Chapter 1 – Physical Character Element

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I. INTRODUCTION

Purpose

The Physical Character Element describes the natural physical and biological environment in terms of the opportunities and limitations it presents for growth and development. It incorporates those aspects of the Growth Management Act, including land use element requirements, relating to the natural environment. It identifies the area's resource lands and critical areas, and explains how they will be protected.

Growth Management Act Requirements

The Washington Growth Management Act (GMA) does not require a Physical Character Element in the Comprehensive Plan, but does set a number of requirements with regard to natural systems. These requirements include:

1. Identification, designation and conservation of resource lands.
2. Identification, designation and protection of critical areas.
3. Provisions for the protection of the quality and quantity of groundwater used for public water supplies.
4. Where applicable, a review of drainage, flooding and stormwater run-off in the area covered by the plan and nearby jurisdictions, and guidance for corrective actions to mitigate or cleanse those discharges that pollute the Waters of the State.

"Resource lands" under GMA are those agricultural, forest, and mineral lands not already characterized by urban growth that have long-term commercial significance for the production of agricultural products, timber or for the extraction of minerals. Agricultural land and forest land located within an urban growth area (UGA) shall not be designated as a resource land of long-term commercial significance unless the jurisdiction has enacted a program authorizing transfer or purchase of development rights.

"Critical areas" under GMA include: a) wetlands; b) critical aquifer recharge areas used for potable water; c) fish and wildlife habitat conservation areas; d) frequently flooded areas; and e) geologically hazardous areas.

Applicable Yakima Countywide Planning Policy

The Yakima Countywide Planning Policy is not specifically required by the Growth Management Act to address the physical character of the land or natural resource and critical areas. Nonetheless, several of the policy statements of the Yakima Countywide Planning Policy do specifically address natural resource issues. The following Countywide Planning Policies apply to discussion of the Physical Character Element.

1. When determining land requirements for UGAs, allowance will be made for greenbelt and open space areas and for protection of wildlife habitat and other environmentally sensitive areas. [RCW 36.70A.110(2)] (A.3.7.)
2. Encourage economic growth within the capacities of the region's natural resources, public services and public facilities. (G.3.1)
3. Identify current and potential physical and fiscal capacities for municipal and private water systems, wastewater treatment plants, roadways and other infrastructure systems. (G.3.2.a)
4. Identify economic opportunities that strengthen and diversify the county's economy while

maintaining the integrity of our natural environment. (G.3.1.b)

5. Special districts, adjacent counties, state agencies, the tribal government and federal agencies will be invited to participate in comprehensive planning and development activities that may affect them, including the establishment and revision of Urban Growth Areas (UGAs); allocation of forecasted population; regional transportation, capital facility, housing and utility plans; and policies that may affect natural resources. (I.3.)

Relationship to Other Elements or Land Uses

Natural systems are closely tied to ~~both~~ economic development, climate and land use. In an area where the economy is based on the productive use of land for agriculture, the land resource must be conserved to assure continued economic viability of the area. At the same time, land is needed for housing and economic development, including sites suitable for industries related to agriculture. Prevailing winds, flood potential, and soil types make some areas more suitable than others for various land uses. Land use planning needs to allow for protection of critical areas such as wetlands and wildlife habitat. Climate related hazards, such as drought, flooding, wildfire, and extreme temperatures impact both natural and built environments.

Critical Areas and Best Available Science

Under GMA RCW 36.70A.060(2), every Washington jurisdiction is required to protect critical areas through the adoption of a Critical Areas Ordinance (CAO). "Critical areas" include the following areas and ecosystems under RCW 36.70A.030(5):

- Wetlands;
- Areas with a critical recharging effect on aquifers used for potable water;
- Fish and wildlife habitat conservation areas;
- Frequently flooded areas; and
- Geologically hazardous areas.

"Fish and wildlife habitat conservation areas" does not include such artificial features or facilities as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of and are maintained by a port district or an irrigation district or company.

