

Tasks 3.1-3.3: Assess sensitivity and adaptive capacity to characterize vulnerability						
Number	Asset-Hazard Pair (from Column B of Task 1.3 tab)	Sensitivity — Task 3.1 (Low, Medium, or High)	Adaptive Capacity — Task 3.2 (Low, Medium, or High)	Vulnerability — Task 3.3 (Low, Medium, or High)	Notes (The CMRW tool used in Step 1 describes general factors that affect a given sector's sensitivity (susceptibility to change). To qualitatively rate the sensitivity and adaptive capacity of a specific local asset or a broader asset category, start with a core question and then select indicators and available information (e.g., online census data, local plans, and community knowledge) to answer the question. Use the sensitivity and adaptive capacity ratings -- and other information, as desired -- to characterize the asset's vulnerability.)	Indicators Discussion (If desired, use this column to discuss your indicators and how they affected your ratings.)
1	Residential, Commercial, Industrial Uses and Buildings - Wildfire (Buildings & Energy)	High	Medium	High	<p>Sensitivity Notes: The UW CIG (CMRW) tool notes: "Building design and codes can affect sensitivity to wildfire, including age, construction materials and degree of fire resistance. Older and less well maintained buildings may be more affected by poor air quality from wildfire smoke." QUESTION: To what degree (L,M,H) would this hazard (Wildfire) impact this asset? INDICATORS: To answer the question above, Cle Elum used the general <u>age/condition</u> of the city's building age as an indicator (<i>Ruleset: older and worse condition = higher sensitivity</i>) . Based on these indicators, Cle Elum rated sensitivity as "High."</p>	<p>Age/condition: Most of the houses in Cle Elum, 67.2%, were built prior to 1990 (2022 ACS 5-year estimates) In comparison, approximately 48.3% of houses in Kittitas County were built prior to 1990.</p>
					<p>Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Wildfire), take advantage of new opportunities, or cope with change? INDICATORS: To answer this question, Cle Elum looked at <u>financial resources availability</u>. The ability of homeowners and business owners to upgrade older structures to be more resilient to the affects of wildfire is challenging. Based on these indicators, Cle Elum rated adaptive capacity as "Medium."</p>	<p>Financial resources: The median household income in Cle Elum is \$56,645, lower than Kittitas County at \$66,800 and significantly lower than the state average of \$94,605. Approximately 16.4% of Cle Elum residents are below the poverty line, compared to 14.5% in Kittias County and 10.3% in WA State (2022 ACS 5-year estimates)</p>
					<p>Vulnerability Notes: The vulnerability rating for wildfire around the city of Cle Elum, is "high or extreme," according the 2019 Kittitas County Hazard Mitigation Plan. Based on this, the vulnerability rank for Wildfire is "High."</p>	
2	Transportation Infrastructure - Wildfire (Transportation)	High	High	High	<p>Sensitivity Notes: The UW CIG (CMRW) tool notes: "The degree to which transportation systems and assets will be affected by an increased likelihood of wildfire depends on redundancy in the transportation network." QUESTION: To what degree (L,M,H) would this hazard (Wildfire) impact this asset? INDICATORS: To answer the question above, Cle Elum reviewed the <u>transportation element</u> and <u>community knowledge</u> of the city's transportation infrastructure. Based on these indicators, Cle Elum rated sensitivity as "High."</p>	<p>Transportation element: Cle Elum has limited points of ingress and egress to the city. Community knowledge: Wildfire activity in or around Cle Elum has the potential to significantly affect the transportation network. This will potentially be compounded if several large pending and/or future developments are built.</p>
					<p>Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Wildfire), take advantage of new opportunities, or cope with change? INDICATORS: To answer this question, Cle Elum looked at <u>planning capacity</u>. The city public works and engineering divisions should identify primary and secondary evacuation routes based on wildfire scenarios. Based on these indicators, Cle Elum rated adaptive capacity as "High."</p>	<p>Planning capacity: The public works and engineering divisions may identify grant or other funding sources to assist in the development of primary and secondary evacuation routes and the development of a CWPP. Long term, the City in conjunction with WSDOT and the County, may consider another onramp to I-90.</p>

					<p>Vulnerability Notes: The vulnerability rating for wildfire around the city of Cle Elum, is "high or extreme," according the 2019 Kittitas County Hazard Mitigation Plan. Based on this, the vulnerability rank for Wildfire is "High."</p>	
3	WA State Horse Park/Historic Buildings - Wildfire (Cultural Resources & Practices)	High	Low	High	<p>Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"Cultural or historical resources and sites that cannot be easily protected from wildfire will be more affected by increases in wildfire likelihood."</i> QUESTION: To what degree (L,M,H) would a hazard (Wildfire) affect this asset? INDICATORS: To answer this question, Cle Elum considered <u>location and inventory</u> as an indicator. The city has four registered sites, plus the horse park. These sites are spread throughout the central portion of the city limits, with the horse park being located at the west end. Based on this, the sensitivity rank for wildfire is "High."</p>	DAHP Wisaard and GIS mapping.
