flood • Reduce the risk of levee failure • Maintain federal sponsorship of the Cedar River Section 205 Levees and eligibility for flood response assistance under PL84-99 • Maintaining the level of protection of the Cedar River Section 205 Levees to, at minimum, the 100-year flow Goals: 4, 6, 8	$ Cost is dependent on specific maintenance needs • Surface Water Capital Improvement Program • Surface Water Maintenance Fund • Federal disaster funding through the Army Corps of Engineers • King County Flood Control District

Strategy Vision/Objective

Following the construction of the Section 205 Levees along the Cedar from Williams Ave N to Lake Washington, in cooperation with the US Army Corps of Engineers (USACE), obligations for operation and maintenance were transferred to the City of Renton in accordance with the Operation and Maintenance Manual (O&MM). Additionally, the USACE conducts routine annual and 5-year periodic inspections of the Levees in order to determine maintenance needs and rate their acceptability and eligibility for flood response assistance. The objective of this program is to operate and maintain the levees in accordance with the O&MM and maintain a minimally acceptable rating following each USACE levee inspection.

Mitigation Strategy

- Maintain close cooperation with the USACE and Boeing
- Adhere to the inspections, flood stage procedures, bridge operation, closure operation, and maintenance requirements of the OM&M
- Secure funding for routine repair projects

2-Year Objectives	5-Year Objectives	Long-Term Objectives
• Same as long-term objectives	• Same as long-term objectives	• Prevent levee failure due to lack of maintenance or improper operation. • Maintain eligibility for federal flood response assistance

Implementation Plan/Actions

- Monitor flows on the Cedar River during major regional storm events
- Initiate levee repair or vegetation management projects in a timely manner following the determination of a deficiency
- Conduct levee inspections with the USACE and as required by the O&MM

Performance Measures

- Obtain a minimally acceptable rating from the USACE on an annual basis
- Operate and maintain the Section 205 Levees in accordance with the O&MM

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Cedar River Gravel Removal Project

Lead POC	Partner Points of Contact	Hazards Mitigated / Goals Addressed	Funding Sources / Estimated Costs
City of Renton Surface Water Engineering Manager	• King County Flood Control Zone District • Renton Municipal Airport • Boeing	Hazards: Flood • Reducing the risk of flooding during the 100-year flow along Section 205 of the Cedar River • Maintaining the level of protection of the Cedar River Section 205 Levees to, at minimum, the 100-year flow Goals: 4, 6, 8	$ 10.5 Million • Surface Water Capital Improvement Program • King County Flood Control Zone District Capital Improvement Program

Strategy Vision/Objective

Section 205 of the Cedar River requires periodic maintenance dredging due to continuous sediment accumulation which gradually reduces the conveyance capacity of the river, and level of flood protection offered by the Section 205 levees from Williams Ave S to Lake Washington. The objective of this project is to periodically (every 12-18 years) dredge the Cedar River bed to reduce the risk of flooding and protect adjacent properties.

Mitigation Strategy

The City of Renton monitors sediment accumulation on a yearly basis by performing cross section surveys along the lower 2 miles of the river. When the river bed reaches or significantly approaches the "warning elevation", defined as 1.5 ft below the "maximum bed elevation", the City initiates the design and permitting efforts of a maintenance dredging project. The "maximum bed elevation" is the river bed elevation above which the levees in Section 205 can no longer provide 2 feet of freeboard during the 100-year flood. Typically, a maintenance dredging project also includes bank stabilization and outfall repairs needed to maintain the structural stability of the levees.

2-Year Objectives	5-Year Objectives	Long-Term Objectives
• Keep monitoring sediment accumulation • Establish funding requirements for the next Gravel Removal project	• Keep monitoring sediment accumulation • Secure funding for the design, permitting, construction and mitigation requirements of the next Gravel Removal Project • If required, initiate the design of the next Gravel Removal Project	• Successfully dredge the Cedar River and maintain the flood protection capacity of the Section 205 levees

Implementation Plan/Actions

- Annual survey of sediment accumulation
- Maintenance dredging of the Cedar River every 12-18 years

Performance Measures

- Successful project execution is achieved when the Cedar River gets dredged before reaching the "maximum bed elevation", in compliance with all permitting and mitigation requirements.

