

**Carnation, Washington
RESOLUTION 25-535**

**A RESOLUTION OF THE CITY OF CARNATION, WASHINGTON ADOPTING
THE 2025 CITY OF CARNATION HAZARD MITIGATION PLAN ANNEX**

WHEREAS, the City of Carnation has potential exposure to environmental hazards that increase the risk to life, property, environment and the economy; and

WHEREAS, pro-active mitigation of known hazards before a disaster event can reduce or eliminate long-term risk to life and property; and

WHEREAS, the City has undergone an extensive public process and engaged with a consultant to identify potential hazards and identify strategies for mitigating them; and

WHEREAS, the proposed Plan identifies vulnerabilities, priorities, and strategies for use in the event of a natural hazard.

**NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF CARNATION,
WASHINGTON HEREBY RESOLVES:**

Section 1. The 2025 Hazard Mitigation Plan Annex attached in **Exhibit A** is hereby adopted.

**PASSED AND APPROVED BY THE CITY COUNCIL ON THIS 3 DAY OF JUNE,
2025.**

City of Carnation

Adair Hawkins
Adair Hawkins (Jun 4, 2025 11:57 PDT)

Adair Hawkins, Mayor

ATTEST:

Lora Wilmes

Lora Wilmes, City Clerk

City of Carnation



Hazard Mitigation Plan Annex 2025

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Introduction

Carnation, Washington, is a rural town in the foothills of the Cascade mountain range where the Tolt and Snoqualmie Rivers converge. Founded in the late 1850s by settlers drawn to the region's fertile soil and abundant water supply, Carnation was originally known as Tolt. The town was later renamed in honor of the world-famous Carnation Dairy, which established operations there in 1910. Today, this close-knit community of 2,220 residents enjoys a tranquil setting, abundant natural beauty, and ample outdoor recreation opportunities, all within easy reach of Seattle.

Geographic and Demographic Overview

Covering just 1.1 square miles, Carnation maintains a small-town atmosphere with a strong connection to the natural environment and a thriving agricultural heritage. The scenic surroundings attract residents and visitors alike to Carnation's wealth of outdoor activities. The town also boasts a charming downtown area, fostering a vibrant local economy and a strong sense of community. Situated in a fertile valley, Carnation has a long and proud agricultural tradition for local farming and tourist attractions. And while residents enjoy the benefits of a rural lifestyle, they also maintain convenient access to the amenities of Seattle.

Governance and Administration

Carnation operates under a Council-Manager form of government, a structure that ensures efficient and professional management of city affairs. Elected officials form the City Council and are responsible for setting policy and making legislative decisions. The City Manager, appointed by the Council, oversees daily operations, implements policies, manages personnel, and prepares the city budget.

Development Trends

Looking ahead, Carnation faces the challenge of balancing growth and preservation while becoming more vulnerable in several aspects to hazards. Maintaining the town's rural character while accommodating potential growth pressures will require careful planning and community engagement. As a small town, Carnation must also address challenges related to limited financial resources and staffing capacity. Preserving and maintaining critical infrastructure, such as roads, bridges, and utilities, can be demanding, and effective emergency preparedness and response are vital given Carnation's susceptibility to natural hazards like flooding, wildfires, and earthquakes. Development permits in process in 2025 show an additional 165 residential units (25 single family residential, 135 multifamily residential and 5 apartment units). Carnation will also finalize a new emergency operations center (EOC) in a multipurpose building that serves as a community space and municipal service campus in 2025. The majority of these developments are targeted in the downtown Carnation area.

Changes in Vulnerability

Carnation may become more vulnerable in several aspects due to recent and upcoming developments, including evacuation, wildfires, and severe weather hazards. Additional residential growth increases the residences and vehicles that need to evacuate after business hours. Whereas the growth in retail creates a vulnerability with evacuating visitors.

City of Carnation Profile

Incorporated: 1912

Population: 2,220 in 2024



Point of Contact

Point of Contact
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Risk Summary

Carnation explored all the natural and human-caused hazards that are a focus of the regional plan. Not all the hazards in the regional plan are relevant to the community, and a focus was made on those with consequences to Carnation.

- Dam Failure and other Geological Hazards
- Earthquake
- Extreme Weather
- Flooding
- Hazardous Material Incident
- Health Incident
- Landslide
- Terrorism
- Wildfire

More hazards threaten Carnation than what is covered below, but a potential instance would be minor, or at a level that could be addressed by our local fire department (Eastside Fire & Rescue) and the King County Sheriff's Office.

To fill the narratives and maps below, data provided by King County GIS and documentation from King County Office of Emergency Management were augmented with Carnation's data, documentation, and knowledge of the local community. The assessments are intentionally brief, yet sufficiently succinct to provide information on potential impacts during a disaster, and to prioritize addressing vulnerabilities on a citywide planning scale.

Hazard Risk and Vulnerability Summary

HAZARD	HAZARD SUMMARY	VULNERABILITY SUMMARY	IMPACT SUMMARY	PROBABILITY OF FUTURE OCCURRENCE (INCLUDE EFFECTS OF CLIMATE CHANGE)
Avalanche	No Direct Risk There is no avalanche-prone terrain within or	N/A	N/A	N/A

HAZARD	HAZARD SUMMARY	VULNERABILITY SUMMARY	IMPACT SUMMARY	PROBABILITY OF FUTURE OCCURRENCE (INCLUDE EFFECTS OF CLIMATE CHANGE)
	immediately adjacent to the City.			
Acts of Violence and Terrorism	Medium Risk Carnation faces the potential for civil disorder and acts of violence, ranging from minor disturbances to significant events that could disrupt the community for extended periods. While no city is immune to the threat of terrorism, Carnation's vulnerability increases during community events held in the Central Business District. These events often involve street closures and attract large crowds of upwards of 10,000 people, creating a potential target for acts of violence.	Carnation is vulnerable to the disruptive and potentially devastating effects of terrorism and civil disorder. While peaceful protests are a form of civil disorder, they generally pose less of a direct threat. However, the city is particularly susceptible to acts of violence during large public gatherings and community events, where crowds and street closures create attractive targets for terrorism. These events could be severely impacted by an active shooter or other forms of violence, leading to casualties, trauma, and widespread disruption. Additionally, civil disorder can escalate rapidly from demonstrations to riots and sabotage, endangering lives, damaging property, and overwhelming emergency services.	Carnation faces a moderate risk from terrorism and violence, particularly during large community events where crowds gather in vulnerable locations like the Shell gas station, Tolt Commons, and Carnation Market. To mitigate this, the city needs a multi-faceted approach. This includes enhancing security protocols for events, implementing physical security measures such as bollards and barriers at key locations, and bolstering emergency preparedness through first responder training and community engagement to improve situational awareness and cooperation.	Climate change may indirectly increase the likelihood of terrorism and civil unrest in Carnation. Extreme weather, resource scarcity, and displacement from climate-related disasters can heighten social stress and inequalities, potentially fueling conflict and violence. Additionally, mass gatherings necessitated by climate events could increase vulnerability to such incidents.
Cyber Attack	Medium Risk The City is dependent on the use of computers, internet services and networks.	While Carnation has recently enhanced its cyber defenses through updated IT systems and security patches, a residual vulnerability to cyber-attacks persists. The evolving sophistication of cyber threats, the inherent potential for human error (e.g., phishing, unintentional insecure	A successful cyber-attack on Carnation could have far-reaching consequences. Essential services like water supply, communication networks, and emergency response could be disrupted, impacting residents	While predicting the precise timing and nature of future cyber-attacks is impossible, several factors suggest an increasing probability of such events impacting

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		practices), and the interconnectedness of our critical infrastructure mean that opportunities for attackers may still arise. A successful breach could still potentially disrupt essential services, compromise sensitive data, and lead to significant financial and reputational damage, underscoring the need for ongoing vigilance and adaptive security measures.	and city operations. Data breaches could expose sensitive information, leading to privacy violations and legal issues. The financial costs of recovery could be substantial, including system repairs, data recovery, and potential ransom payments. Furthermore, a cyber-attack could damage the city's reputation and erode public trust in its ability to protect sensitive information and maintain essential services.	Carnation. The growing sophistication and frequency of cyber-attacks globally heighten the risk. Furthermore, climate change indirectly increases the probability of cyber-attacks. Extreme weather events and natural disasters can disrupt critical infrastructure and create opportunities for malicious actors to exploit vulnerabilities during recovery efforts. This interconnectedness between physical and cyber systems emphasizes the need for proactive measures to strengthen Carnation's cybersecurity posture and protect its critical assets.
Dam Failure	Medium to High Risk The South Fork Tolt Reservoir and Dam sits approximately 15 miles	The Tolt Dam has known landslide hazards below the Dam, and above the reservoir. If a slide were to occur below the Dam, the	Potential catastrophic damage to the community.	Climate change intensifies rainfall, floods, and droughts, all of which

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	upstream from Carnation city limits. Maps from 2019 show that, in a Dam failure, Carnation would have approximately 1.75 hours to evacuate before the flood reaches the community. Dam failure would likely impact the Chinook distribution areas along the Tolt and Snoqualmie Rivers and the channel migration hazard areas along the Tolt River. In 2021, the Dam failure warning system experienced a man-made problem when a worker accidentally set off the alarm. It took approximately an hour to clarify that the alarm was in error, and in that time much of the community took steps to evacuate. It has been repurposed as a drill, and lead to discussions about risk communication.	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 while 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.		endanger Dams. Increased rainfall can overwhelm spillways, leading to overtopping. More frequent and severe floods put immense pressure on Dams. Prolonged droughts weaken Dam structures through soil erosion and changes in water pressure. These factors, combined with aging infrastructure, increase the risk of catastrophic Dam failures.
Earthquake	High Risk Carnation is in the Pacific Ring of Fire, a particularly active area of volcanic and earthquake activity. More specifically, Carnation lies between the Juan de Fuca and North American plates, near the intersection of the Seattle and Rattlesnake Mountain Fault Zones. According	The whole of Carnation's city limits is in a high liquefaction zone. Damage to the community could be direct (liquefaction) and indirect (ex: road failure preventing movement between communities).	An earthquake impacting Carnation could cause widespread damage to buildings, infrastructure, and the Snoqualmie Valley due to ground shaking and potential liquefaction. Landslides may occur, further disrupting transportation and utilities. The Tolt Dam, while resilient, could also be impacted,	Climate change is increasing both the likelihood and potential severity of earthquakes in areas like Carnation, WA. Earthquake mitigation plans must account for these climate-induced factors, especially given

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	to maps from the King County GIS System, liquefaction on valley floor is highly likely during an earthquake. King County hazard mapping shows specific seismic hazard areas as being in the north (near Ornes Hill Park), central (E Entwistle St at 325th Ave NE), and east (332nd – 336th Aves) in the city limits, and a large area just south and east of the city limits along the Tolt River. In the last ten years, two earthquake events in excess of Magnitude 4.0 have been felt; prior to that, a strong earthquake had not been felt in over a generation, according to the hazard identification exercise.		compounding hazards. Casualties are possible, and emergency response may be hindered by road closures and utility disruptions. Impacts to road and utility infrastructure can interrupt supply chains, business operations, and severely limit access to health care and/or emergency services.	Carnation's proximity to the Fault Zones.
Extreme Weather	High Risk Carnation is experiencing a shift in winter weather patterns, with ice storms becoming more frequent as snowfall decreases. These ice storms pose a significant threat to infrastructure and utilities and create hazardous road conditions. Furthermore, while Carnation typically enjoys temperate weather, the region is currently facing an	The topography of Carnation and the surrounding area provides an additional challenge for first responders when icy roads and downed tree limbs prevent access to residents needing assistance. In 2022, the Tolt Ave project was “delayed due to an exceptionally wet winter and spring seasons.” Droughts impact agriculture (like the agri-tourism Remlinger Farm facility), well water levels, and other community sectors (like	Extreme weather events pose significant risks to Carnation's economy and community well-being. Increased frequency and severity of extreme weather, including wind and ice storms and heat waves, can cause delays in construction projects, particularly road construction. This can negatively impact economic development and disrupt vital transportation routes.	Climate change is increasing the likelihood and severity of extreme weather events, posing significant risks to Carnation's economy, infrastructure, and community well-being.