Grandview passed a resolution to adopt Yakima County's Critical Areas Ordinance as amended on August 25, 2026 (Resolution 2026-43).. ~~adopted a CAO on June 12, 2012 and adopted an update to the CAO on _____, 2016.~~ The ~~Grandview~~ Yakima County CAO includes standards and procedures for the protection of critical areas identified in this Physical Character Element as falling within the City of Grandview and its unincorporated UGA.

As required by the GMA, RCW 36.70A.172, protection of critical areas is based on the best available science (BAS), according to the criteria set forth in WAC 365-195-905. The City of Grandview will weigh the most current scientific information from agencies, scientific consultants and published sources to determine the values and functions of natural systems existing in or near the City. The City will base protection of critical areas upon evaluation of the BAS along with scientific studies made available by proponents and opponents of projects in determining how best to protect natural and critical areas. The City of Grandview adopts Yakima County's *Review of Best Available Science for Inclusion in Critical Areas Ordinance, ~~October 2006~~ as part of the 2026 update*, as amended, as a basis for decisions to support protections required by the Critical Area Ordinance and the Shoreline Master Program.

II. EXISTING CONDITIONS

This section of the Comprehensive Plan reviews the environmental conditions present in the area. In particular, this section will focus on the environmental conditions which may be either hazardous to development or impose limitations that can only be overcome with costly engineering and building techniques. The purpose of this analysis is to identify areas where development would be less efficient and economical, as opposed to areas in which development could occur that would be more compatible with the natural environment.

Earth

Physiography

The Grandview area is situated in the lower Yakima River Basin between the Horse Heaven Hills and the Rattlesnake Hills. The area lies within the Walla Walla section of the Columbia Plateau physiographic province. The terrain in the area tends to be gently rolling but is nearly level within the UGA and the City. Slopes within the UGA average zero percent to five percent. Small portions of the UGA have slopes of five percent to 15 percent or more. These areas are generally linear in form and associated with the ravines that tend toward the Yakima River.

The lower Yakima River Basin in the area of Grandview includes recent alluvial (associated with rivers), lacustrine (associated with lakes) and eolian (associated with wind) soil deposits. Native soils consist of normally consolidated lacustrine and eolian soils that typically are over 40 to 50 feet thick. The surficial (at the earth's surface) soils typically include about 1.5 feet of silt type loam overlying stratified silt loam, loam and very fine sandy loam to depths of 5 feet or more. The native soils are underlain by volcanic bedrock including the Saddle Mountains Basalt of the Columbia River Basalt Group.

The City is nearly level at elevation 750 to 780 feet, with a slope of less than five percent downward and generally west and southwest. The Yakima River passes along the north side of the City wastewater treatment and sprayfield area. No other natural streams pass through Grandview or its UGA. The Sunnyside Irrigation Canal borders a portion of the north edge of the City and other smaller canals and ditches cross the City and the UGA at various points.

Geology

The geologic setting of the Yakima Valley is mostly due to volcanic activity of the Tertiary Period that occurred in the Cascade Mountains and the Columbia Basin.

During the Miocene Epoch, basalts originating from large fissures, situated in southeastern Washington, flowed westward covering the Columbia Basin and eventually lapping the eastern slope of the Cascade Mountains. Volcanic activity in the Cascade Mountains caused the overlaying of these basalts with the light colored, pumiceous sandstone and conglomerates that make up the Ellensburg Formation. After the Ellensburg Formation, compressional forces pushed the Yakima basalts and overlying sediments into a series of parallel east-west ridges now referred to as the Manastash, Umptanum and Yakima ridges; Saddle Mountains; and the Rattlesnake and Horse Heaven Hills.

The Quaternary Period, primarily the Pleistocene Epoch, saw continued volcanic activity in the Cascades as well as extensive glacial erosion. Glaciers flowed down the Yakima, Naches, and Tieton River Valleys filling both the Upper and Lower Yakima Valleys with glacial sedimentary deposits. This glacial action has contributed largely to the Valley's existing drainage pattern.