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Cedar River Section 205 Levee Certification Project

Lead POC	Partner Points of Contact	Hazards Mitigated / Goals Addressed	Funding Sources / Estimated Costs
City of Renton Surface Water Engineering Manager	• USACE – Seattle District • King County Flood Control Zone District • The Boeing Co. • Renton Municipal Airport • FEMA	Hazards: Dam failure, Flood • Increasing the level of flood protection during the 100-year flow • Achieving levee accreditation in accordance with FEMA guidelines and maintaining Zone X classification • Protecting Renton Municipal Airport and Boeing from being subjected to floodplain development regulations and flood insurance requirements Goals: 4, 6, 8	$ 5,000,000 • Surface Water Capital Improvement Program • King County Flood Control Zone District Capital Improvement Program

Strategy Vision/Objective

The Cedar River Section 205 Levees are currently provisionally accredited levees, with final accreditation contingent upon design and construction of levee improvements that were determined to be needed in order meet current FEMA accreditation standards, and provide sufficient freeboard during the 100-year flood. If left uncertified, the levees would not be mapped by FEMA and adjacent properties would be regulated as if they were in the floodplain.

Mitigation Strategy

Several sections of the levees and floodwalls need improvements in order to provide sufficient freeboard or increase structural stability. The City of Renton is permitting, designing and constructing these improvements.

2-Year Objectives	5-Year Objectives	Long-Term Objectives
• Permit and design levee improvements • Submit a new CLOMR to FEMA showing final design drawings and demonstrating Endangered Species Act Compliance	• Construct levee improvements • Submit a LOMR to FEMA with the final project report and record drawing and obtain accreditation.	• Maintain levee accreditation with FEMA • Initiate a re-accreditation project once the certification issued by the consultant expires.

Implementation Plan/Actions

- Using a phased approach (Assessment, permitting, design, construction, final accreditation)
- Coordinating with the USACE on Section 408 review and other agencies on required permits
- Using an effective project management approach and closely monitor schedule closely

Performance Measures

- Several milestones during the design of the levee improvements will serve as performance checkpoints.
- Successful accreditation relies on adequate project management and control, clear communication and collaboration with the permitting agencies, and successful construction of the improvements.

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Coal Mine Study Mitigation Strategy

Lead POC	Partner Points of Contact	Hazards Mitigated / Goals Addressed	Funding Sources / Estimated Costs
Planning Director Building Plan Reviewer	• US Office of Surface Mines • Olympic Pipeline • Bonneville Power Administration • Seattle City Light • Puget Sound Energy • Seattle Public Utilities	Hazards: Earthquakes; Landslides/Sinkholes Goals: 6	$100k • FEMA • Match of $25k in staffing by City of Renton

Strategy Vision/Objective

Update and verify historic maps of coal mine features including mine shafts and coal mine seams and overlay these with vulnerable infrastructure including regional fuel pipelines, electrical transmission corridors, regional water pipelines, sensitive receptors (schools, hospitals, etc.), and roadway to assist in identifying potential hazards. Identify methods to stabilize areas where critical infrastructure is at risk from subsidence.

Mitigation Strategy

- Identify potential conflicts between historic coalmine features and critical infrastructure and sensitive receptors.
- Identify mitigation measures to stabilize areas with high risk for subsidence.
- Avoid developing new critical infrastructure and/or sensitive receptors in areas with identified subsidence risk from historic coal mining activities.

2-Year Objectives	5-Year Objectives	Long-Term Objectives
• Fund study to verify location and depth of abandoned and closed historic coalmine features, and identify where these features may threaten critical infrastructure. • Identify mitigation to stabilize known areas of conflict	• Short term project will be complete in two years	• Short term project will be complete in two years

Implementation Plan/Actions

- Fund study in 2020 to verify locations and depths of abandoned and closed historic coalmines and coal mining features; overlay with critical infrastructure and develop mitigation to prevent subsidence and threat to critical infrastructure and vulnerable sensitive receptors.
- Convene stakeholder meetings in late 2020 to share study findings and develop joint strategies to develop mitigation measures.