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	abnormally dry period according to the US Drought Monitor. In April 2022, the Carnation Planning Commission took up the topic of heat abatement as part of the comprehensive planning process, determining that action should be taken to reduce the urban heat island affect. Windstorm activity has been observed as increasing since the last review. In February 2023, strong winds knocked out power to much of the Puget Sound region and knocked down trees onto powerlines, sparking fires. An atmospheric river in November 2022 created gusts in excess of 80 mph in the Cascades. Carnation experienced widespread storm damage, including multi-day power outages, road closures, and infrastructure damage with a water main break, due to a November 2024 bomb cyclone.	fishing and construction). Additionally, river temperature increases affect the Chinook population in the Tolt and Snoqualmie Rivers. Carnation is vulnerable to wind damage when trees are downed and power lines clipped; when strong winds exacerbate other hazards (like wildfires); and prevent service vehicles (like fire apparatus and school buses) from operating in their normal activities.	Carnation is increasingly vulnerable to heat-related hazards such as wildfires and drought. These conditions can damage infrastructure, strain water resources, and pose risks to public health, particularly for vulnerable populations.	
Flood	High Risk Flooding in Carnation is a common hazard, resulting in disruption to supplies and resources. Carnation has multiple levees in the community	Of the approximately 637 acres in Carnation, 109 acres are in the floodway – the highest risk flood areas, and all but 157 acres are in one of the two flood zones (100-year and 500-year). The primary road that	Flooding in Carnation can cause widespread damage to homes, businesses, and critical infrastructure, including schools and emergency services. Levee failures pose a	Climate change is increasing Carnation's flood risk. More intense rainfall, rising sea levels hindering drainage, and

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	that may provide flood relief but need consistent and regular monitoring for stability and safety to avoid another levee failure as was experienced on the Tolt River in 2009. Sea level rise affects flooding indirectly, as river drainage decreases during high tides. Being only 60 ft above sea level, Carnation experiences more road impacts due to this drainage issue. Additionally, the following critical infrastructure facilities are located in high flood risk areas: • Eastside Fire & Rescue Station 85 • Carnation City Hall • Sno-Valley Senior Center • Tolt Middle School • Carnation Elementary School • Riverview Learning Center • Riverview School District Transportation offices	connects Carnation with neighboring communities (Hwy 203) has a history of being inundated in low-lying areas during especially large flood events. <i>(Source: measurements via https://gismaps.kingcounty.gov/iMap/)</i>	catastrophic risk and rising sea levels further exacerbate flooding issues. This can lead to the isolation of the community, disruption of essential services, economic losses, and public health concerns.	changes in snowmelt will likely lead to more frequent and severe flooding. Additionally, the reliability of Carnation's levees is crucial for protection, but past failures highlight their potential vulnerability.
Hazardous Materials Incident	Medium Risk Carnation faces several hazardous material incident risks due to factors such as a dividing highway, a gas station, natural gas lines, and a sewer treatment plant.	Potential incidents resulting from these risks include explosions, gas leaks, or hazardous material spills.	Hazardous material incidents pose a significant risk to Carnation, with potential impacts ranging from localized disruptions to mass casualties.	Climate change intensifies the risk of hazardous material incidents in Carnation. Increased rainfall can cause flooding,

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			Due to Highway 203 becoming a bypass for I-405, the increased commercial truck traffic on SR203 has led to a greater risk of hazardous material shipments in the corridor. This raises the potential for spills and accidents, which could disrupt transportation routes and impact residents, businesses, and visitors. Incidents might necessitate shelter-in-place orders or evacuations. Facilities such as the sewer treatment plant and the gas station present inherent risks of hazardous material releases. An explosion at the gas station or involving natural gas lines could have devastating consequences, including mass casualties, significant infrastructure damage, and widespread disruption to residences and businesses.	leading to spills, infrastructure damage, and sewer system overload. Extreme heat raises the risk of explosions and infrastructure failures, especially at the gas station and with natural gas lines. Wildfires can trigger evacuations, disrupt transportation, and damage infrastructure, potentially causing hazardous material releases.
Health Incident	Low to Medium Risk The population of Carnation faces a range of health risks, including those related to its environment (flooding,	Carnation's vulnerability to health incidents is heightened due to a combination of factors. Limited local healthcare access is a significant concern, with no hospitals	A health incident in Carnation could have cascading impacts, from increased illness and fatalities among vulnerable populations to strained healthcare	While it's impossible to predict the exact timing or nature of future health incidents, understanding

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	earthquakes, severe weather), general public health concerns (chronic diseases, mental health, infectious diseases), and access to healthcare.	located within the city limits. This means residents must rely on facilities in neighboring towns, potentially delaying critical care during a health crisis. Reliance on a spring source as the primary water source for drinking water creates further vulnerability to contamination, potentially exacerbating public health risks. Potential hazards include outbreaks of infectious diseases like influenza or COVID-19, waterborne illnesses, and extreme heat events, which pose a greater risk to vulnerable populations.	systems across the region. Essential services like schools and businesses may face disruptions or closures, leading to economic losses and broader community anxiety. The psychological toll could be significant, with increased stress, anxiety, and potential long-term trauma for residents.	these climate-related risks allows Carnation to proactively implement mitigation strategies as climate change presents a growing threat to public health in Carnation. Rising temperatures increase the risk of heat-related illnesses, while wildfire smoke threatens respiratory and cardiovascular health. Changes in precipitation patterns could contaminate the water supply, and warmer temperatures may bring new disease-carrying insects. These factors, coupled with the mental health impacts of climate change, underscore the need for proactive measures to protect residents.

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Landslide	High Risk The City of Carnation faces a High Risk from landslides due to steep slopes, soil saturation, and erosion. Historically, issues like embankment settlement on Highway 203 in which WSDOT embarked on a repair north of Carnation in 2020, erosion on Tolt Hill Road, potential steep slope hazards near E Entwistle Street (as mapped in 2016), and localized flooding from events like a broken beaver dam on 124th Street highlight this vulnerability. Furthermore, the potential for liquefaction on the valley floor during an earthquake significantly elevates landslide susceptibility (see risk summary for "Earthquake" above). These factors pose considerable threats to infrastructure, property, and safety.	The City of Carnation is significantly vulnerable to landslides, which threaten critical infrastructure like Highway 203 and local roads (Tolt Hill Rd, E Entwistle St, 124th St), potentially isolating areas and disrupting transport. Residential and commercial properties, especially those near steep or unstable slopes, face direct damage, while valley floor areas are susceptible to earthquake-triggered landslide effects like liquefaction. Utilities and emergency service access are also at risk. Economically, landslides can disrupt businesses and incur high repair costs. Public safety is a major concern due to the direct risk to individuals and the rapid nature of some landslides.	Landslides in Carnation could cause injuries, fatalities, and resident displacement. Critical impacts include paralysis of the transportation network (especially Highway 203), widespread utility outages, and extensive damage to public and private property. Economically, this means business interruptions, high reconstruction costs, and decreased property values. Environmentally, landslides can destroy habitats, degrade water quality in local rivers, and alter drainage. These events would also severely challenge emergency response by impeding access and straining services, leading to significant, long-lasting community disruption.	Climate change is expected to increase this probability. Key factors include more intense and frequent heavy rainfall (including stronger atmospheric rivers), a shift from snow to rain in winter, earlier and more rapid snowmelt, and indirect impacts from increased wildfire risk in surrounding areas. Consequently, rainfall-induced shallow landslides and debris flows are likely to become more frequent, and existing instability will probably worsen.
Structural Fire	Medium Risk Structural fires pose a significant threat to life and property in Carnation, and their impact can be exacerbated by specific local conditions.	Carnation's vulnerability to structural fires is heightened by its location within the wildland-urban interface, increasing the risk of wildfires spreading to structures. Limited water supply, due to reliance on a primary spring source, could pose challenges for firefighting efforts, especially during large-	The impact of structural fires in Carnation can be devastating, leading to loss of life and injuries from burns, smoke inhalation, and building collapse. Property damage can result in significant financial losses for residents and businesses,	The probability of future structural fires in Carnation is likely to increase due to the effects of climate change. Rising temperatures and drier conditions

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		scale events. While dedicated, Eastside Fire and Rescue may require assistance from neighboring communities when facing complex fires. Protecting critical infrastructure like City Hall and the water treatment plant is crucial, as these facilities house essential equipment and operations vital for community function.	potentially leading to displacement and the need for temporary shelter. ¹ Beyond the immediate damage, fires can disrupt the local economy through business closures and service interruptions. Fires can also cause significant disruption to city infrastructure, damaging essential facilities and hindering the delivery of vital services. Furthermore, fires release harmful pollutants that negatively impact air and water quality. ²	exacerbate wildfire risks, increasing the potential for wildfires to spread into the wildland-urban interface and ignite structures. More frequent and intense heat waves can also increase the risk of electrical fires and spontaneous combustion. Changes in precipitation patterns, leading to periods of drought followed by heavy rainfall, can further stress vegetation and create conditions conducive to fire spread. These factors, combined with potential vulnerabilities in older buildings
Tsunami	No Direct Risk The City of Carnation has no direct risk from tsunamis however, could be susceptible to regional supply chain impacts.	N/A	N/A	N/A

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Volcano	Low Risk Washington State has five major active volcanoes, none of which are centrally located in King County. The closest volcano to Carnation is Glacier Peak in neighboring Snohomish County. The hazard zones for these volcanoes (for both lahars and lava flows) do not reach the Carnation area, but volcanic ash can be carried by the wind for hundreds of miles away from the source, negatively affecting air quality, water quality, air travel, electrical systems, machinery (including vehicles), and damage or kill vegetation.	Under the right atmospheric conditions, Carnation would be vulnerable to volcanic ash from an upstate volcanic explosion. Residents who are already impaired by breathing issues (like asthma or COPD) would be further aggravated by the volcanic rock fragments carried by the wind. Equipment operating in the open air could be stalled or clogged by the ash; and wildlife in the delicate water systems of the Snohomish and Tolt Rivers could be impacted when the ash falls in their habitats.	While not directly in danger of lava or lahars, volcanic ash from eruptions like those at Glacier Peak poses a low risk to Carnation, potentially impacting air quality, water resources, and infrastructure.	Changes in wind patterns due to climate change may alter ash distribution and deposition, potentially increasing the affected area and the severity of impacts on air quality, water resources, and infrastructure.
Wildfire	Medium to High Risk The October 2022 Bolt Creek fire scorched over 14,000 acres in the nearby Skykomish Valley, producing some of the worst air quality on the planet during that time. That same year, recognizing that wildfire potential has increased in King County, the County adopted a Wildfire Risk Reduction Strategy – a dozen recommended actions to improve preparedness, response, and recovery from wildfire. The	Forested lands abut the western, eastern, and southeastern boundaries of Carnation city limits. This proximity to fuel for fire is a concern and should be evaluated for ways to decrease the potential for wildland-urban fire interface. In addition, risk of flooding after a wildfire is increased, as is risk for landslide and debris flows. These compounding issues require monitoring in the months after a wildfire. Burn scars take years to regrow and impact the habitats in the area during those years.	While the risk to structures within the city limits is low, wildfire remains a priority due to the forested lands surrounding the city and for the secondary impacts of damage to local ecology, water and air quality, and post-fire flooding.	Climate change significantly increases Carnation's wildfire risk due to hotter, drier conditions and altered wind patterns. Surrounded by forests, the entire city is vulnerable to fire, with potential impacts ranging from structural damage and ecological harm to degraded air

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	Washington State Department of Natural Resources expanded their wildland-urban interface (WUI) as part of the 2020 Strategic Climate Action Plan, which increased the number of county residents who live in the WUI by 15%. The entirety of Carnation's city limits are in the WUI, with the majority falling under the highest level (interface), segments along the rivers falling under the next level (intermix), and the intersection of the Snoqualmie and Tolt Rivers being classified as "long-term non-buildable areas."			and water quality.