					<p>Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Wildfire), take advantage of new opportunities, or cope with change? INDICATORS: As with Residential, Commercial, Industrial uses and buildings, Cle Elum looked at <u>financial resources availability</u>. Retrofitting historic structures with modern materials is usually cost-prohibitive and may reduce historic integrity. The WA state horse park has limited resources - Firewise project through DNR (will need to be ongoing). Based on this, the adaptive capacity is ranked "Low."</p>	https://www.wahorsepark.org/home; https://dahp.wa.gov/
					<p>Vulnerability Notes: The vulnerability rating for wildfire around the city of Cle Elum, is "high or extreme," according the 2019 Kittitas County Hazard Mitigation Plan. Based on this, the vulnerability rank for Wildfire is "High."</p>	
4	Forest, Shoreline, Wetlands, Priority Habitat, Oversteepened Slopes, Parks and Open Space - Wildfire (Ecosystems)	High	High	High	<p>Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"The degree to which species and ecosystems will be affected by an increased likelihood of wildfire depends on current species adaptations to wildfire and the extent of non-climatic factors that reduce ecosystem health, such as invasive species, habitat fragmentation, and low diversity."</i> QUESTION: To what degree (L,M,H) would a hazard (Wildfire) affect this asset? INDICATORS: To answer this question, Cle Elum considered Priority Habitat Species data in GIS. Based on this, the sensitivity rank for Wildfire is "High."</p>	<p>PHS Data: According to GIS data, much of the forested and natural areas in city limits are categorized as Elk Winter Concentration Area, Cle Elum River Riparian Area, and Upper Yakima Riparian Area.</p>
					<p>Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Wildfire), take advantage of new opportunities, or cope with change? INDICATORS: The ability of ecosystem areas within and adjacent to city limits to adapt to changing wildfire patterns is dependent on a myriad of factors, including but not limited to: adjacent development pressure, historical frequency, increased recreation, and limited resources. Based on this, the adaptive capacity rank for Wildfire is "High."</p>	
					<p>Vulnerability Notes: The vulnerability rating for wildfire around the city of Cle Elum, is "high or extreme," according the 2019 Kittitas County Hazard Mitigation Plan. Based on this, the vulnerability rank for Wildfire is "High."</p>	

5	Fire and Police Stations - Wildfire (Emergency Management)	High	High	High	<p>Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"Emergency management services with limited capacity and those that serve communities with more vulnerable populations and less social cohesion will be more affected by the demand for services related to increased likelihood of wildfires."</i> QUESTION: To what degree (L,M,H) would a hazard (Wildfire) affect this asset? INDICATORS: To answer this question, Cle Elum considered current personnel and structure. Based on this, the sensitivity rank for Wildfire is "High."</p>	<p>The Cle Elum Fire Department is all volunteer (42 personnel) with one full-time fire chief, and plans on adding another full-time position in 2025. Cle Elum's Volunteer Fire Department is responsible for approximately 5 square miles of area in Kittitas County and receives a current call volume of 500 plus calls a year. (https://www.cleelumfire.com/) The Police Department serves both Cle Elum and Roslyn - the department consists of the Chief, Corporal, 7 patrol offices, and 1 part-time ACO. There is always at lease one patrol officer on-duty 24 hours a day, 365 days a year. (https://cleelum.gov/city-services/police/)</p>
					<p>Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Wildfire), take advantage of new opportunities, or cope with change? INDICATORS: The ability of emergency management to deal with Wildfire activity is a function of timing and severity. Due to the uncontrollable nature of wildfires, a large-scale event could strain resources and require a reliance on outside agencies. Based on this, the adaptive capacity rank for Wildfire is "High."</p>	
					<p>Vulnerability Notes: The vulnerability rating for wildfire around the city of Cle Elum, is "high or extreme," according the 2019 Kittitas County Hazard Mitigation Plan. Based on this, the vulnerability rank for Wildfire is "High."</p>	
6	Refuse Pickup - Wildfire (Waste Management)	Medium	Medium	High	<p>Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"The degree to which waste management services will be affected by increases in debris and waste will depend on current capacity."</i> QUESTION: To what degree (L,M,H) would a hazard (Wildfire) affect this asset? INDICATORS: To answer this question, Cle Elum considered current personnel. Based on this, the sensitivity rank for Wildfire is "Medium."</p>	<p>Garbage service is mandatory within the City limits of Cle Elum, according to Ordinance #532, and as written in the Cle Elum Municipal Code Chapter 8.08.020. The City currently contracts with Waste Management of Washington for regular weekly pickups. (https://cleelum.gov/city-services/utilities/)</p>
					<p>Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Wildfire), take advantage of new opportunities, or cope with change? INDICATORS: Wildfires have the capacity to generate a significant amount of waste. Cle Elum contracts with Waste Management that could allocate additional resources if necessary. Based on this, the adaptive capacity rank for Wildfire is "Medium."</p>	
					<p>Vulnerability Notes: The vulnerability rating for wildfire around the city of Cle Elum, is "high or extreme," according the 2019 Kittitas County Hazard Mitigation Plan. Based on this, the vulnerability rank for Wildfire is "High."</p>	