Performance Measures

- Successfully identify potential hazards to determine current hazard risk and strategies to avoid impacts of subsidence on critical infrastructure such as pipelines and roads, and vulnerable sensitive receptors such as schools and hospitals.

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Funding/Partnership Mitigation Strategy

Lead POC	Partner Points of Contact	Hazards Mitigated / Goals Addressed	Funding Sources / Estimated Costs
Emergency Management Director	• Washington State Military Dept. EM Division • FEMA	Hazards: All Goals: 4, 6, 8, 12	$0 • Staff time • City share TBD

Strategy Vision/Objective

Leverage community partnerships (public and private) and grant funding opportunities to address mitigation priorities within the city.

Mitigation Strategy

- Reach out to community partners to determine shared concerns and priorities around hazard mitigation.
- Negotiate cost-share agreements for shared projects, or allocate matching funds from city budget to meet grant requirements.

2-Year Objectives	5-Year Objectives	Long-Term Objectives
• Identify new partners for mitigation projects where appropriate • Submit grant applications when opportunities arise	• Complete one project with partner participation and/or grant funding	• Continue to cultivate a community culture that participates in investment in mitigation

Implementation Plan/Actions

- Update Greater Renton COAD membership contact information to renew relationships and make new connections
- Introduce mitigation concepts in meetings with external stakeholders
- Maintain grant documentation files and tracking system for applications

Performance Measures

- Submit one grant application every two years
- Complete one project with partner participation and/or grant funding

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Lower Cedar River Flood Risk Reduction Feasibility Study

Lead POC	Partner Points of Contact	Hazards Mitigated / Goals Addressed	Funding Sources / Estimated Costs
City of Renton Surface Water Engineering Manager	• King County Flood Control Zone District • King County • Renton Municipal Airport • Boeing	Hazards: Flood • Additional flood risk reduction beyond the 100-year flood • Identifying future flood improvement projects along the lower 2 miles of the Cedar River Goals: 4, 6, 8	$ 500,000 • Surface Water Capital Improvement Program • King County Flood Control Zone District Capital Improvement Program

Strategy Vision/Objective

Identify the most feasible level of flood protection along the lower 2 miles of the Cedar River and specific improvement projects to implement in order to reach that level of protection.

Mitigation Strategy

The Lower Cedar River traverses through a major commercial, industrial, recreational and residential area in the City of Renton, vital to the local economy. Section 205, from Williams Ave N to Lake Washington is protected from the 100-year flood by levees. However, overtopping could occur at locations upstream of this reach and result in minor localized flooding of roadways. This study would explore measures to prevent such localized flooding. Also, during floods larger than the 200-year flood event, extensive overtopping of the left and right banks upstream of Logan Ave could occur. This study would explore measures to reduce the flooding risks during such extreme events and the feasibility of achieving such a level of protection.

2-Year Objectives	5-Year Objectives	Long-Term Objectives
• Identify desired level of flood protection requirement • Identify required flood improvement projects	• Plan and identify funding needs for proposed improvement projects • Design and implement smaller flood improvement projects	• Design and implement larger flood improvement projects • Improve overall flood protection along lower Cedar River

Implementation Plan/Actions

- Seek grants from the King County Flood Control District, FEMA, or Floodplains by Design to fund the design and construction projects identified for improvement.
    - Build on existing partnerships with environmental and community organizations to ensure that design meets the needs of all stakeholders.
    - Assess design to ensure that it meets estimated increased flows due to climate change.
- Construction of flood risk reduction improvements.

Performance Measures

- Successfully identify projects to reduce the risk of flooding, improve resiliency to climate change and extreme weather events, protect private property, and preserve key economic assets.