Hazard and Asset Overview Maps

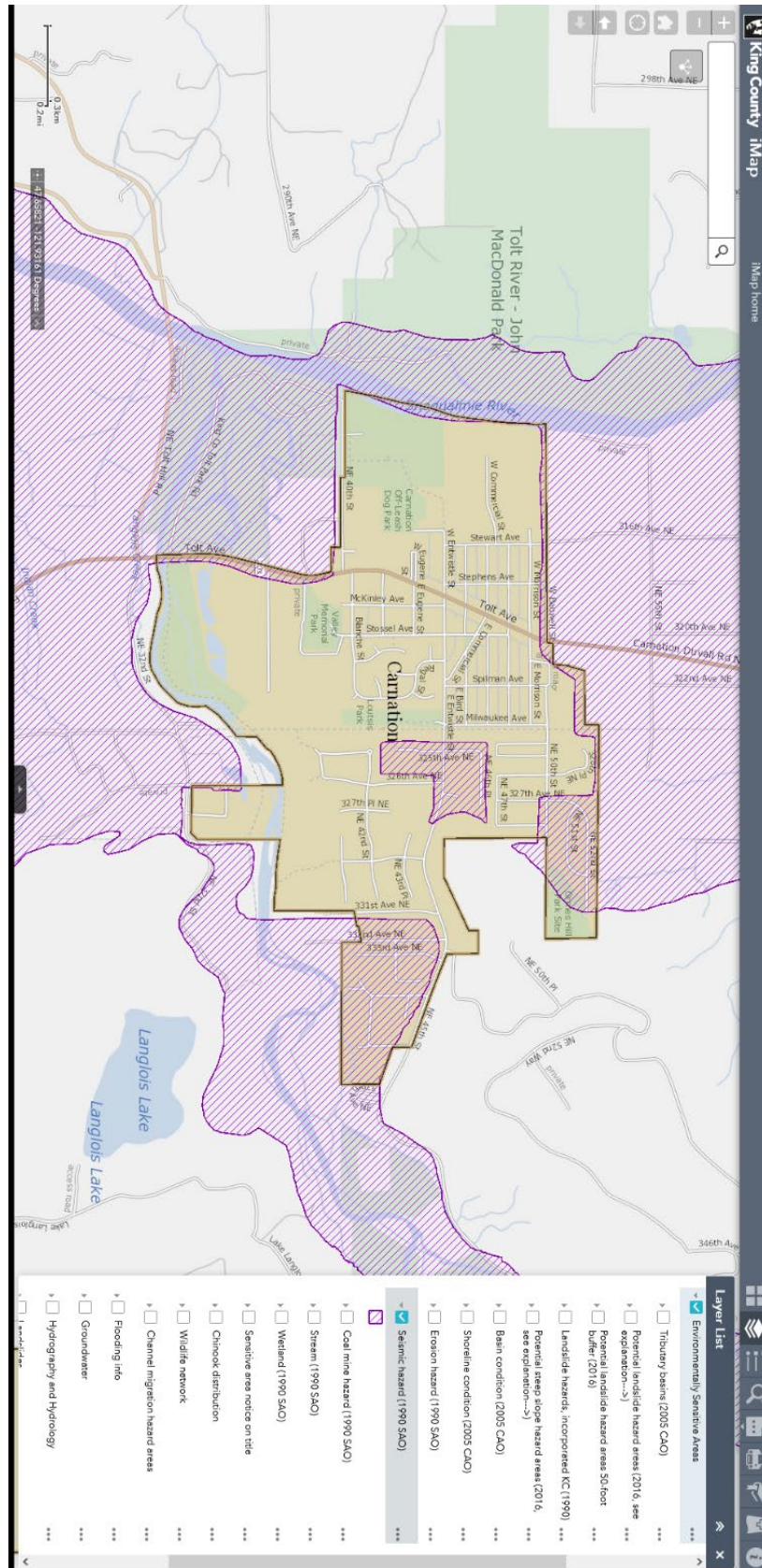


Figure 1: Earthquake Hazard – Seismic Hazard within City Limits

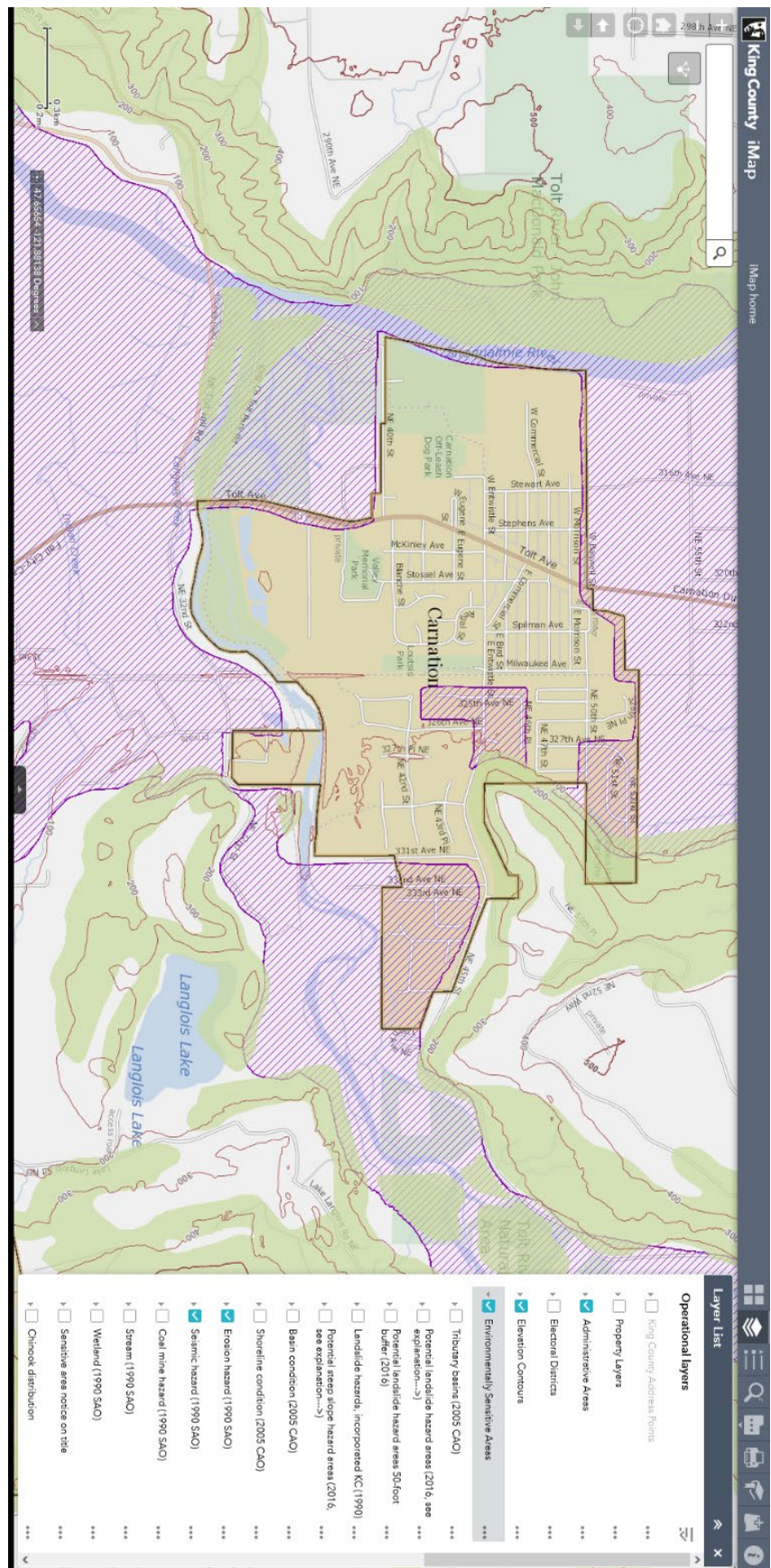


Figure 2: Landslide Hazard – Erosion and Seismic Hazard within City Limits, with Elevation Contours