7	Water Distribution and Reservoir - Wildfire (Water Resources)	High	High	High	<p>Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"The degree to which water resources will be affected by an increased likelihood of wildfire depends on the current condition of water treatment and distribution infrastructure. Surface water sources and systems with limited treatment will be more sensitive to wildfire-related changes in water quality. Older infrastructure with a lack of redundancy will be more sensitive to wildfire damage."</i> QUESTION: To what degree (L,M,H) would a hazard (Wildfire) affect this asset? INDICATORS: To answer this question, Cle Elum reviewed redundancy in the 2022 Water System Plan. Based on this, the sensitivity rank for Wildfire is "High."</p>	<p>The City of Cle Elum includes three pressure zones to deliver water. These zones are based on elevation and each has their own facilities and identified future projects to increase water delivery for projected population increases and future development. Cle Elum's water storage facilities consist of four reservoirs with a total capacity of 2.5 million gallons. The City of Cle Elum owns and operates its water system.</p>
					<p>Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Wildfire), take advantage of new opportunities, or cope with change? INDICATORS: To assess adaptive capacity, Cle Elum reviewed identified projects in the 2022 Water System Plan. Based on this, the adaptive capacity rank for Wildfire is "High."</p>	<p>The 2022 Water System Plan includes a ten-year schedule of recommended major capital improvements. The total cost of implementation exceed \$22 million. While many of these project will be funded through grant dollars, there are still city and users costs associated.</p>
					<p>Vulnerability Notes: The vulnerability rating for wildfire around the city of Cle Elum, is "high or extreme," according the 2019 Kittitas County Hazard Mitigation Plan. Based on this, the vulnerability rank for Wildfire is "High."</p>	
8	Forest, Shoreline, Wetlands, Priority Habitat, Oversteepened Slopes - Drought (Ecosystems)	Medium	Low	Low	<p>Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"The degree to which aquatic species and habitats are affected by lower streamflows depends on the physiological tolerances of species to low flows and the extent of non-climatic stressors that also contribute to lower streamflows, such as water withdrawals. Streams in which aquatic species and habitats are already susceptible to low flows will be more sensitive to changes."</i> QUESTION: To what degree (L,M,H) would a hazard (Drought) affect this asset? INDICATORS: To answer this question, Cle Elum considered the anticipated percentage of low streamflow (High = > -50%, Medium = -30 to -49%; Low = < -29%). Based on this, Cle Elum rated the sensitivity as "Medium."</p>	<p>The CMRW tool indicates that a portion of the Yakima River, which flows through Cle Elum, is expected to see 35% less flow in the 30-year time period.</p>
					<p>Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Drought), take advantage of new opportunities, or cope with change? INDICATORS: The CMRW tool only provides drought data for the Yakima River, which is mostly bound by Interstate-90 on the north, and is in Kittitas County jurisdiction to the south. There is very limited opportunity within city limits for new development near the river corridor. Based on this, Cle Elum rated the Adaptive Capacity as "Low".</p>	
					<p>Vulnerability Notes: The hazard risk ranking for Drought in the 2019 Kittitas County hazard Mitigation Plan is Low. Based on this, the vulnerability rank for Drought is "Low."</p>	

9	Water Distribution and Reservoir - Drought (Water Resources)	Low	Low	Low	<p>Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"The degree to which water resources will be affected by more precipitation droughts depends on the water sources and demand. A lack of redundancy in water sources, high demand, and less efficient infrastructure will increase sensitivity of water resources to precipitation droughts. The degree to which water resources will be affected by reduced snowpack depends on sources of water. Surface water sources are sensitive to changes in snowpack. A lack of redundancy in sources, limited storage, high demand, and less efficient infrastructure will increase sensitivity of water resources to reduced snowpack."</i></p> <p>QUESTION: To what degree (L,M,H) would a hazard (Drought) affect this asset? INDICATORS: To answer this question, Cle Elum reviewed its 2022 Water System Plan. Based on this, Cle Elum rated Sensitivity as "Low."</p>	The existing joint Cle Elum/South Cle Elum water system consists of three distribution pressure zones, each of which have their own reservoir systems. (2022 WSP)
					<p>Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Drought), take advantage of new opportunities, or cope with change? INDICATORS: The 2022 Water System Plan includes population projections and a forecast of future water demand, along with a list of future projects to maintain supply, storage, and distribution needs. Based on this, Cle Elum rated Adaptive Capacity as "Low".</p>	
					<p>Vulnerability Notes: The hazard risk ranking for Drought in the 2019 Kittitas County hazard Mitigation Plan is Low. Based on this, the vulnerability rank for Drought is "Low."</p>	
10	Residential, Commercial, Industrial Uses and Buildings - Extreme Heat (Buildings & Energy)	High	Medium	Medium	<p>Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"The degree to which buildings and utilities will be affected by increases in energy demand for cooling will depend on current seasonal patterns of supply and demand and sources of energy. Utilities with greater redundancy and flexibility in energy sources are likely to be less affected. Buildings with cooling systems and built to older codes will be more sensitive to higher energy demand for cooling. Low-income populations will be more sensitive to higher energy costs."</i> QUESTION: To what degree (L,M,H) would a hazard (Extreme Heat) affect this asset? INDICATORS: To answer this question, Cle Elum reviewed Census data for building age/condition. Based on this, Cle Elum rated Sensitivity as "High."</p>	Age/condition: Most of the houses in Cle Elum, 67.2%, were built prior to 1990 (2022 ACS 5-year estimates).