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Maintenance Facility Standby Emergency Power

Lead POC	Partner Points of Contact	Hazards Mitigated / Goals Addressed	Funding Sources / Estimated Costs
Community Services Department Facilities Director	Public Works Department Maintenance Services Director and Utility Systems Director	Hazards: Dam failure; Earthquake; Flood; Landslide; Severe Weather; Severe Winter Weather; Volcano; Wildfire • Ensure full operation of facility during power outages to allow response to hazards. Goals:4, 6, 8	$500,000 • City • FEMA HMGP

Strategy Vision/Objective

Provide back-up emergency power generation at the City of Renton Maintenance Facility to allow for full operation of the facility, which is the City's Emergency Command center for responding to any significant hazard that results in an emergency. The facility is used by the Street Maintenance, Surface Water Utility Maintenance, Wastewater Maintenance, Fleet Services and Water Utility Maintenance Section. All City Departments rely on the Facility for fueling and maintenance/repair of City vehicles. All Public Works equipment that may be needed during an emergency is stored at the facility and City maintenance personnel are dispatched from the facility when responding to hazards. The SCADA system controls for the Water Utility operation of the City's water supply wells, reservoirs, pump stations and treatment facilities is located at the facility along with the SCADA system for Wastewater Utility and Surface Water Utility lift stations and pump stations.

Mitigation Strategy

The Maintenance Facility currently only has back-up power generation that allow for partial operation, which impacts the City's ability to respond to hazards that result in power outages. The increased back-up power generation will provide full power to the facility for hazard emergency response without an limitation due to only partial power at the City of Renton Maintenance Shop Facility.

2-Year Objectives	5-Year Objectives	Long-Term Objectives
• Secure funding for design • Hire consultant for design • Start design and permitting	• Secure funding for construction • Complete final design, construction plans, specifications and permitting • Complete construction	• Maintain City operations at the Facility during power outages caused any hazard event for response to the event.

Implementation Plan/Actions

- Secure funding from possible funding sources, complete consultant selection process for design and execute design contract.
- Complete design and permitting and secure funding for construction.
- Advertise for bids and award construction contract and complete construction.
- Implement maintenance of the back-up power generator and test periodically.

Performance Measures

- Back-up power generation is installed at the City of Renton Maintenance Facility to allow full operation at the facility during a hazard that results in a power outage.

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Regional Planning Mitigation Strategy

Lead POC	Partner Points of Contact	Hazards Mitigated / Goals Addressed	Funding Sources / Estimated Costs
Emergency Management Director	• King County Office of Emergency Management	Hazards: All Goals: 4, 6, 8, 12	$ 0 • Staff time

Strategy Vision/Objective

As a partner in the development of the King County Regional Hazard Mitigation Plan, the city will actively engage in contributing to the county-wide initiatives that require stakeholder participation and support. This includes participating in the plan maintenance strategy identified in the plan.

Mitigation Strategy

- Identify opportunities to support county-wide initiatives identified in the overall King County Regional Hazard Mitigation Plan.
- Actively participate in the plan maintenance strategy identified in the plan.

2-Year Objectives	5-Year Objectives	Long-Term Objectives
• Produce an annual review and progress report	• Produce a completely revised plan	• Maintain a current and relevant Renton Annex to the King County Regional Hazard Mitigation Plan

Implementation Plan/Actions

- Continue to conduct an annual plan review, to include a review of county-wide initiatives.
- Identify opportunities for Renton to contribute to county-wide initiatives, and participate accordingly.
- Conduct a comprehensive plan revision in 5 years.

Performance Measures

- Annual review is completed and progress support submitted to King County.
- 5 year plan revision is completed and submitted to King County.

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Utility Pumping Facilities Back-Up Power

Lead POC	Partner Points of Contact	Hazards Mitigated / Goals Addressed	Funding Sources / Estimated Costs
Utility Systems Director Public Works Maintenance Services Director	• DOH • DOE • Renton RFA • King County	Hazards: Earthquake; Flood; Severe Weather; Severe Winter Weather Goals: 6, 8	$ 7M (water) $ 1M (wastewater) $ 1M (surface water) • Capital Improvement Programs

Strategy Vision/Objective

Improve reliability at utility pumping facilities with on-site standby power systems. These projects could prevent downtime of critical facilities in order to maintain public health and safety.

Mitigation Strategy

Critical pumping facilities for the city include 11 domestic water booster pump stations, 20 wastewater lift stations, and 2 stormwater pump stations. Not all of these facilities currently have back-up power. During power outages, pumping facilities that lack back-up power 1) risk disruption to water and wastewater services; 2) reduce flood control capabilities at stormwater pump stations; and 3) cause additional strain/wear to on-line pumping facilities, which consequently decreases the equipment's life expectancy. The City will evaluate emergency standby power options, including installing on-site generators and increasing fuel storage, to lessen the impact of future power outages at utility pumping facilities.