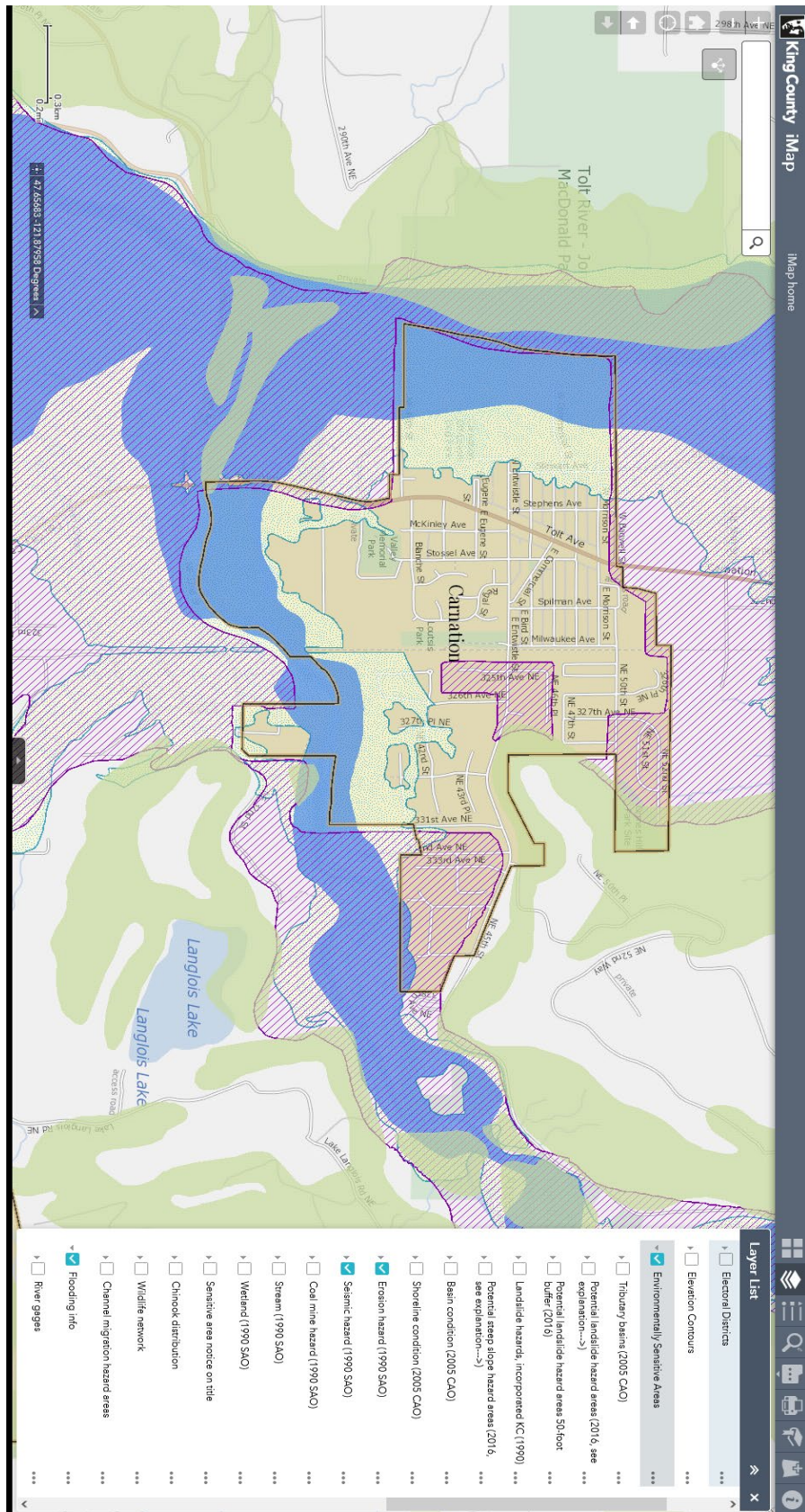


Figure 3: Combined Erosion and Flooding Hazard

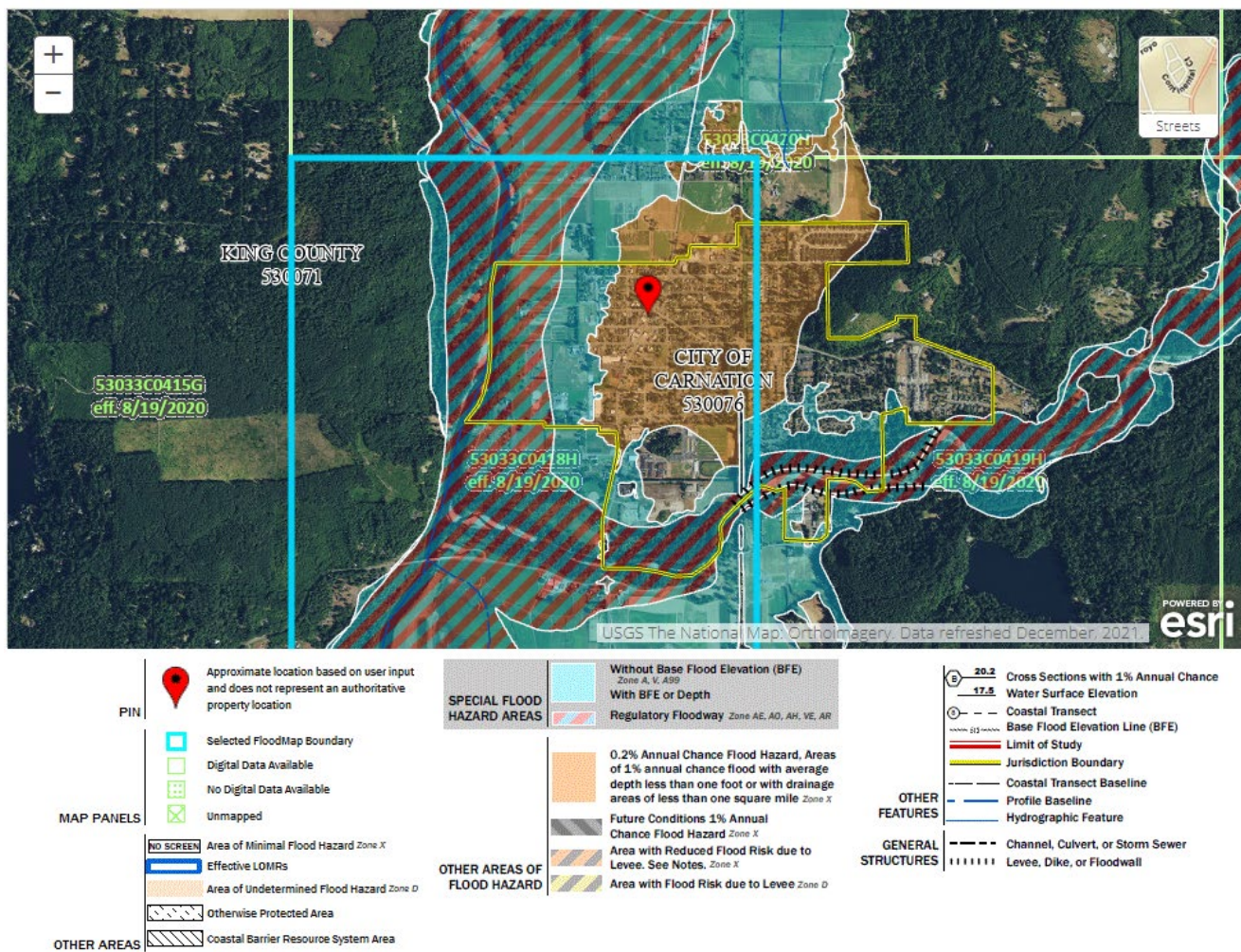


Figure 4: Hazard and Asset Overview Map(s) – City of Carnation FEMA Flood Map

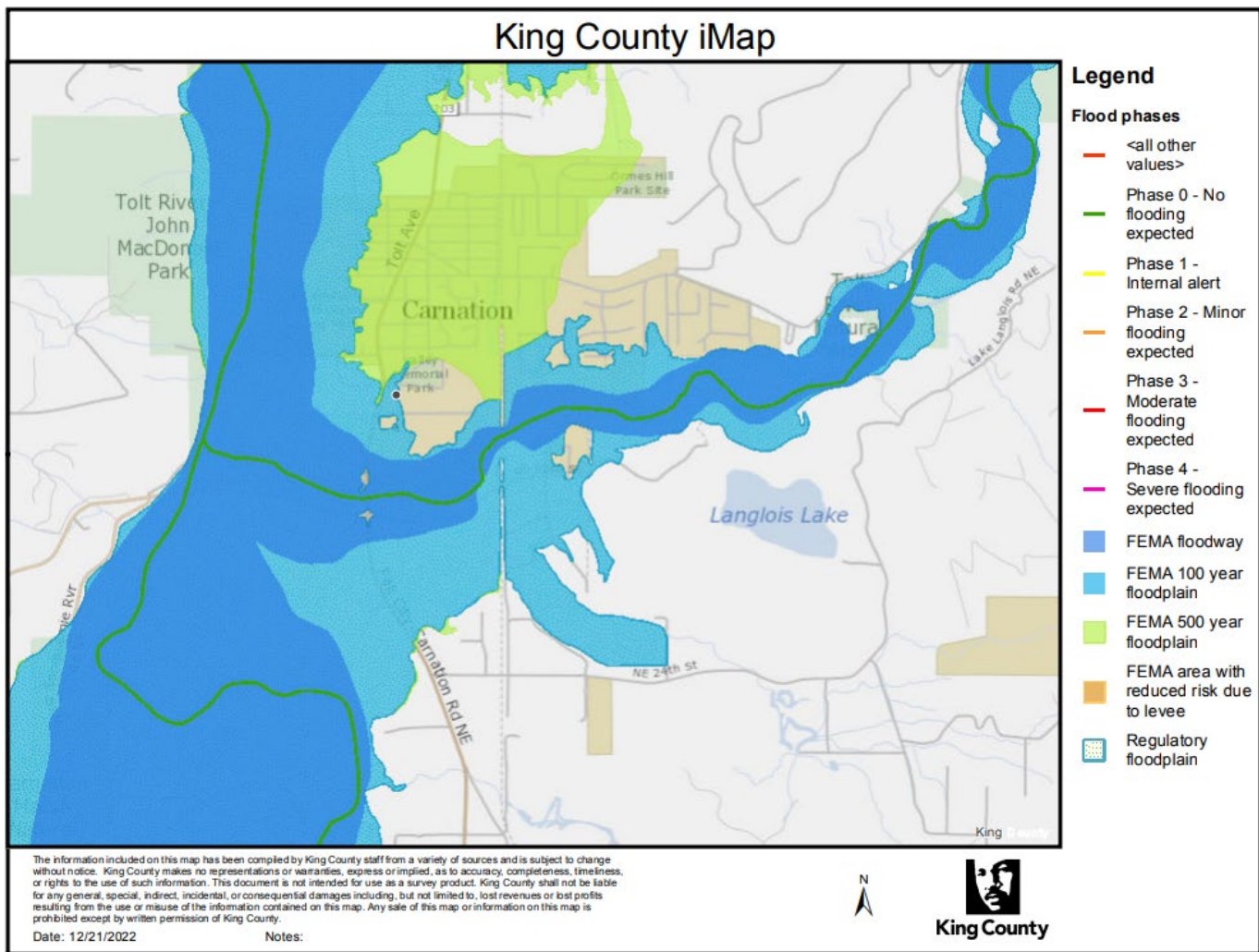


Figure 5: Hazard and Asset Overview Map(s) – Tolt Middle School Flood Map

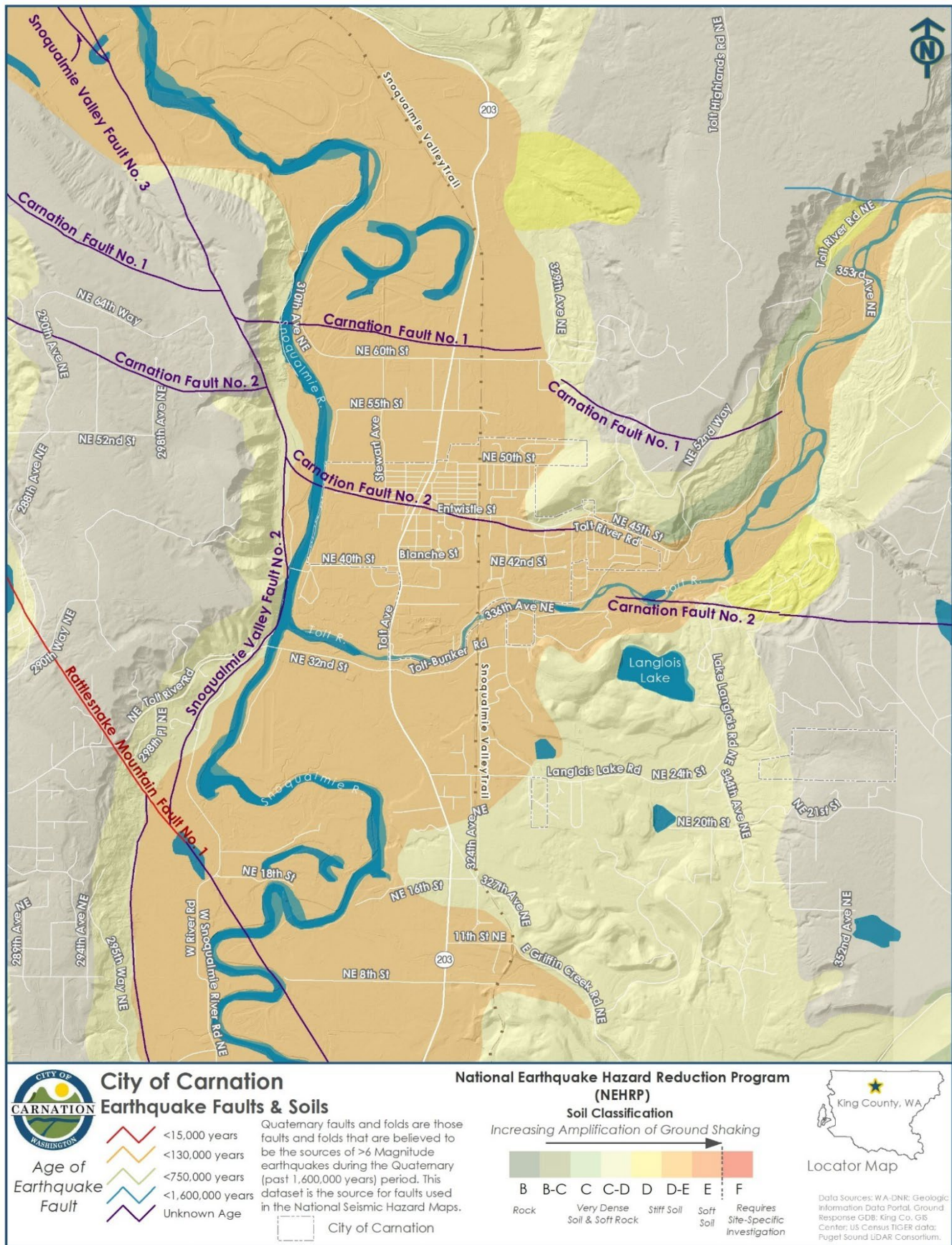


Figure 6: Earthquake Hazard – Earthquake Faults and Soils

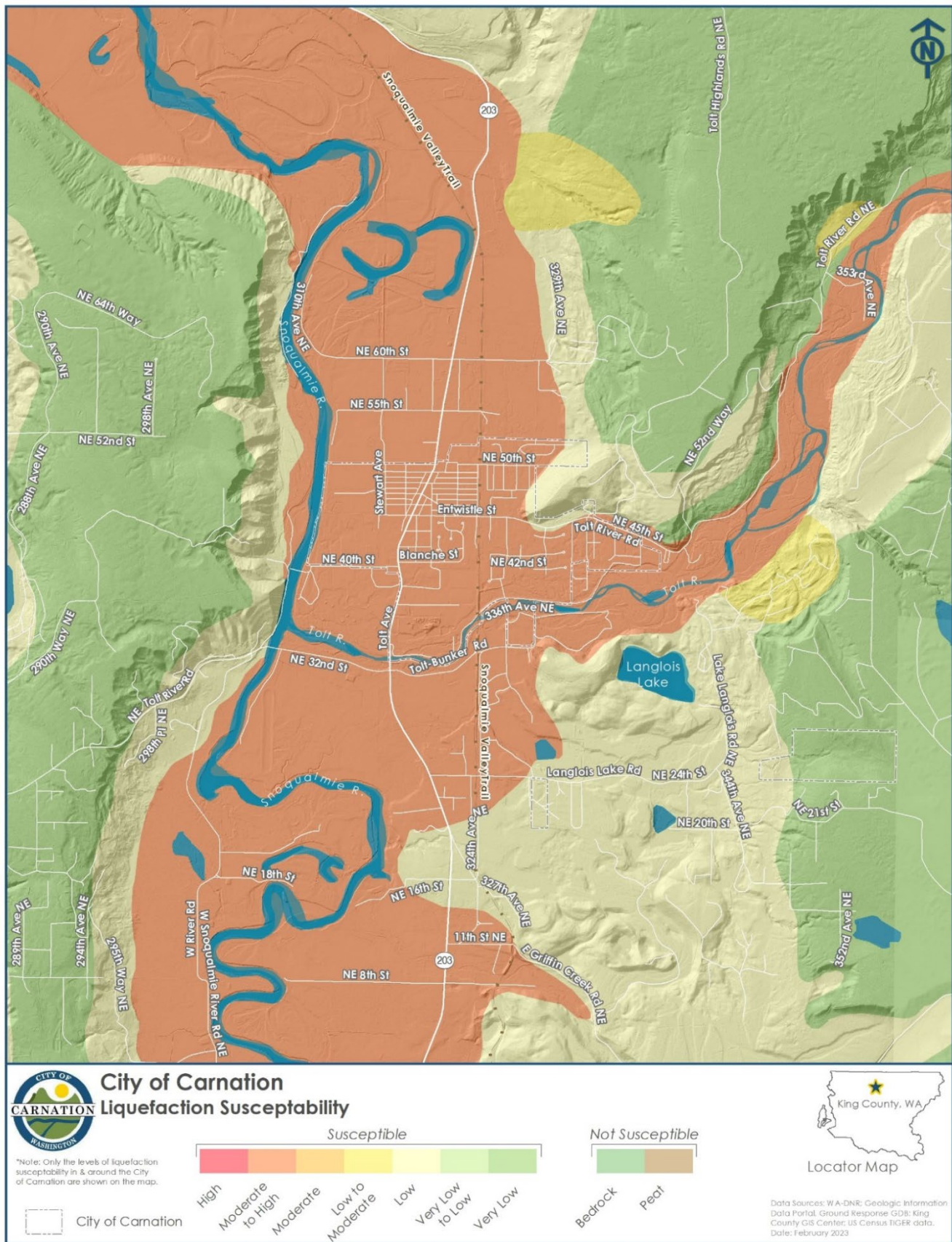


Figure 7: Earthquake Hazard – Liquefaction Susceptibility

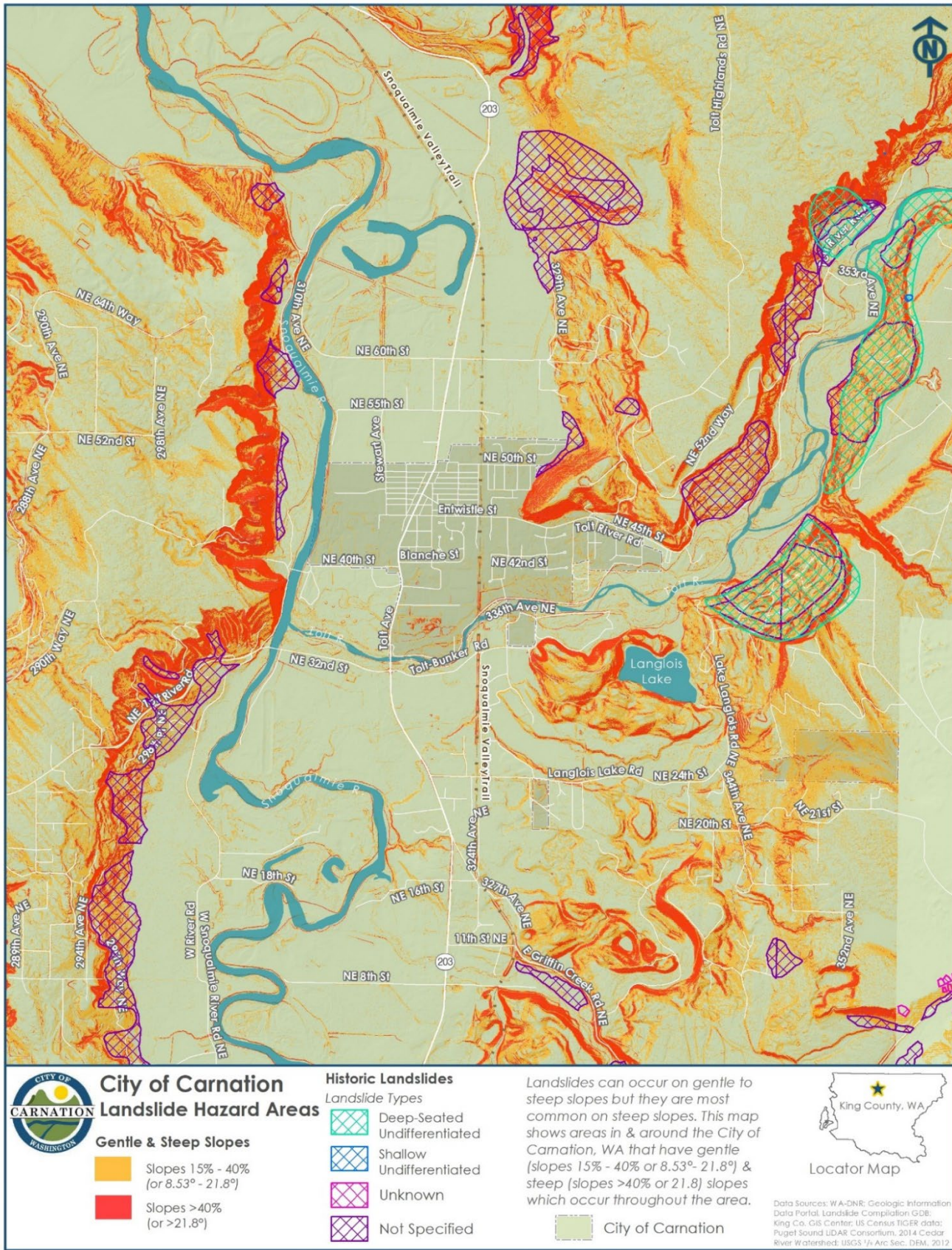


Figure 8: Landslide Hazard Areas

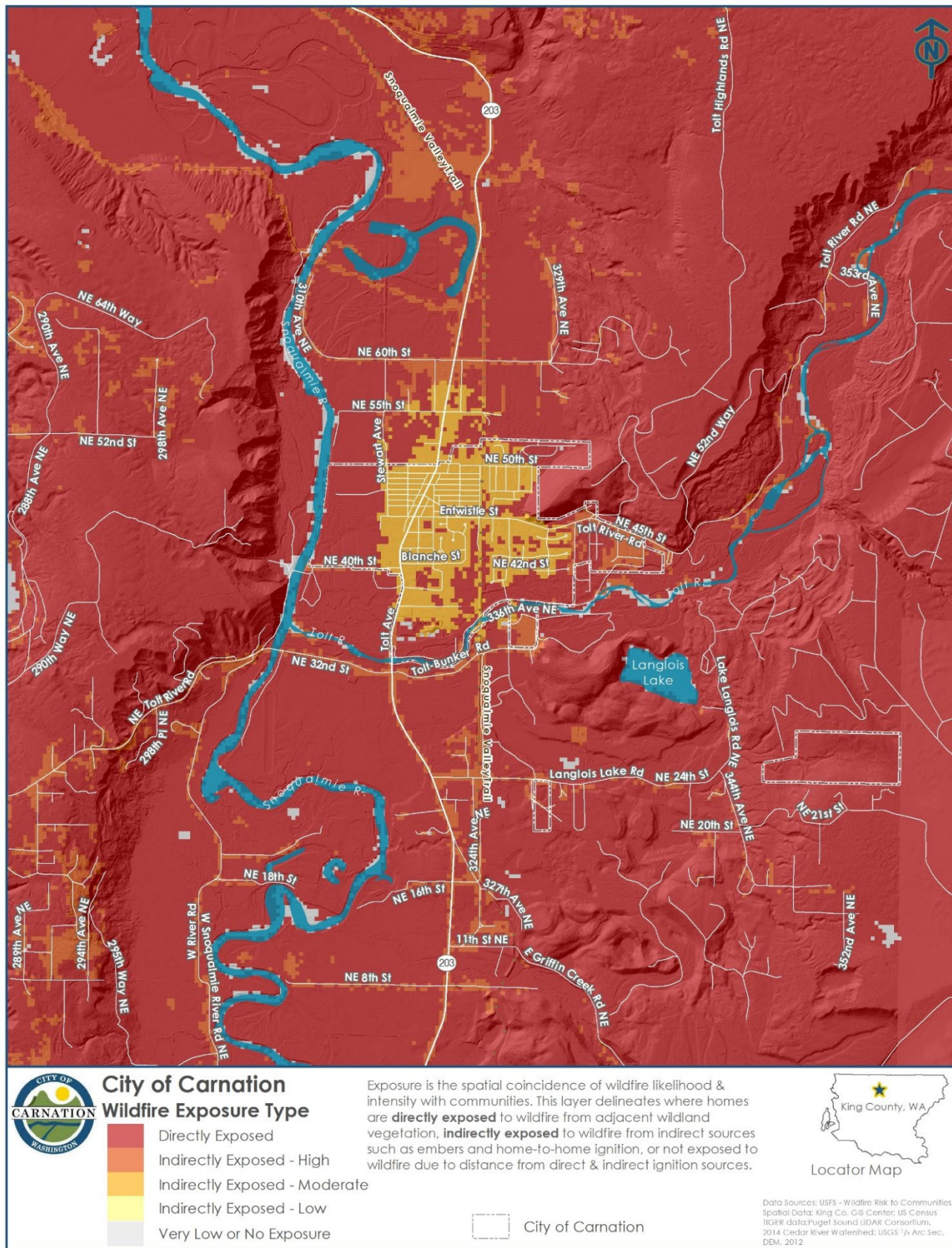


Figure 9: Wildfire Hazard – Wildland Urban Interface Fire Risk

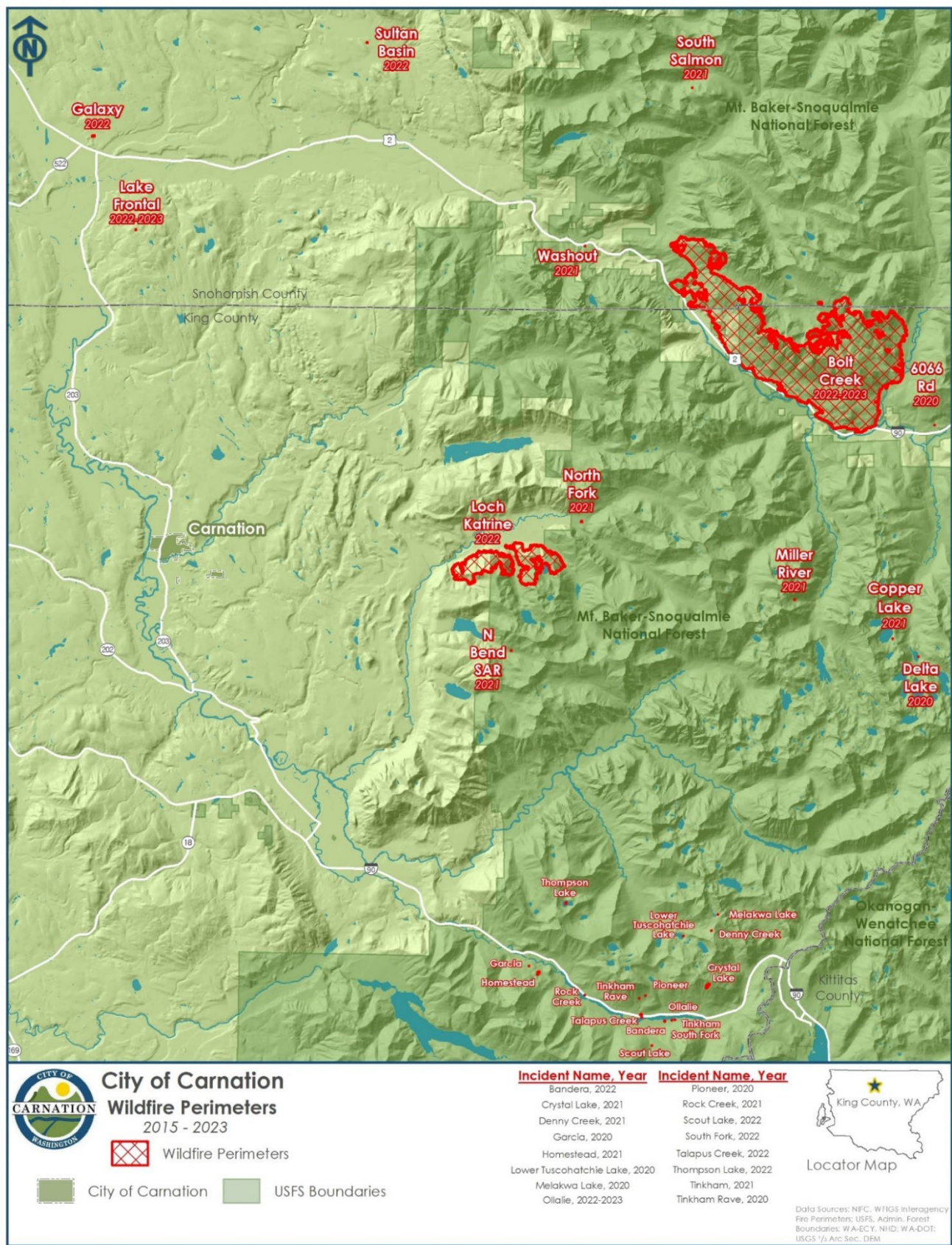


Figure 10: Wildfire Hazard – Area Burn Scars (potential for flash floods, landslides, and debris flow)

Assets at Risk

Asset values as determined by the 2024 AWC Appraisal Report.

Asset	Value (\$)	Hazard Summary	Vulnerability Summary	Impact Summary
Carnation City Hall	\$1,573,300	High Risk from potential structural damage from Dam failure, earthquake, flood, extreme weather, wildfire	Carnation City Hall, a 6,700 square-foot two-story building constructed in 1947, is vulnerable to various hazards. Its age and location in a moderate seismic zone with proximity to the Tolt River increase its susceptibility to earthquakes and flooding. As the central hub for city operations, damage to City Hall could disrupt essential services and emergency response. Lack of operational redundancy and potential accessibility limitations further compound these risks.	The destruction of Carnation City Hall would severely disrupt city services, displace staff, and potentially cause irreplaceable loss of records. Rebuilding would be costly and time-consuming, impacting the local economy and community morale.
Lord's House	\$541,800	High Risk from potential structural damage from Dam failure, earthquake, flood, extreme weather, wildfire	The 1911 City Hall acquisition reveals significant vulnerabilities stemming from its age and location. Its proximity to the Tolt River and presence in a moderate seismic zone increases its susceptibility to flooding and earthquake damage. As the future central point for city operations, any damage could severely disrupt essential services and emergency response, a risk exacerbated by a lack of operational redundancy and potential accessibility limitations.	The destruction of Carnation's newly developing City Hall and Emergency Operations Center (EOC) would be a devastating blow to the community, compounding the typical impacts of losing a city hall. Not only would essential city services be disrupted, but the loss of the EOC would severely cripple emergency response capabilities precisely when they are most

Asset	Value (\$)	Hazard Summary	Vulnerability Summary	Impact Summary
				needed. This would leave Carnation extremely vulnerable to further damage and hinder recovery efforts. The financial burden would be immense, requiring a complete rebuild of both critical facilities
Spring Source and Water Tank	\$693,950	The Spring Source is at risk from potential structural damage from Dam failure, earthquake, flood, cyber attack, acts of terrorism, extreme weather and wildfire.	Carnation's spring source, is the primary provider of drinking water, is a critical asset facing various vulnerabilities. Natural hazards such as earthquakes, landslides, and wildfires could damage the spring infrastructure or contaminate the water supply. Human-caused threats like vandalism, accidents, or intentional contamination also pose risks. Climate change further exacerbates these vulnerabilities, with increased risk of heavy rainfall leading to flooding and landslides, as well as droughts potentially reducing spring flow. Any disruption to this primary source would have immediate and severe consequences for the entire community, impacting public health, firefighting	Damage to Carnation's spring source would cause an immediate water crisis, threatening public health and crippling essential services like firefighting. Economic activity would be severely disrupted, potentially leading to long-term hardship.