					<p>Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Extreme Heat), take advantage of new opportunities, or cope with change? INDICATORS: To answer this question, Cle Elum looked at financial resources availability. The ability of homeowners and business owners to upgrade older structures to be more resilient to the affects of extreme heat is challenging. Based on these indicators, Cle Elum rated adaptive capacity as "Medium."</p>	Financial resources: The median household income in Cle Elum is \$56,645, significantly lower than the state average of \$94,605. Approximately 16.4% of Cle Elum residents are below the poverty line (2022 ACS 5-year estimates)
					<p>Vulnerability Notes: The 2019 Kittitas County Hazard Mitigation Plan does not include a specific hazard category for extreme heat. However, the effects of hotter temperatures are noted throughout a variety of hazards types. Based on this, the vulnerability rank for Extreme Heat is "Medium."</p>	
11	Local Retail and Service Establishments - Extreme Heat (Economic Development)	High	Medium	Medium	<p>Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"The degree to which businesses and economic development will be affected by warmer summer temperatures will depend on the importance of outdoor recreation to the local economy and the current temperature range, with hotter areas being more adversely affected."</i> QUESTION: To what degree (L,M,H) would a hazard (Extreme Heat) affect this asset? INDICATORS: To answer this question, Cle Elum analyzed local conditions. Based on this, Cle Elum rated Sensitivity as "High."</p>	The City of Cle Elum is a hub for a significant amount of outdoor recreation. Businesses that rely on people traveling to and through Cle Elum to reach their destination in the summer months can be impacted if significant amounts of people change their plans due to extreme heat events.

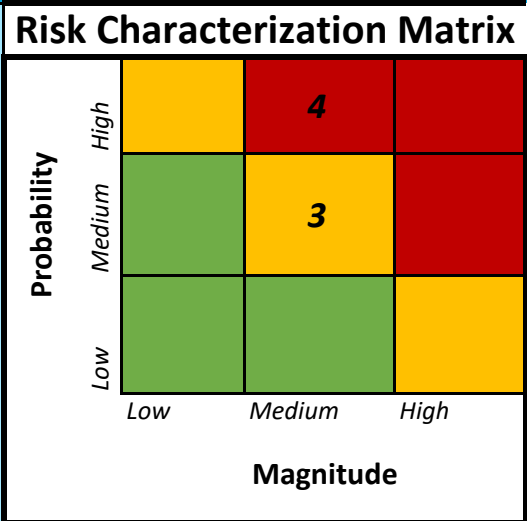
					<p>Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Extreme Heat), take advantage of new opportunities, or cope with change? INDICATORS: To answer this question, Cle Elum looked employment data in the census. Based on these indicators, Cle Elum rated adaptive capacity as "Medium."</p>	Approximately 30% of the working population 16 and over are employed in the Arts, entertainment, and recreation, and accommodation and food services (17.9%) and Retail trade (12.1%) industries.
					<p>Vulnerability Notes: The 2019 Kittitas County Hazard Mitigation Plan does not include a specific hazard category for extreme heat. However, the effects of hotter temperatures are noted throughout a variety of hazards types. Based on this, the vulnerability rank for Extreme Heat is "Medium."</p>	
12	Medical Practitioners- Extreme Heat (Emergency Management, Health & Well-being)	Medium	Medium	Medium	<p>Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"Emergency management services with limited capacity and those that serve communities with more vulnerable populations and less social cohesion will be more affected by increases in the demand for services related to extreme heat emergencies. Certain populations are expected to be more affected by increases in the number of days with a maximum humidex above 90°F. The elderly, very young, people with preexisting health conditions, and people without housing, substandard housing or without cooling systems are likely to be more affected."</i> QUESTION: To what degree (L,M,H) would a hazard (Extreme Heat) affect this asset? INDICATORS: To answer this question, Cle Elum reviewed demographic data from the census and local knowledge. Based on this, Cle Elum rated Sensitivity as "Medium."</p>	Age: 20.9% of residents are 65 years and older in Cle Elum; 16.1% of residents are under 18 years of age (2022 ACS 5-yr estimates). AMB services has undertaken an informational campaign to let citizens know alternatives to dialing 911 for an ambulance.
					<p>Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Extreme Heat), take advantage of new opportunities, or cope with change? INDICATORS: To answer this question, Cle Elum reviewed census data for median household income. Based on these indicators, Cle Elum rated adaptive capacity as "Medium."</p>	Financial resources: The median household income in Cle Elum is \$56,645, significantly lower than the state average of \$94,605. Approximately 16.4% of Cle Elum residents are below the poverty line (2022 ACS 5-year estimates)
					<p>Vulnerability Notes: The 2019 Kittitas County Hazard Mitigation Plan does not include a specific hazard category for extreme heat. However, the effects of hotter temperatures are noted throughout a variety of hazards types. Based on this, the vulnerability rank for Extreme Heat is "Medium."</p>	
13	Transportation Infrastructure - Extreme Heat (Transportation)	Low	Low	Low	<p>Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"The degree to which road surfaces and bridges in your county or community will be sensitive to extreme heat will depend on the age and condition of assets, materials, and heat-related design standards."</i> QUESTION: To what degree (L,M,H) would a hazard (Extreme Heat) affect this asset? INDICATORS: To answer this question, Cle Elum reviewed the 2019 Kittitas County Hazard Mitigation Plan. Based on this, Cle Elum rated Sensitivity as "Low."</p>	New roadways are constructed using best management practices.