However, not all drainage changes in the area were due to glaciation. Both the Columbia and the Yakima

Rivers have left an impressive record of their wanderings over the area. During the tertiary period, the Columbia River skirted across the basin area strewing sand, pebbles, and volcanic debris. It is believed that Satus Pass was once the outlet of the Columbia River until subsequent uplifting of the land forced the river east to its present location. The Yakima River, however, was able to maintain its course, eventually cutting through Selah and Union Gap.

Today, the surficial geology of the Grandview area consists primarily of unconsolidated alluvial, landslide, lacustrine, and glacial deposits in the lower elevations.

Higher elevations in the area consist of Pliocene non-marine sediments that are mostly the Tuffaceous sandstones and conglomerates of the Ellensburg Formation. Rock outcroppings within the area are basalt.

Seismic Hazard

All of Washington State is subject to some degree of risk from seismic events. In addition, there is moderate to strong potential for seismic activity in the Yakima Valley. There have been three to five earthquakes of up to magnitude 7.1 on the Toppenish Ridge in the past 165,000 years, while Rattlesnake Hills/Ahtanum Ridge has seen three or more seismic events of up to magnitude 6.1 in the past 109,000 years. Both faults are considered active.

The U.S. Geological Survey (USGS) produces shaking hazard maps, which depict the level of earthquake shaking that have a 10 percent chance of being exceeded in a 50-year period. The numbers are expressed as a percentage of *g,* or the acceleration of a falling object due to gravity, and range from 0 %*g* (lowest hazard) to 64+ %*g* (highest hazard). The City of Grandview's %*g* is between 16-32%g. Western Washington ranges from 48 to 64%*g*, while eastern Washington ranges from eight to 16%*g*. [1]

Volcanic Hazard

The sources of potential volcanic hazards within the Grandview area are composite volcanoes of the Cascade Range, such as Mt. St. Helens Mt. Adams, and ~~and~~ Mt. Rainier. Potential hazards from an eruption of a composite volcano include mudflows, floods and tephra (airborne volcanic ash or rock debris). Of these, only tephra from a Mt. St. Helens eruption has an identified potential to affect the area. Of the five principal volcanoes in Washington State, only Mt. St. Helens has experienced major tephra eruptions in the past 13,000 years. Mt. St. Helens has had at least eight large-scale eruptions during that time. During the May 18, 1980, major eruption of Mt. St. Helens, from one to five millimeters of tephra was deposited in the area.

Tephra ejected during another major volcanic eruption of Mt. St. Helens could fall on the Grandview area, depending on the wind direction at the time of the eruption. It is likely that the size of the tephra would be very fine-grained (ash) and cooled because of the distance to Mt. St. Helens. The ash deposit could be up to five centimeters thick and would pose a low potential hazard to human life and health. Injury to humans can occur when ash-contaminated air is inhaled. Property damage occurs from the abrasiveness of ash and resulting impacts on machinery. An ashfall in Grandview could result in a temporary shutdown of operations, but is not likely to significantly damage the facilities.

Other Hazards

There is no evident landslide or subsurface dissolution hazards, or abandoned underground mine workings in Grandview.

[1] U.S. Geological Service Earthquake Hazards Program, 2014 Seismic Hazard Maps

Soils

Soil information is an important tool in both the design and evaluation of different types of development proposals. Soil types react differently to development proposals. Consequently, proper soil information can save developers both time and money in the design stages of their proposals. For example, certain soils make septic tank design extremely costly because of poor drainage qualities.

Additionally, soil types may vary greatly over short distances. To know what the actual soil conditions are on a given property, it is helpful to have an on-site analysis performed by a soil scientist. By requiring soil information to be considered with development proposals, public officials will be able to evaluate the adequacy with which the developer has considered soil conditions.

Major Soil Types in the City of Grandview and UGA

Soil maps and information are developed by the United States Department of Agriculture's Natural Resources Conservation Service.