Asset	Value (\$)	Hazard Summary	Vulnerability Summary	Impact Summary
			capabilities, and essential services.	
Well House Water System	\$257,200	The Well House water system is at risk from potential structural damage from Dam failure, earthquake, flood, extreme weather, wildfire	The Well House Water System faces a variety of threats that could disrupt its operation. These include power outages impacting the well pump, mechanical failures within the system, water quality issues arising from contamination or reduced groundwater availability, and physical damage to the infrastructure from natural hazards like earthquakes and floods, or from accidents and vandalism. Any of these issues could compromise the system's ability to serve as a reliable backup water source for Carnation.	Damage or destruction of Carnation's backup water system would severely compromise the city's ability to cope with emergencies like fires or droughts and hinder its capacity to meet peak water demands during summer months. This could lead to inadequate water pressure for firefighting, mandatory water restrictions, and potential public health concerns. The city would be forced to rely solely on its primary water source, increasing vulnerability to any disruptions.
Sewer Vacuum Station	\$1,667,010	At risk from potential structural damage from Dam failure, earthquake, cyber-attack, act of terrorism, flood, extreme weather and wildfire.	Carnation's sewer vacuum station is vulnerable to a range of disruptions that could compromise its essential function. Power outages, whether from storms, equipment failure, or grid disruptions, could render the system inoperable. The station's location may also expose it to damage from natural hazards like flooding, earthquakes, or wildfires. Any	Damage or destruction of Carnation's sewer vacuum station would trigger a public health crisis and environmental hazard. Raw sewage would back up into homes and businesses, posing serious health risks and potentially contaminating water sources.

Asset	Value (\$)	Hazard Summary	Vulnerability Summary	Impact Summary
			disruption to this critical infrastructure poses significant health risks due to sewage backups, potentially contaminating homes, businesses, and the environment. This could lead to a public health crisis, force businesses to close, and cause extensive property damage.	The resulting sanitation issues could force closures and evacuations, crippling economic activity and disrupting daily life. Repairing or replacing the station would be costly and time-consuming, requiring immediate emergency response to contain the damage and protect public health while long-term solutions are implemented.
Public Works Yard	\$1,363,700	At risk from potential structural damage from Dam failure, earthquake, acts of terrorism, flood, extreme weather, wildfire	Carnation's Public Works Shop, essential for maintaining city infrastructure and responding to emergencies, faces various hazards. Its age and construction may make it vulnerable to earthquakes and storms. Located near the Tolt River increases the risk of flood damage. A fire within the shop could destroy essential equipment and disrupt operations, hindering road maintenance, utility repairs, and emergency response. Furthermore, dependence on the facility for storage of materials and equipment creates a	Damage or destruction of Carnation's Public Works Yard would significantly hinder the city's ability to maintain essential services and respond to emergencies. The loss of equipment, materials, and operational space would disrupt road maintenance, sanitation services, and utility repairs. This could lead to hazardous road conditions, delays in utility services and