					<p>Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Extreme Heat), take advantage of new opportunities, or cope with change? INDICATORS: To answer this question, Cle Elum reviewed the 2019 Kittitas County Hazard Mitigation Plan. Based on these indicators, Cle Elum rated adaptive capacity as "low."</p>	
					<p>Vulnerability Notes: The 2019 Kittitas County Hazard Mitigation Plan does not include a specific hazard category for extreme heat. However, the effects of hotter temperatures are noted throughout a variety of hazards types. Based on this, the vulnerability rank for Extreme Heat is "Low."</p>	

14	Forest, Shoreline, Wetlands, Priority Habitat, Oversteepened Slopes - Flooding (Ecosystems)	Low	Low	Low	Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"The degree to which aquatic species and habitats are affected by higher peak streamflows depends on the physiological tolerances of species to high flows and the extent of non-climatic stressors that increase high flows, such as paved surfaces. Streams in which flow regimes are already susceptible to high flows will be more sensitive to the change."</i> QUESTION: To what degree (L,M,H) would a hazard (Flooding) affect this asset? INDICATORS: To answer this question, Cle Elum reviewed GIS data. Based on this, Cle Elum rated Sensitivity as "low."	Most of the mapped floodplain and floodway within city limits is natural areas with limited development.
					Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Flooding), take advantage of new opportunities, or cope with change? INDICATORS: To answer this question, Cle Elum reviewed the 2019 Kittitas County Hazard Mitigation Plan. Based on these indicators, Cle Elum rated adaptive capacity as "low."	
					Vulnerability Notes: The 2019 Kittitas County Hazard Mitigation Plan provides a significant amount of data of flooding in Cle Elum. Based on this, the vulnerability rank for Flooding is "High."	
15	Transportation Infrastructure - Flooding (Transportation)	Medium	Medium	High	Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"The degree to which transportation routes and assets will be affected by higher streamflows that cause flooding depends on how well design standards accommodate flooding. A lack of transportation redundancy in flood prone areas can increase sensitivity to more frequent high streamflows.."</i> QUESTION: To what degree (L,M,H) would a hazard (Flooding) affect this asset? INDICATORS: To answer this question, Cle Elum reviewed the 2019 Kittitas County Hazard Mitigation Plan. Based on this, Cle Elum rated Sensitivity as "medium."	According to the 2019 KCHMP, I90 and SR970 are major roads within the 100-year floodplain and are exposed to flooding. While portions of the roadways are built above flood level, severe flood events can block or damage major roadways, preventing access to some areas.
					Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Flooding), take advantage of new opportunities, or cope with change? INDICATORS: To answer this question, Cle Elum GIS data. Based on these indicators, Cle Elum rated adaptive capacity as "medium."	A major flood event within or upstream of Cle Elum could damage roadway infrastructure and limit access to/from the city.
					Vulnerability Notes: The 2019 Kittitas County Hazard Mitigation Plan provides a significant amount of data of flooding in Cle Elum. Based on this, the vulnerability rank for Flooding is "High."	According to the 2019 KCHMP, the value of exposed buildings in the floodplain is \$2,753,280 or 3.1% of the total assessed value.
16	Refuse Pickup - Flooding (Waste Management)	Low	Low	High	Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"The degree to which waste management services will be affected by increases in debris and waste will depend on current capacity. Facilities with older design standards or standards that do not account for flooding will be more affected."</i> QUESTION: To what degree (L,M,H) would a hazard (Flooding) affect this asset? INDICATORS: To answer this question, Cle Elum reviewed the 2019 Kittitas County Hazard Mitigation Plan. Based on this, Cle Elum rated Sensitivity as "Low."	
					Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Flooding), take advantage of new opportunities, or cope with change? INDICATORS: To answer this question, Cle Elum reviewed the 2019 Kittitas County Hazard Mitigation Plan. Based on these indicators, Cle Elum rated adaptive capacity as "Low."	
					Vulnerability Notes: The 2019 Kittitas County Hazard Mitigation Plan provides a significant amount of data of flooding in Cle Elum. Based on this, the vulnerability rank for Flooding is "High."	

17	Local Retail and Service Establishments - Flooding (Economic Development)	Low	Low	High	Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"The degree to which businesses and economic development in your county or community will be affected by more frequent flooding will depend on the extent of flood protection infrastructure, the capacity of stormwater systems, and relative isolation of communities susceptible to flooding."</i> QUESTION: To what degree (L,M,H) would a hazard (Flooding) affect this asset? INDICATORS: To answer this question, Cle Elum reviewed the 2019 Kittitas County Hazard Mitigation Plan. Based on this, Cle Elum rated Sensitivity as "low."	According to the 2019 KCHMP, Cle Elum has 524 acres in floodplain (100-year floodplain), including 43 residential structures and zero commercial or industrial structures.
					Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Flooding), take advantage of new opportunities, or cope with change? INDICATORS: To answer this question, Cle Elum reviewed the 2019 Kittitas County Hazard Mitigation Plan. Based on these indicators, Cle Elum rated adaptive capacity as "Low."	According to the 2019 KCHMP, Cle Elum has zero critical facilities in the 100-year Floodplain.