Major soil types in the City and unincorporated UGA are illustrated in Figure 1-1 on page 8. ~~,~~ There are three types of soil found throughout Grandview and UGA: Naches loam, Ashue loam and Warden silt loam. The most predominant soils in Grandview's UGA north of the Yakima River are the Warden soils. The most predominant soils in Grandview's UGA south of the Yakima River are the Starbuck soils. Warden fine sandy loam occurs in the northerly portion of the City and UGA. This is a very deep, well-drained soil on terraces. Slopes range from zero to eight percent and the elevation is 730 to 850 feet within the City and unincorporated UGA. Permeability of this soil is moderate. Available water capacity is high. Runoff is very slow, and the hazard of water erosion is slight. The hazard of soil blowing is high.

Warden silt loam occurs in the central and southern portion of the City and UGA that is north of the Yakima River. This is a very deep, well-drained soil on terraces. Slopes range from zero to 15 percent and the elevation is 730 to 850 feet within the City and associated UGA. Permeability of this soil is moderate. Available water capacity is high. Runoff is slow, and the hazard of water erosion is slight. Dustiness can be a problem where large areas of soil are exposed.

Starbuck silt loam occurs in the westerly portion of the City and UGA south of the Yakima River. This is a shallow, well-drained soil on uplands. Slopes range from two to 15 percent and the elevation is 650 to 710 feet. Permeability of this soil is moderate. Available water capacity is low. Runoff is medium, and the hazard of water erosion is moderate. Dustiness can be a problem where the soil is exposed.

Starbuck-Rock outcrop complex occurs in the central and eastern portion of the City and UGA south of the Yakima River. This is a shallow, well-drained soil. It formed in loess overlying basalt. Areas of exposed bedrock are interspersed with the Starbuck soils. Slopes range from zero to 45 percent and the elevation is 650 to 710 feet. Permeability of the soil areas are moderate. Available water capacity is low. Runoff is medium, and the hazard of water erosion is moderate. Dustiness can be a problem where the soil is exposed.

Determination of a soil's agricultural capability, limitations for septic tanks or buildings, roads and streets, is made through interpretations which are generally identified within the USDA Soil Conservation Service's Soil Survey of Yakima County, May 1985. For each soil type and unit, this document provides the interpretations and orders them in an interpretation chart. The interpretation chart displays the influence the soil has on a given use. Table 1-1 page 8 ~~9~~ shows these interpretations for soil types and units found in the Grandview area.

As indicated in Table 1-1, the best soil for agricultural production is the Warden silt loam from zero to two percent slopes. This soil is categorized as a capability class I soil indicating that this soil has few limitations

for the growing of most kinds of field crops. Other prime farmland soils include the Warden silt loam from two to five percent slope and Warden fine sandy loam from zero to five percent. These soils also have the fewest limitations for building.

The Starbuck, Starbuck-Rock series makes up the soils found south of the Yakima River. These soils although not prime farmland, are the least suitable for building and septic tank absorption fields due to the shallow soils and limited capacity of septic tank absorption fields.

Preservation of productive agricultural land is a high priority in Yakima County. As a result, non-farm use of this resource should be kept to a minimum in areas not already experiencing high-density urban development, and where the combination of past trends and future population projections do not indicate a need for urban expansion in the near future.