Asset	Value (\$)	Hazard Summary	Vulnerability Summary	Impact Summary
			single point of failure, leaving the city vulnerable if the shop is damaged.	prolonged water outages. Furthermore, the city's capacity to respond to events like storms or fires would be severely compromised, leaving residents vulnerable. Rebuilding the yard and replacing equipment would be a costly and time-consuming process.
Public Works Water Tower	\$2,541,860	At risk from potential structural damage from Dam failure, earthquake, cyber attack, act of terrorism, flood, extreme weather and wildfire.	Carnation's water holding tank is vulnerable to a range of natural hazards that threaten its structural integrity and the safety of the water supply. Earthquakes could cause damage or collapse, while heavy rainfall and flooding could compromise the foundation or lead to contamination. Wildfires, a growing risk in the region, could also damage the tank or its supporting infrastructure. Any disruption to this critical asset could lead to water shortages, public health risks, and economic disruption.	Damage or destruction of Carnation's water holding tank would cause an immediate disruption of water supply to residents and businesses, impacting daily life and essential services like firefighting. The extent of the disruption would depend on the severity of the damage and the availability of backup water sources.

Future Conditions

There is strong evidence that long-term changes in climate-related systems will have significant impacts on future natural hazard event frequency, intensity, and magnitude across the globe. With increasing global

surface temperatures, the possibility of droughts and increased frequency and intensity of storms is likely. As more water vapor is evaporated into the atmosphere, it will become fuel for more frequent and more powerful storms to develop, leading to increased fluvial (riverine) and pluvial (rainfall) flooding.

More information can be found at Climate Change 2022: Impacts, Adaption & Vulnerability, p.2414. Retrieved from: https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter16.pdf

Plan Development Process

The City of Carnation was selected by King County to benefit from available planning sub-grant funds. A contractor hired by King County facilitated the Kickoff Meeting on February 7, 2023, and the Hazard Identification and Risk Assessment Meeting on March 1, 2023, in accordance with the end of the sub-grant period of performance. The annex was written primarily by the city's primary plan preparer who validated assets, identified local resources, reviewed existing plans/documentation, and facilitated communication with internal staff and consultants, and King County. The final steps were accomplished through the City and County actions.

In accordance with the King County 2025 Hazard Mitigation Plan update, this annex was then reviewed and edited by several key staff members, then reviewed by elected officials as a final step to mark completion. Mitigation strategies were developed as a result of public outreach results, communication with City Council members, and reviewing related City plans and documents to verify consistency.