					Vulnerability Notes: The 2019 Kittitas County Hazard Mitigation Plan provides a significant amount of data of flooding in Cle Elum. Based on this, the vulnerability rank for Flooding is "High."	According to the 2019 KCHMP, the value of exposed buildings in the floodplain is \$2,753,280 or 3.1% of the total assessed value.
18	Refuse Pickup - Extreme Precipitation (Waste Management)	Low	Low	Low	Sensitivity Notes: The UW CIG (CMRW) tool notes: <i>"The degree to which waste management services will be affected by increases in debris and waste will depend on current capacity."</i> QUESTION: To what degree (L,M,H) would a hazard (Extreme Precipitation) affect this asset? INDICATORS: To answer this question, Cle Elum reviewed the 2019 Kittitas County Hazard Mitigation Plan. Based on this, Cle Elum rated Sensitivity as "Low."	
					Adaptive Capacity Notes: QUESTION: What is the ability (L,M,H) of this asset to adjust to a hazard (Extreme Precipitation), take advantage of new opportunities, or cope with change? INDICATORS: To answer this question, Cle Elum reviewed the 2019 Kittitas County Hazard Mitigation Plan. Based on these indicators, Cle Elum rated adaptive capacity as "Low."	
					Vulnerability Notes: The 2019 Kittitas County Hazard Mitigation Plan provides a significant amount of data of flooding in Cle Elum. Based on this, the vulnerability rank for flooding is "low."	

Tasks 3.4-3.5: Characterize risk and decide course of action

In Column B [below], list the assets you identified in Task 3.3 as having *medium* or *high* vulnerability. In Column C, characterize the **Probability** of hazard occurrence for each asset as *low*, *medium*, or *high*. In Column E, characterize the **Magnitude** of the potential loss/consequences as *low*, *medium*, or *high*. Put each asset's number [from Column A] in the appropriate cell of the Risk Characterization Matrix [right], and note the composite risk rating in Column G. Based on the asset's risk characterization, note your decision [Take Action of Accept Risk] in Column H.



Number	Asset-Hazard Pair (Note applicable sector(s) in parenthesis.)	Probability (Low, Medium, High)	Notes (Note the indicators, data, and ruleset used to characterize probability of loss.)	Magnitude (Low, Medium, High)	Notes (Note the indicators, data, and ruleset used to characterize magnitude of loss.)	Composite Risk Rating (Low = Green; Medium = Gold; Red = High)	Decision (Take Action or Accept Risk)	
1	Residential, Commercial, Industrial Uses and Buildings - Wildfire (Buildings & Energy)	Medium	Indicator: According to the 2019 Kittitas County Hazard Mitigation Plan jurisdiction profile, Cle Elum has moderate-to high vulnerability to wildfires. Data: Kittitas County HMP - Kittitas County has seen an average of 36 wildfires per year, totatling about 500 acres burned each year, since 1990. The UW CIG (CMRW) shows a 13-30% increase in Wildfire Likelihood over the planning period. Ruleset: (Low = 0-20%, Medium= 21-50%, High = >50%)	Low	Indicator: 2019 Kittitas County Hazard Mitigation Plan. Data: Across the the 0-35 yr, 36-100 yr, 101-1000 yr, and >1000 year intervals, Cle Elum has the following number of buildings, values and percentages of exposure to wildfire activity: 0-35: 18, \$2.8m, 2%; 36-100: 474, \$56.02m, 62%; 101-1000: 253, \$25.4m, 33%; >1000: 3, \$572k, 0%. Total exposed buildings and values is 770, \$88.0m. Ruleset: (Low = 0-35 yr 0-15%, Medium = 0-35 yr 16-50%, High = 0-35 yr >51%)	Low	Take Action	
2	Transportation Infrastructure - Wildfire (Transportation)	Medium	Indicator: According to the 2019 Kittitas County Hazard Mitigation Plan jurisdiction profile, Cle Elum has moderate-to high vulnerability to wildfires. Data: Kittitas County HMP - Kittitas County has seen an average of 36 wildfires per year, totatling about 500 acres burned each year, since 1990. The UW CIG (CMRW) shows a 13-30% increase in Wildfire Likelihood over the planning period. Ruleset: (Low = 0-20%, Medium= 21-50%, High = >50%)	High	Indicator: 2019 Kittitas County Hazard Mitigation Plan. Data: Cle Elum is part of the Roslyn-Cle Elum WUI Planning Area, containing 13,419 acres. There are limited locations of ingress and egress, which narrow down to one, depending on location. Ruleset: (Low = 6+ I/E points; Medium = 3-5 I/E points; High = <3 I/E points)	High	Take Action	