2-Year Objectives	5-Year Objectives	Long-Term Objectives
• Construction of back-up power improvement projects in pre-design phase • Identify additional back-up power improvement projects	• Plan and identify funding needs for proposed improvement projects • Design and implement priority back-up power improvement projects	• Design and implement remaining back-up power improvement projects • Improve overall reliability at critical pumping facilities

Implementation Plan/Actions

- Complete construction of back-up power improvements at four wastewater lift stations.
- Complete final design and construction of back-up power improvements at two domestic water booster pump stations that are currently in the 30 percent pre-design phase.
- Allocate capital funding to design and implement additional back-up power improvement projects.

Performance Measures

- Solutions maintain the continuity of operations, protect property, protect the environment, and protect key economic assets.

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Volcanic Ash & Wildfire Smoke Mitigation Strategy

Lead POC	Partner Points of Contact	Hazards Mitigated / Goals Addressed	Funding Sources / Estimated Costs
Renton Emergency Management Coordinator	• King County Public Health • Puget Sound Clean Air Agency	Hazards: Volcano; Wildfire Goals: 6, 12	• None

Strategy Vision/Objective

Our objective is to inform and prepare our community for the impacts of both volcanic ash deposits and wildfire-caused ash. Since the likelihood of volcanic eruption is low, and the wildfire ash impacts are sporadic, our strategy will rely on public communication and outreach. We shall conduct an annual public awareness campaign in conjunction with wildfire impact awareness to ensure residents have an understanding of the hazards affecting the city, actions they can take, and what we as the local jurisdiction can provide. Our objective is to inform and prepare our community for the impacts of both volcanic ash deposits and wildfire-caused ash. Since the likelihood of volcanic eruption is low, and the wildfire ash impacts are sporadic, our strategy will rely on public communication and outreach. We shall conduct an annual public awareness campaign in conjunction with wildfire impact awareness to ensure residents have an understanding of the hazards affecting the city, actions they can take, and what we as the local jurisdiction can provide.

Mitigation Strategy

May 18th, the anniversary of Mt. St. Helen's eruption, will serve as an annual ash and wildfire smoke awareness campaign launch. It will include social media and public communications regarding education on the risk to Renton residents; appropriate actions if the hazard occurs; and ways to lessen the impact of poor air quality on human health, as well as transportation and general visibility. Target audiences include: Building owners & businesses - connecting them with air filtration providers as requested; Individuals - personal preparedness measures (staying indoors, use of appropriate masks); vehicle mitigation efforts (covering cars, avoid driving in limited visibility, dangers to vehicle filtration systems); methods of securing your home from air quality and ash impacts

2-Year Objectives	5-Year Objectives	Long-Term Objectives
Community awareness of impacts of volcanic or wildfire caused ash hazards.	Normalize ash hazards and impacts as part of wider air quality warnings, with public safety actions known by the community	A well-prepared community with baseline awareness of possible hazards and protective actions they can take

Implementation Plan/Actions

- Design survey alongside partners to understand current levels of awareness
- Design social media and public outreach campaign, including messaging and strategy
- Implement plan during late spring – summer months.
- Conduct survey at the end of summer to better understand community's awareness of local hazards and their impacts, including ash impacts.

Performance Measures

- Increase in awareness and engagement with post-campaign surveys of community.
- Increase in engagement with outreach efforts (for example, with online media campaign, in-person outreach)

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Water System Risk Assessment

Lead POC	Partner Points of Contact	Hazards Mitigated / Goals Addressed	Funding Sources / Estimated Costs
Water Utility Engineering Manager Water Maintenance Manager	• Renton RFA • EPA • LEPC	Hazards: All Goals: 6, 8	$ 100,000 • Water Capital Improvement Program

Strategy Vision/Objective

Develop a risk and resilience assessment that identifies the most significant malevolent acts and natural hazards to the water utility's critical assets, reduces vulnerabilities of these critical assets, prepares for the threats that could occur, and mitigates the potential consequences of incidents that do occur.