General steps for the process consist of:

1. Researching and documenting existing hazard mitigation related materials in the City
2. Summarizing vulnerabilities to hazards
3. Public outreach and integration of results
4. Input from elected officials
5. Development of mitigation strategies
6. Culmination and approval of Annex

Jurisdiction Planning Team

NAME	TITLE	ORGANIZATION	CONTRIBUTION
Jennifer Hargrove	Safety Service Contractor	City of Carnation	Mitigation Planning Team
Benjamin Thompson	Safety Service Contractor	City of Carnation	Mitigation Planning Team
Ashlyn Farnworth	Assistant to the City Manager, P.I.O.	Public Works	Mitigation Planning Team
Andrew Stevens	Emergency Manager	Eastside Fire and Rescue	Mitigation Planning Team
Meisha Robertson	Director of Business & Operations	Riverview School District	Mitigation Planning Team
Adair Hawkins	Councilmember	City Council	Mitigation Planning Team
Ryan Burrell	Councilmember	City of Carnation	Mitigation Planning Team
Kathy Brasch	President	Carnation/Duvall Citizen Corps Council	Mitigation Planning Team
Zak Mohamed	Emergency Data Analyst	Eastside Fire and Rescue	Mitigation Planning Team
Tom Needham	President	SnoVARC Amateur Radio Club	Mitigation Planning Team
Rowland Brash	CDCCC Board Member	Carnation/Duvall Citizen Corps Council	Mitigation Planning Team
Eden Edmonson	Dam Safety Program Coordinator	King County Emergency Management	Mitigation Planning Team

Plan Development Timeline

PLANNING ACTIVITY	DATE	SUMMARY	ATTENDEES
Kickoff meeting presentation	February 7, 2023	Witt O'Brien's staff gave an overview of natural hazards and mitigation, federal grant opportunities, the planning process, and worked with city staff to develop a list of hazards impacting the area. Staff also discussed the city's capacity and ability to address the hazards.	Jennifer Hargrove, Benjamin Thompson Andrew Stevens, Ashlyn Farnworth, Meisha Robertson, Eden Edmonson
Hazard Identification and Strategy meeting	March 1, 2023	Witt O'Brien's staff gave an overview of natural hazard maps and generalized risk assessment. The Planning team then identified applicable Mitigation Strategies and identified actions.	Jennifer Hargrove, Benjamin Thompson, Ashlyn Farnworth, Kathy Brasch, Eden Edmonson
Hazard Identification and Mitigation Actions meeting	March 1, 2023	Witt O'Brien's staff met with planning staff to discuss the hazard profile for Carnation, and to contextualize the hazards for the community.	Jennifer Hargrove, Benjamin Thompson, Kathy Brasch, Eden Edmonson, Ashlyn Farnworth, Chelsea Morganti, Allison Hardin
Review meeting	February 22, 2024	Document contractor met with city leaders to ensure accuracy of information and to approve mitigation strategies.	Jennifer Hargrove, Rachael Fluhrer, Ana Cortez
Review meeting	December 19, 2024	Reviewed document continuity and mitigation strategies.	Luke Eckert and Rachael Fluhrer

Public Outreach

Carnation participates in Dam Ready programs and advocates for residents to participate in ALERT King County. Annually in the fall, the City of Carnation collaborates with emergency partners, stakeholders, and residents to host an evacuation drill. During these events, Carnation and emergency partners disseminate information about local hazards, processes, preparedness resources and programs.

Public Outreach Events

EVENT	DATE	SUMMARY	ATTENDEES
Public poll regarding evacuation routes during false alarm	July 28, 2020	A pull was posted on a community Facebook group "Carnation, WA" asking how residences within city limits evacuated during a Tolt Dam failure false alarm.	Posted by Tim Harris on Carnation, WA Facebook page. The post received 250 votes and 153 comments.
City of Carnation Annual Evacuation Event	September 30, 2023	Community members were invited to speak at the event to share their experiences and concerns with Seattle City Council and Mayor. Information booths presented both preparedness and mitigation information, and new hazard information was shared. Residents then walked the evacuation routes.	City of Carnation, Carnation residents, Seattle City Council, Seattle Mayor, Seattle Public Utilities.

Jurisdiction Hazard Mitigation Program

The City of Carnation planning team attended a Hazard Identification and Mitigation Actions planning meeting 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.

With community focus on the Tolt River Dam and new information concerning the City's hazards, the bulk of the identified mitigation actions address the need for additional data and actions that focus on preservation of life, environment, and property. The City of Carnation plans to take steps toward increasing their understanding of risk and mitigating potential flood, fire, terrorism attacks, hazardous material risks, geological hazards and failure of the Tolt Dam.

City of Carnation Mitigation Goals

- ❖ Improve the resiliency of our community to preserve life, health, and safety.
- ❖ Preserve continuity of, and access to, transportation
- ❖ Preserve the continuity of communications.
- ❖ Improve our understanding of natural hazards through data gathering and analysis

Plan Integration

Hazard mitigation content from this Annex will be integrated into other Planning and Public Works mechanisms through various actions. Some of the takeaways from this Planning process include:

- Bridges - Assessment and project scoping of local bridges is needed to identify and inspect critical structures and prioritize maintenance, repairs, and/or upgrades.
- Liquefaction Potential – This portion of the Annex has informed the City where additional geotechnical analysis is needed.
- Seismic Potential – This portion of the Annex has been used to inform city staff of areas of high seismic vulnerability in the City, and the need to mitigate seismic activity.
- Emergency Contacts – Creation of the Annex encouraged the City to reach out to other entities to begin forming valuable relationships where none existed before. These could prove invaluable in times of emergency.
- Identify Critical Facilities in the floodplain – The Annex was referenced to help inform the city of potential flooding issues in the area of their new emergency operations center (EOC).

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 2025 update to the Regional Hazard Mitigation Plan, Carnation agrees to convene its 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, Carnation will review and address any federal notices of funding opportunities sent by the King County Office of Emergency Management for the Hazard Mitigation Assistance Grant Program. Proposals from Carnation will be assessed by King County according to the prioritization process identified in this plan. King County will, where possible, support Carnation submitting grant proposals. This will be a key strategy to implement the plan.

This Annex was prepared in advance of the next plan update, expected in 2025 following a letter of intent submitted in 2022. The county will lead the regional planning effort, beginning at least 18 months before the expiration of the 2020 plan. This annex will be routed for FEMA review and approval as part of the update process.

Continued Public Participation

King County, Carnation, and local volunteer groups already maintain public outreach capabilities, focusing on personal preparedness and education. Information on progress in implementing the hazard mitigation plan will be integrated into public outreach 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.

Hazard Mitigation Authorities, Responsibilities, and Capabilities

The following is a list of Plans that relate to hazard mitigation performed by Carnation.

Plans

PLAN TITLE	RESPONSIBLE AGENCY	POINT OF CONTACT	RELATIONSHIP TO HAZARD MITIGATION PLAN
Comprehensive Plan	City of Carnation	CED Department	Relates to all hazards
Comprehensive Emergency Management Plan	City of Carnation	Emergency Manager	Relates to all hazards
Shoreline Master Program	City of Carnation	CED Department	Relates to "Flood"
Tolt Avenue Action Plan	City of Carnation	CED Department	Relates to "Wind" (undergrounding utilities)
Capital Improvement Plan	City of Carnation	CED Manager	Relates to all hazards
Annual Budget	City of Carnation	City Manager	Funds all hazard mitigation related planning efforts
Comprehensive Water System Plan	City of Carnation	City Engineer/Public Works Director	Relates to "Flood," "Drought"

The following is a list of programs, policies, and municipal codes regarding hazard mitigation in Carnation.

Programs, Policies, and Processes

PROGRAM/POLICY	RESPONSIBLE AGENCY	POINT OF CONTACT	RELATIONSHIP TO HAZARD MITIGATION PLAN
Carnation Comprehensive Emergency Management Plan	City of Carnation	Emergency Manager	Relates to all hazards
Health and Safety (Title 8)	City of Carnation	City Building Official	Relates to “Wildfire”
Public Peace, Morals, and Welfare (Title 9)	King County	KCSO	Relates to all hazards
Environmental Protection (Title 14)	City of Carnation	CED Department	Relates to “Drought,” “Flood,” “Landslide,” and “Winter Storm”
Land Use (Title 15)	City of Carnation	City Manager	Relates to all hazards
Building and Construction (Title 16)	City of Carnation	City Manager	Relates to all hazards
Street and Storm Sewer System Standards	City of Carnation	City Manager	Relates to all hazards
Carnation...ready, set, PREPARE	City of Carnation	Emergency Manager	Relates to all hazards
Stormwater Comprehensive Plan	City of Carnation	City Manager	Relates to “Flood” and “Severe Weather” hazards.
Purchasing Policy	City of Carnation	City Manager	Relates to all hazards

The following is a list of public agencies responsible for hazard mitigation in and around Carnation.

Entities Responsible for Hazard Mitigation

AGENCY/ORGANIZATION	POINT OF CONTACT	RESPONSIBILITY(S)
City of Carnation	Emergency Manager	Primary jurisdiction
WSDOT	Kayla Grayson, WSDOT NWR Emergency Manager	Transportation on regional roadways (SR-203)
WA Dept. of Ecology	Mark Daniel, Clean Energy PEIS Senior Planner	Water quality and environmental health
WA Dept. Natural Resources	Chris Zanassi, Administrator II	Agency managing surrounding wildlands
WA Dept. of Health	Monica Miner, Compliance Program Manager	Drinking water quality
United States Forest Service	Martie Schramm	Agency managing surrounding wildlands
King County Public Health	Alison Levy	Overall oversight and management of vectors as well as outbreaks and general public health- related info
King County Emergency Management	Brendan McCluskey, Director	Carnation liaison for the agency managing regional EOC, in addition to surrounding wildlands and rivers
King County Sheriff's Office/Carnation Police Department	Major Konoske Deputy Riley Tollefson	Police services within Carnation
Eastside Fire & Rescue	Chief Ben Lane Greg Bawden	Fire and EMS services within Carnation
Snoqualmie Valley Transit	Amy Biggs	Local public transportation agency
Riverview School District	Dr. Susan Leach	Administration of all public schools in Carnation
Carnation Public Utilities	Director of Public Works	
Recology	Alissa Campbell, Waste Zero Manager	Solid waste
Puget Sound Energy	Sandy Leek	Electrical utility

National Flood Insurance Program

National Flood Insurance Program Compliance

What department is responsible for floodplain management in your community?	City Manager's Office
Who is your community's floodplain administrator? (title/position)	Development and Permitting Coordinator Deputy City Manager
What is the date of adoption of your flood damage prevention ordinance?	(Ord. 634 § 4, 2001) (Ord. No. 864, § 2, 8-4-2015; Ord. No. 930, § 3(Exh. B), 8-4-2020)
When was the most recent Community Assistance Visit or Community Assistance Contact?	5/4/2023
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?	Yes. More training is always welcome, specifically: development in the floodplain, drainage issues, Elevation Certificate training, CRS training.
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?	Carnation is a CRS 6 Community
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

This being Carnation's first hazard mitigation plan, strategies were derived from public input, previous actions by appointed officials, and lessons learned from the accidental Dam inundation alert that occurred in 2020.