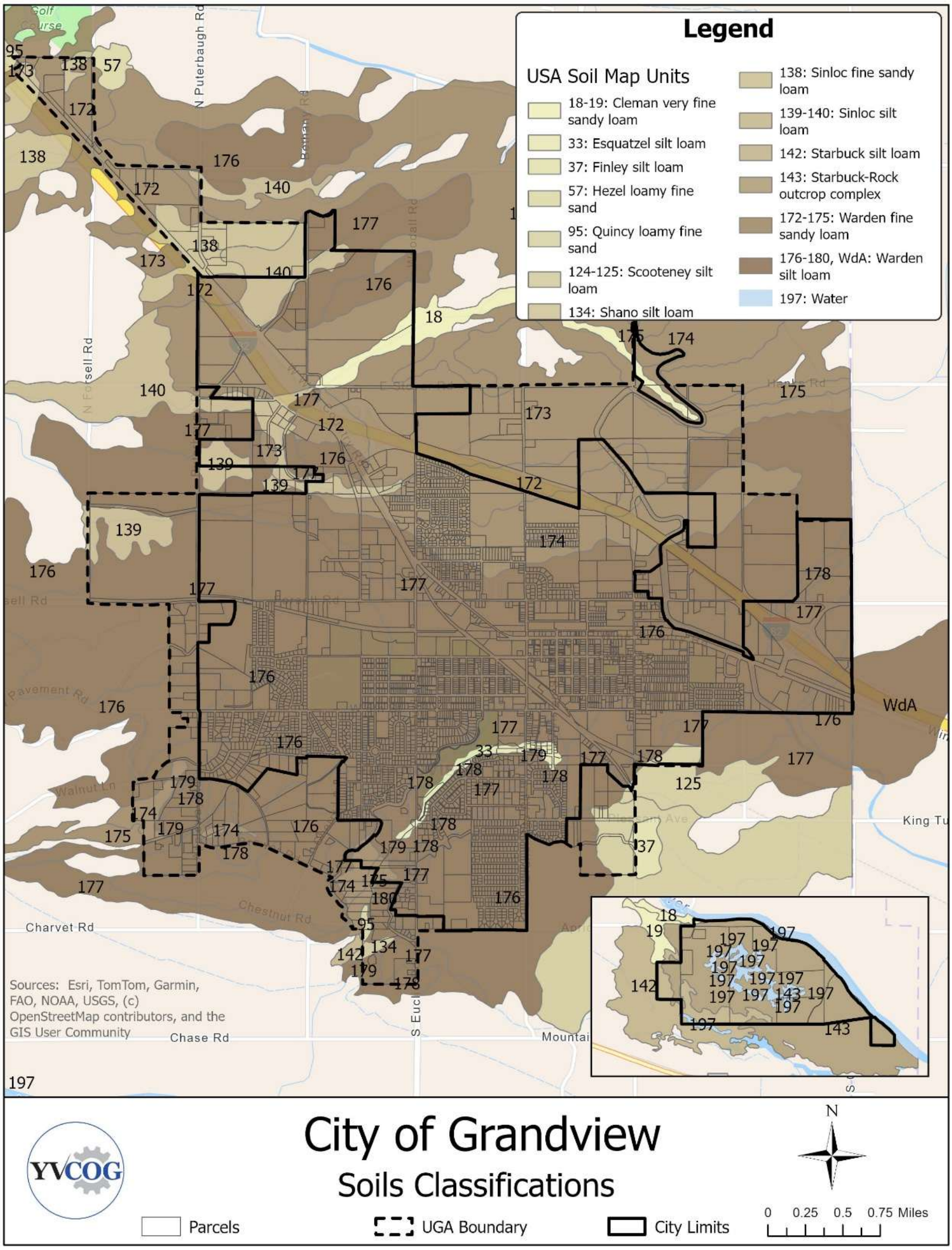
Yakima County regulates the type and density of development that should occur in these areas through its zoning and subdivision ordinances. The Yakima Health District issues septic tank permits for developments based on soil ratings determined through on-site percolation tests. Required lot sizes may vary in residential zones depending on test results and the types of water and sewer systems intended.

Erosion Hazard

Erosion hazard includes the transport of soil by wind and water. The primary mode of transport in the Grandview area is wind. The soils in the Grandview area present low to moderate hazard for water erosion potential. The soils are most susceptible to erosion by water on slopes and if water is allowed to run in an uncontrolled manner across an area.

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Figure 1.1 Soil Types in the city of Grandview and UGA



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Table 1-1. Soil Classifications and Limitations for the City of Grandview and Vicinity