Mitigation Strategy

The City of Renton is a community water system that provides supply, treatment, storage, and distribution of dependable and safe water. The Water Utility is required under the 2018 America's Water Infrastructure Act (AWIA) to assess the risks to, and resilience of, its water system. The risk assessment will 1) inventory at-risk water infrastructure that contribute to critical functionality of the water system; 2) evaluate the risk and known vulnerabilities to significant threats and hazards; and 3) implement prevention, protection, and mitigation activities for identified threats and hazards. The Water Utility will develop partnerships with local emergency response and planning groups to foster hazard mitigation activities.

2-Year Objectives	5-Year Objectives	Long-Term Objectives
• Develop risk assessment • Develop policy changes to mitigate the risks to the critical drinking water infrastructure	• Assess the effectiveness of efforts to secure and strengthen the resilience of critical drinking water infrastructure • Update risk assessment	• Increase drinking water infrastructure resilience to malevolent acts and natural hazards • Update risk assessment every 5 years per AWIA regulations

Implementation Plan/Actions

- Develop the water system risk assessment.
- Use as a prioritized plan for security upgrades, modifications of operational procedures, and policy changes to mitigate risks.

Performance Measures

- Identifies potential improvements that serve multiple purposes to enhance operations and resilience of the drinking water system.

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Water Utility Seismic Resilience

Lead POC	Partner Points of Contact	Hazards Mitigated / Goals Addressed	Funding Sources / Estimated Costs
Water Utility Engineering Manager Water Maintenance Manager	• PNSN/USGS • Renton RFA • DOH	Hazards: Earthquake Goals: 6, 8	$100,000 ShakeAlert $1.8M Retrofit PDM & Water capital budget

Strategy Vision/Objective

Reduce potential damage/losses to critical water facilities from an earthquake by 1) integration of an early warning system; 2) installation of seismic shut-off valves on water storage facilities; and 3) development of post-earthquake isolation and control actions. These projects could improve the survivability of the municipal water supply system, reduce loss following an earthquake, and potentially save lives.

Mitigation Strategy

Critical water facilities for the city include 9 production wells, 1 spring, 11 booster pump stations, and 10 reservoirs. Because Washington State has one of the highest risks of expected casualties and economic loss from earthquakes in the nation, the city needs water system infrastructure improvements for seismic resiliency. The Water Utility will apply to participate in PNSN's new pilot program that monitors earthquake activity using a network of sensors distributed across the region. The ShakeAlert system, connected into the existing SCADA system, will alert the Water Utility, which allows for automatic control actions and for emergency protocols to be taken by city personnel before shaking occurs. The Water Utility will also evaluate retrofitting 6 existing reservoirs with seismic valves to automatically shutoff water flow at the tank to prevent complete water loss. The Water Utility will develop post-earthquake isolation and control protocols, which are needed to ensure adequate water storage and distribution during an emergency.

2-Year Objectives	5-Year Objectives	Long-Term Objectives
• Apply for grant funding for pre-design of ShakeAlert, then apply for the pilot program • Develop policies/protocols for post-earthquake drinking water isolation and control actions	• Fund pre-design of seismic valve retrofit • Allocate funding in the capital budget to fund implementation of ShakeAlert and seismic shut-off valve retrofit • Utilize ShakeAlert Earthquake Early Warning for water system	• Seismic valves on all water tanks • Provide earthquake early warning to residents with ShakeAlert

Implementation Plan/Actions

- Apply for a grant from FEMA's Hazard Mitigation Assistance through PDM to fund planning, policy development, and pre-design of ShakeAlert device/software. If grant application is unsuccessful, include planning / design of early warning system in 2021 budget.
- Hire consultant to perform planning /design services and apply for ShakeAlert pilot program. If accepted into pilot program, allocate capital funding to configure alarm signal and connect to SCADA to automatically initiate predetermined control actions following a triggered earthquake alarm.
- Fund planning, pre-design, and construction of seismic valve retrofit on water reservoirs.

Performance Measures

- Solutions maintain the continuity of operations and water service

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