3	WA State Horse Park/Historic Buildings - Wildfire (Cultural Resources & Practices)	Medium	Indicator: According to the 2019 Kittitas County Hazard Mitigation Plan jurisdiction profile, Cle Elum has moderate-to high vulnerability to wildfires. Data: Kittitas County HMP - Kittitas County has seen an average of 36 wildfires per year, totatling about 500 acres burned each year, since 1990. The UW CIG (CMRW) shows a 13-30% increase in Wildfire Likelihood over the planning period. Ruleset: (Low = 0-20%, Medium= 21-50% , High = >50%)	Low	Indicator: 2019 Kittitas County Hazard Mitigation Plan. Data: Across the the 0-35 yr, 36-100 yr, 101-1000 yr, and >1000 year intervals, Cle Elum has the following number of buildings, values and percentages of exposure to wildfire activity: 0-35: 18, \$2.8m, 2%; 36-100: 474, \$56.02m, 62%; 101-1000: 253, \$25.4m, 33%; >1000: 3, \$572k, 0%. Total exposed buildings and values is 770, \$88.0m. Ruleset: (Low = 0-35 yr 0-15% , Medium = 0-35 yr 16-50%, High = 0-35 yr >51%)	Low	Take Action	
4	Forest, Shoreline, Wetlands, Priority Habitat, Oversteepened Slopes, Parks and Open Space - Wildfire (Ecosystems)	Medium	Indicator: According to the 2019 Kittitas County Hazard Mitigation Plan jurisdiction profile, Cle Elum has moderate-to high vulnerability to wildfires. Data: Kittitas County HMP - Kittitas County has seen an average of 36 wildfires per year, totatling about 500 acres burned each year, since 1990. The UW CIG (CMRW) shows a 13-30% increase in Wildfire Likelihood over the planning period. Ruleset: (Low = 0-20%, Medium= 21-50% , High = >50%)	Medium	Indicator: 2019 Kittitas County Hazard Mitigation Plan. Data: Cle Elum is part of the Roslyn-Cle Elum WUI Planning Area, containing 13,419 acres. KCHMP Figure 15-5 shows much of the incorporated city limits and immediately adjacent areas within the 11-15 through 21-25 mean fire return interval. Ruleset: (Low = > 50 years; Medium = 21-50 years ; High = 50 years); High = < 20 years)	Medium	Take Action	
5	Fire and Police Stations - Wildfire (Emergency Management)	Medium	Indicator: According to the 2019 Kittitas County Hazard Mitigation Plan jurisdiction profile, Cle Elum has moderate-to high vulnerability to wildfires. Data: Kittitas County HMP - Kittitas County has seen an average of 36 wildfires per year, totatling about 500 acres burned each year, since 1990. The UW CIG (CMRW) shows a 13-30% increase in Wildfire Likelihood over the planning period. Ruleset: (Low = 0-20%, Medium= 21-50% , High = >50%)	Low	Indicator: 2019 Kittitas County Hazard Mitigation Plan. Data and Ruleset: KCHMP Table 15-9 shows zero Cle Elum critical facilities exposed to wildfire.	Low	Take Action	
6	Refuse Pickup - Wildfire (Waste Management)	Medium	Indicator: According to the 2019 Kittitas County Hazard Mitigation Plan jurisdiction profile, Cle Elum has moderate-to high vulnerability to wildfires. Data: Kittitas County HMP - Kittitas County has seen an average of 36 wildfires per year, totatling about 500 acres burned each year, since 1990. The UW CIG (CMRW) shows a 13-30% increase in Wildfire Likelihood over the planning period. Ruleset: (Low = 0-20%, Medium= 21-50% , High = >50%)	Low	Indicator: 2019 Kittitas County Hazard Mitigation Plan. Data: Across the the 0-35 yr, 36-100 yr, 101-1000 yr, and >1000 year intervals, Cle Elum has the following number of buildings, values and percentages of exposure to wildfire activity: 0-35: 18, \$2.8m, 2%; 36-100: 474, \$56.02m, 62%; 101-1000: 253, \$25.4m, 33%; >1000: 3, \$572k, 0%. Total exposed buildings and values is 770, \$88.0m. Ruleset: (Low = 0-35 yr 0-15% , Medium = 0-35 yr 16-50%, High = 0-35 yr >51%)	Low	Take Action	

7	Water Distribution and Reservoir - Wildfire (Water Resources)	Medium	Indicator: According to the 2019 Kittitas County Hazard Mitigation Plan jurisdiction profile, Cle Elum has moderate-to high vulnerability to wildfires. Data: Kittitas County HMP - Kittitas County has seen an average of 36 wildfires per year, totatling about 500 acres burned each year, since 1990. The UW CIG (CMRW) shows a 13-30% increase in Wildfire Likelihood over the planning period. Ruleset: (Low = 0-20%, Medium= 21-50% , High = >50%)	Low	Indicator: 2019 Kittitas County Hazard Mitigation Plan. Data and Ruleset: KCHMP Table 15-9 shows zero Cle Elum critical facilities exposed to wildfire.	Low	Take Action	
10	Residential, Commercial, Industrial Uses and Buildings - Extreme Heat (Buildings & Energy)	Low	Indicator: The UW CIG (CMRW) tool Summer Maximum Temperature, Hot Days, 90-degree humidex, and 65-degree humidex. Data: The UW CIG (CMRW) tool estimates an average summer temperature increase of 3.8 degrees, an additional 1.2 days above 100 degrees, an additional 14.2 days above the 90-degree humidex, and an additional 5.9 days above the 65-degree humidex. Ruleset: (Summer Temp: Low = 0-3 degrees , Medium= 4-6 degrees, High = >6 degrees; Hot Days: Low = 0-5 days , Medium= 6-10 days, High = >10 days; 90-degree humidex: Low = 0-5 days, Medium= 6-10 days, High = >10 days ; 65-degree humidex: Low = 0-5 days , Medium= 6-10 days, High = >10 days)	Medium	Indicator: Age and Condition of homes and income characteristics. Data: 67.2% of homes were built prior to 1990; 16.4% of households are below the poverty line. Ruleset: (Age of home built before 1990: Low = < 10%; Medium = 10-20% ; High = > 20%; Poverty: Low = < 15 %; Medium = 16-40% ; High = > 40%).	Low	Take Action	