SOIL CLASSIFICATION				LIMITATIONS		
Soil Type No.	**Series**	**Slope**	**Agricultural Rating**	**Agricultural Capacity**	**Septic Tank**	**Buildings**
172	Warden fine sandy loam	0-2%	IIe, irrigated	If irrigated, these soils are suited to corn, grain, grapes, hops, mint, peas, and tree fruits. Grasses and legumes are grown for hay, pasture and seed. The main limitation for irrigated crops is the hazard of soil blowing. Meets requirements for designation as prime farmland soil, if irrigated.	Moderate: percs slowly	Soil blowing can be a problem on large building sites
173	Warden fine sandy loam	2-5%	IIe, irrigated and IVe, nonirrigated	If irrigated, these soils are used for corn, grain, grapes, hops, mint, peas, and tree fruits. Grasses and legumes are grown for hay, pasture and seed. The main limitation for irrigated crops are the hazards of soil blowing and water erosion. Meets requirements for designation as prime farmland soil, if irrigated.	Moderate: percs slowly	Soil blowing can be a problem on large building sites

SOIL CLASSIFICATION				LIMITATIONS		
Soil Type No.	**Series**	**Slope**	**Agricultural Rating**	**Agricultural Capacity**	**Septic Tank**	**Buildings**
176	Warden silt loam	0-2%	I, irrigated	This unit has few limitations for crops. Irrigation systems are suited in this soil unit. The main irrigated crops are corn, grain, grapes, hops, mint, peas, and tree fruit. Grasses and legumes are grown for hay, pasture, and seed.	This unit has few limitations for septic tank absorption	This unit is well suited to homesite development. Dustiness is a concern during construction on large building sites.
177	Warden silt loam	2-5%	IIe, irrigated and IVe, nonirrigated	If irrigated, these soils are used for corn, grain, grapes, hops, mint, peas, and tree fruits. Grasses and legumes are grown for hay, pasture and seed. The main limitation for irrigated crops is the hazard of water erosion and low annual precipitation for non-irrigated crops. Meet requirements for designation as prime farmland soil, if irrigated.	Moderate: Percs slowly	Dustiness can be a problem on large building sites
142	Starbuck silt loam	2-15%	IVe, irrigated and VIe, nonirrigated	If irrigated, suitable for irrigated crops such as grain. Grasses and legumes are grown for hay, pasture and seed. The main limitations for irrigated crops are depth to rock, steepness of slope, and the hazard of water erosion. Does not meet requirements for designation as a prime farmland soil.	Shallow depth to bedrock limits the capacity of septic tank absorption fields	Shallow depth to rock hinders excavation

SOIL CLASSIFICATION				LIMITATIONS		
Soil Type No.	**Series**	**Slope**	**Agricultural Rating**	**Agricultural Capacity**	**Septic Tank**	**Buildings**
143	Starbuck-Rock outcrop complex	0-45%	VIIs, nonirrigated	Not suitable for farming. These soils are used for rangeland and wildlife habitat. Does not meet requirements for designation as prime farmland soil.	Severe: depth to rock, slope	Severe: depth to rock, slope

Source: USDA Soil Conservation Service, Soil Survey of Yakima County, May 1985.

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Climate

The climate for the Yakima Valley is generally described as being mild and dry, influenced by both the maritime and continental climates, and modified by the Cascades to the west and Rocky Mountains to the east.

Summers are sunny, with about 85 percent of the possible sunshine, while winters are generally cloudy with only a third of the possible sunshine. Daily temperatures for the summer months range from 65 to 90 degrees, but the dry air results in rapid temperature falls after sunset, providing cool evening temperatures, usually in the 50s. Temperatures of 100 degrees frequently occur in the months of July and August.

The growing season in the Yakima Valley varies depending on the immediate topography and the type of crops grown. The average date of the last freezing temperature in the spring is April 27, and the first in the fall is October 8. Temperatures below 32 degrees are infrequent during the period May 13 through September 26.

Irrigation is a basic necessity for nearly all crops grown in the Valley. Ample water is available from the snow melt and is collected in storage reservoirs in the Cascade Mountains for summer use in the Valley.

Snowfall is light, with average seasonal snowfall ranging from 10 to 15 inches.

Precipitation in the area follows the West Coast Marine Climate, exhibiting the typical late fall and early winter maximum rainfall. More than 50 percent of the annual precipitation occurs from October through February. Late June, July, and August are usually dry, averaging less than one inch of measurable precipitation during the three month period. It is not uncommon between the months of July and August to have no measurable rainfall (1925 recorded 88 consecutive days without rain). Average annual precipitation for the Grandview-Sunnyside area is between six and eight inches.