2020 Hazard Mitigation Strategies

STRATEGY	DESCRIPTION	PRIORITY	STATUS
N/A	Carnation's first Hazard Mitigation Plan Annex	N/A	N/A

2025 Hazard Mitigation Strategies

STRATEGY	LEAD AGENCY/POC	TIMELINE	PRIORITY	Hazard(s)
CAR-1, Dam Resilience	City of Carnation		Highest	Dam Failure, Earthquake, Flood
CAR-2, Flood Resilience	City of Carnation		High	Flood, Extreme Weather
CAR-3, Fire Resilience	City of Carnation		Medium	Wildfire, Extreme Weather, Structural Fire, Acts of Violence and Terrorism
CAR-4, Terrorism Resilience	City of Carnation	2025	Low	Terrorism
CAR-5 Expanding an Alert Warning System	City of Carnation		Low	All Hazards

Hazard Mitigation Strategies

CAR-1, Enhance Tolt Dam Failure Resilience			
Lead Points of Contact (Title) Carnation Emergency Manager	Partner Points of Contact (Title) City Public Works and Community and Economic Development	Hazards Mitigated / Goals Addressed Dam Failure, Earthquake, Flood	Funding Sources and Estimated Costs Staff time, collaborative effort with SPU and King County FEMA's Hazard Mitigation Assistance family of grants or potential Federal Grants.
Strategy Vision/Objective Save the most amount of lives in the event the Tolt Dam fails. Preserve continuity of, and access to, transportation during an evacuation due to Dam failure. Improve our understanding of natural hazards through data gathering and analysis.			
Mitigation Strategy • Install Dam failure evacuation digital message boards along key routes and areas where evacuees may need additional guidance in the event of a Dam failure. • Pursue data collection and analysis of landslide and land subsidence risks. • Complete an earthquake impact analysis that includes risks due to liquefaction, and addresses capacity (to include neighboring jurisdictions). • Pursue data collection and analysis of mass care and sheltering needs for the City of Carnation (to include neighboring jurisdictions). • Enhancement of the relationship between the City of Carnation and Seattle Public Utilities (SPU) • Enhance current evacuation plans and public education and information resources			
3-Year Objectives • Strengthen and test wireless alerts. • Identify and secure funding to conduct data collection and analysis of landslide and land subsidence risk studies. • Perform evacuation traffic study • Create and fortify alternative evacuation routes • Construct evacuation route annex		5-Year Objectives • Install, maintain, and test digital Dam failure signs. • Increase resident's participation in drills and planning events. • Utilize increased risk awareness to identify new mitigation actions that reduce risk and increase community resiliency.	
Implementation Plan/Actions • Earthquake and communication campaign for residents • On-call contract with structural engineering firm to assess bridges after earthquake event • Continue enforcement of building codes and construction oversight • Address water system resilience shortcomings through capital improvements • Continue to require undergrounding of utilities through private development and programmatic actions • Work with small local businesses on continuity for multi-day hazard events • Collaborate with King County and the Washington Emergency Management Division to identify applicable Hazard Mitigation sub-grant funds. • Secure local non-federal match or commitment to in-kind staff time to facilitate sub-grant agreements. • Complete application and secure grant funding. • Implement data collection and analysis of landslide and land subsidence risk on and near Tolt Highlands Rd NE near Evacuation Hill, NE 50th footpath, Highway 203 South, NE Tolt Hill Rd, and NE Stillwater Hill Rd • Complete an earthquake impact analysis that includes risks due to liquefaction, to evacuation routes (Hwy 203 and Tolt Hill Rd), and addresses capacity (to include neighboring jurisdictions).			
Performance Measures Outside of a major earthquake event the City will become proficient in tabletop exercises. In the case of a major earthquake event residents will be prepared for self-sufficiency, infrastructure will be assessed in reasonable time.			

CAR-2, Enhance Flood Resilience			
Lead Points of Contact (Title) City Manager	Partner Points of Contact (Title) City Public Works Community and Economic Development King County Flood Control District WA Dept of Ecology Puget Sound Partnership Salmon Recovery Funding Board	Hazards Mitigated / Goals Addressed Flooding, Extreme Weather	Funding Sources and Estimated Costs Staff time FEMA's Hazard Mitigation Assistance family of grants – and/or potential Federal Grants. Washington Department of Ecology - Flood control assistance account program (FCAAP)
Strategy Vision/Objective Increased resilience to changing hydrologic regimes due to climate change. Improve coordination and collaboration amongst neighboring agencies and communities prior to emergency events. Coordination shall include: • Planning, training, and drills • Creation of Memorandum of Understandings (MOUs) with neighboring jurisdiction.			
Mitigation Strategy Continue to improve the City of Carnation Community Rating System score under the National Flood Insurance Program. This will be accomplished through the implementation of floodplain management programs that increase community resiliency. The City will consider a variety of factors including: • Enforcement of the adopted floodways, floodplains, drainage and erosion ordinance • Participation in floodplain identification and mapping updates, and • Evaluate Ord. No. 15.64.030 § F for opportunities to enhance floodplain requirements for building permits. • Reevaluate CRS points that can be gained from participation in the Hazard Mitigation Planning activities such as mapping and public outreach (Complete Activity 510)			
3-Year Objectives • Improve awareness and target opportunities to improve CRS score, current score is 6. • Construct COG/COOP plans • Construct MOU with Duvall, Fall City, Redmond, Issaquah, and Sammamish		5-Year Objectives • Complete CRS 6 maintenance and identify specific tasks for implementation to improve CRS score. • Increase CRS score, explore capital improvements to lessen flood risk. • Increase community resilience • Provide support to neighboring communities	
Implementation Plan/Actions • Follow NFIP standards when reviewing floodplain development. • Solidify CRS 6 rating by further integrating best management practices and documentation into daily employee routines. • Pursue capital projects to lessen flood risk, specifically targeting bridges and evacuation routes (Hwy 203 NE 50th, and possible expansion to NE 60th) • Flood control assistance - Washington State Department of Ecology			
Performance Measures Increased resilience to changing hydrologic regimes due to climate change, measured by: minimal damage to older buildings from flood events, no damage to new commercial buildings from flood events, no inundation of new homes.			

CAR-3, Enhance Fire Resilience			
Lead Points of Contact (Title) Carnation Emergency Manager	Partner Points of Contact (Title) City Public Works Community and Economic Development Eastside Fire and Rescue	Hazards Mitigated / Goals Addressed Wildfire, Extreme Weather, Structural Fire, Acts of Violence and Terrorism	Funding Sources and Estimated Costs FEMA’s Hazard Mitigation Assistance family of grants –and/or potential Federal Grants.
Strategy Vision/Objective Increase home and wildfire awareness to prevent and mitigate hazards and improve our understanding of natural hazards through data gathering and analysis.			
Mitigation Strategy - Collaborate with CDCCC and Eastside Fire and Rescue to conduct public Firewise training. - Pursue data collection and analysis of potential soil and sediment impacts to Tolt Dam from historic burn scars nearby, as well as the likelihood of future wildfire events.			
3-Year Objectives - Increase Firewise training and participation. - Identify and secure funding to conduct data collection and analysis of wildfire likelihood, and soil and sediment impacts to Tolt Dam. - Explore potential avenues of collaboration.		5-Year Objectives - Develop committed Firewise communities. - Utilize increased risk awareness to identify and implement new mitigation actions that reduce risk and increase community resiliency. - Lobby for potential resource allocations for surrounding forests.	
Implementation Plan/Actions - Collaborate with CDCCC and ESFR to host public Firewise training - Repair or improve current systems - Implement projects for IWUIC https://www.iccsafe.org/products-and-services/wildland-urban-interface-code/ - Collaborate with King County and the Washington Emergency Management Division to identify applicable Hazard Mitigation sub-grant funds. - Secure local non-federal match or commitment to in-kind staff time to facilitate sub-grant agreements. - Complete application and secure grant funding. - Implement data collection and analysis of wildfire likelihood, and soil and sediment impacts to Tolt Dam - Create communication channels between ESFR, KC, DNR, and USFS - Explore the use of the “Good neighbor partnership” to encourage DNR’s forest health initiatives on USFS lands as a tool to mitigate hazards in Carnation’s wildland-urban interface.			
Performance Measures The next plan update will demonstrate increased risk awareness and clearly identify subsequent mitigation actions. Training attendance and neighborhood collaboration will be tracked as indicators of community engagement. Success will also be measured by the effective promotion and adoption of measures aimed at enhancing wildland resiliency to natural disasters.			

CAR-4, Enhance Terrorism Resilience			
Lead Points of Contact (Title) KCSO Emergency Manager	Partner Points of Contact (Title) Emergency Manager City Manager	Hazards Mitigated / Goals Addressed Civil Disturbance/Act of Violence/Terrorism/Active Shooter	Funding Sources and Estimated Costs FEMA's Hazard Mitigation Assistance family of grants – or potential Federal Grants.
Strategy Vision/Objective Decrease ability, effectiveness, and impact of an active shooter(s) and acts of both international and domestic terrorism or malicious criminal intent.			
Mitigation Strategy Prevent and mitigate potential attacks on people, the environment, and structures.			
3-Year Objectives Incorporate new planning techniques for events and festivals.		5-Year Objectives Update architecture around potential risk locations.	
Implementation Plan/Actions • Create process for implementing the use of an Incident Action Plan (IAP, Form 215A) during public events and gatherings. (https://training.fema.gov/icsresource/icsforms.aspx) • Install bollards and other safety devices in vulnerable locations, such as Shell gas, Carnation Market, and Tolt Commons. • Organize tabletop exercises with key stakeholders (City of Carnation, KCSO, ESFR, RSD) to train and drill for common scenarios. • Test IAP during community events to test and strengthen protocols. • Collaborate with Riverview School District to synchronize response protocols for: ○ Incidents occurring on school grounds during school hours. ○ Incidents occurring outside of school grounds, during school hours, that may affect the safety of students and staff.			
Performance Measures Successful implementation and testing of IAP during planning meetings for public events such as the 4th of July parade, farmers markets, and concerts.			

CAR-5, Expanding an Alert and Warning System

Lead Points of Contact (Title)

City Manager

Partner Points of Contact (Title)

Emergency Manager, City
Public Works and
Community and
Economic Development

Hazards Mitigated / Goals Addressed

All Hazards

Funding Sources and Estimated Costs

FEMA's Hazard Mitigation
Assistance family of grants –
or potential Federal Grants.

Strategy Vision/Objective

- A comprehensive and reliable alerting system that reaches every resident with timely warnings, ensuring their safety during emergencies.
- Expand and modernize Carnation's warning infrastructure to provide accessible, multi-channel alerts, enhancing community preparedness and resilience.
- A third-party TEWS assessment will be considered to inform best practices and evaluate the existing siren system.

Mitigation Strategy

- Diversify Alerting Channels: Implement multiple communication pathways, including SMS, email, social media, website alerts, and alerting system to ensure redundancy and reach all residents.
- Collaborate with SPU and KCOEM to maintain upgrades on existing infrastructure with modern, reliable technology, including weather monitoring systems, mass notification software, and accessible communication devices for individuals with disabilities.
- Enhance EOC Capabilities: Improve the Emergency Operations Center's communication infrastructure and redundancy to ensure continuous operation during crises.
- Prioritize Accessibility: Provide alerts in multiple languages and formats (e.g., text-to-speech, visual alerts) to reach diverse populations and individuals with disabilities.
- Community Outreach and Education: Conduct regular public education campaigns to familiarize residents with the alert system, how to receive alerts, and appropriate responses to different types of emergencies.

3-Year Objectives

- Establish a fully operational, multi-faceted alerting and warning system that reaches 100% of Carnation residents
- Establish various communication channels, including, mass notification software, and accessible communication devices.
- Integration of all alerting systems with the new City facility
- Comprehensive public education campaigns to ensure community-wide preparedness for diverse hazards.
- Obtain emergency AM radio transmission capabilities

5-Year Objectives

- Complete system integration
- Enhanced community engagement
- Complete a vulnerability assessment and mitigation for the alerting system
- Regional collaboration fostering partnerships for community and agencies

Implementation Plan/Actions

- Conduct Needs Assessment: Evaluate current system capabilities, identify gaps, and prioritize needs based on hazard risks and community demographics.
- Secure Funding: Pursue diverse funding sources, including FEMA grants (HMGP, or other federal grants), state grants, and local budget allocations.
- Address sirens based on the 3rd Party TEWS assessment and consider more timely and clearly understandable notifications, including considerations for visiting populations through features like voice capabilities.
- Implement Mass Notification Software: Procure and deploy a robust mass notification system capable of sending alerts via SMS, email, social media, and voice calls.
- Enhance EOC Communication Infrastructure: Upgrade EOC equipment and software to ensure reliable communication and coordination during emergencies.

Performance Measures

Carnation's emergency alerting system's success will be measured by alert reliability and reach, infrastructure improvements and the impact of a TEWS assessment. The tracking of communication effectiveness and community preparedness through resident awareness, participation in outreach, and understanding of emergency responses, using regular data to drive continuous improvement.