11	Local Retail and Service Establishments - Extreme Heat (Economic Development)	Low	Indicator: The UW CIG (CMRW) tool Summer Maximum Temperature, Hot Days, 90-degree humidex, and 65-degree humidex. Data: The UW CIG (CMRW) tool estimates an average summer temperature increase of 3.8 degrees, an additional 1.2 days above 100 degrees, an additional 14.2 days above the 90-degree humidex, and an additional 5.9 days above the 65-degree humidex. Ruleset: (Summer Temp: Low = 0-3 degrees , Medium= 4-6 degrees, High = >6 degrees; Hot Days: Low = 0-5 days , Medium= 6-10 days, High = >10 days; 90-degree humidex: Low = 0-5 days, Medium= 6-10 days, High = >10 days ; 65-degree humidex: Low = 0-5 days , Medium= 6-10 days, High = >10 days)	Medium	Indicator: Employment characteristics. Data: 30% of Cle Elum employees are in the Arts, entertainment, and recreation, and accommodation and food services (17.9%) and Retail trade (12.1%) industries. Ruleset: (Percentage of employment: Low = < 10%; Medium = 11-25% ; High = > 25%)	Low	Take Action	

12	Medical Practitioners-Extreme Heat (Emergency Management, Health & Well-being)	Low	Indicator: The UW CIG (CMRW) tool Summer Maximum Temperature, Hot Days, 90-degree humidex, and 65-degree humidex. Data: The UW CIG (CMRW) tool estimates an average summer temperature increase of 3.8 degrees, an additional 1.2 days above 100 degrees, an additional 14.2 days above the 90-degree humidex, and an additional 5.9 days above the 65-degree humidex. Ruleset: (Summer Temp: Low = 0-3 degrees , Medium= 4-6 degrees, High = >6 degrees; Hot Days: Low = 0-5 days , Medium= 6-10 days, High = >10 days; 90-degree humidex: Low = 0-5 days, Medium= 6-10 days, High = >10 days ; 65-degree humidex: Low = 0-5 days , Medium= 6-10 days, High = >10 days)	Medium	Indicator: Age and income characteristics. Data: 20.9% of residents are 65 years and older; 16.1% or residents are under 18 years of ag. Ruleset: (Age above 65: Low = < 10%; Medium = 11-25% ; High = > 25%; Age under 18: Low = < 10%; Medium = 11-25% ; High = > 25% Poverty: Low = < 15 %; Medium = 16-40% ; High = > 40%)	Low	Take Action	
15	Transportation Infrastructure - Flooding (Transportation)	Medium	Indicator: According to the 2019 Kittitas County Hazard Mitigation Plan jurisdiction profile, Cle Elum has a high vulnerability to flooding. Data: Major roads exposed to flooding: I-90 and SR-970. Ruleset: (100-year floodplain: Low = 0-1 roadways, Medium= 2-5 roadways , High = >5 roadways)	High	Indicator: KCHMP Hazard Risk Ranking. Data and Ruleset: The KCHMP includes a risk ranking score of 27, which is tied for 1st place.	High	Take Action	
16	Refuse Pickup - Flooding (Waste Management)	Medium	Indicator: According to the 2019 Kittitas County Hazard Mitigation Plan jurisdiction profile, Cle Elum has a high vulnerability to flooding. Data: Number of structures in 100-year floodplain (42) and in 500-year floodplain (174). Ruleset: (100-year floodplain: Low = 0-20, Medium= 21-50 , High = >50; 500-year floodplain: Low = 0-75, Medium= 76-150, High = >150)	Low	Indicator: 2019 Kittitas County Hazard Mitigation Plan. Data: KCHMP Table 11-0 shows 0 critical facilities in the 100-year floodplain and 2 critical facilities in the 500-year floodplain. Ruleset: 100-year floodplain: Low = 0-5 , Medium= 5-10, High = >10; 500-year floodplain: Low = 0-10 , Medium= 11-25, High = >25.	Low	Take Action	
17	Local Retail and Service Establishments - Flooding (Economic Development)	Medium	Indicator: According to the 2019 Kittitas County Hazard Mitigation Plan jurisdiction profile, Cle Elum has a high vulnerability to flooding. Data: Number of structures in 100-year floodplain (42) and in 500-year floodplain (174). Ruleset: (100-year floodplain: Low = 0-20, Medium= 21-50 , High = >50; 500-year floodplain: Low = 0-75, Medium= 76-150, High = >150)	Medium	Indicator: Employment characteristics. Data: 30% of Cle Elum employees are in the Arts, entertainment, and recreation, and accommodation and food services (17.9%) and Retail trade (12.1%) industries. Ruleset: (Percentage of employment: Low = < 10%; Medium = 11-25% ; High = > 25%)	Medium	Take Action	