Winds are generally light, averaging approximately eight miles per hour on an annual basis. Stronger winds, ranging from 30 to 65 miles per hour, will occasionally occur during the spring months. The prevailing wind direction is from the northwest and west in the winter and west-northwest in the summer. Warm and dry "Chinook" winds characteristically occur several times a year, being most noticeable in the winter, resulting in a 20 to 30 degree rise in temperature within the space of a few hours.

In 2023, the Growth Management Act was amended to require cities and counties in Washington State to address climate change in their comprehensive plans in a separate Climate Element. Climate-related changes and associated hazards are addressed in the Climate Element, adopted as part of the 2026 periodic update.

Air Quality

During the winter months, overcast days with minimal sun result in periods of high pressure air stagnation and little air movement (thermal inversion). This thermal inversion condition, which can result in a build-up of pollutants, is accentuated in the Upper Yakima Valley (Yakima-Selah area) due to severe topography (hills rising 800 feet above the valley floor that tend to hinder air movement and increase the potential for thermal inversion). This set of circumstances combines to cause a build-up of particulate pollutants, resulting from space heating, burning from wood stoves, and industrial and transportation activities, bringing PM_{10} and $PM_{2.5}$ particulate pollution levels within the Yakima metropolitan area in excess of National Ambient Air Quality Standards (NAAQS). A smaller portion of the Yakima metropolitan area

also has had past NAAQS violations with regard to carbon monoxide (CO). These are the only pollutants and areas within Yakima County that have had a history of NAAQS violations. Levels of other pollutants in the Yakima Valley are well below national standards.

The absence of major topographical features in the Grandview area allows for air movement that reduces the potential for thermal inversion, and thus, these areas do not have a history of NAAQS violations due to their better air quality. The frequency of occurrence and severity of thermal inversions varies from year to year. The national Weather Service issues an Air Stagnation Advisory when poor atmospheric dispersion conditions exist and are forecast to persist for 24 hours or more. These advisories, which are issued for all of eastern Washington, are generally issued once or twice a year and typically last one to two days.

Smoke from wildfires is the largest source of particle pollution in Washington. Forest fires, particularly in the Cascade mountains during the summer months, cause smoke that regularly affects the Yakima Valley, including Grandview.

Air Quality Regulations and Monitoring

The Department of Ecology operates the Washington Air Quality Monitoring Network, which includes t~~T~~hree agencies have air quality jurisdiction in Yakima County: the United States Environmental Protection Agency (EPA), the Washington State Department of Ecology (WDOE), and the Yakima Regional Clean Air Agency (YRCAA). The YRCAA, along with the EPA and WDOE, has primary air quality jurisdiction in Grandview and all of Yakima County. The YRCAA has adopted the National Ambient Air Quality Standards (NAAQS) established by the EPA. The compounds identified in the NAAQS are termed "priority pollutants." Three priority pollutants are of interest in the Yakima County area: ~~–~~particulates, carbon monoxide and ozone.

Particulate Matter

Particulate matter consists of fine particles of smoke, dust, pollen or other materials that remain suspended in the atmosphere for a substantial period of time. PM_{10} is fine particulate matter, defined as smaller than 10 micrometers (µm) in diameter. Particles less than 2.5 µm in diameter, called $PM_{2.5}$, can be inhaled and accumulate deep in the lungs. They are called "fine" particles and pose the greatest health concerns. In 2012, the U.S. Environmental Protection Agency (EPA) strengthened the NAAQS for fine particles ($PM_{2.5}$) to 9~~12.0~~ micrograms per cubic meter (µg/m^3) in May 6, 2024, while retaining the existing standards of 150 µg/m^3 for PM_{10}. According to WDOE ~~Ecology~~, the lower Yakima Valley does not exceed the NAAQS standards for $PM_{2.5}$. The YRCAA maintains one air quality monitoring station in the lower Yakima Valley in Sunnyside at Harrison Middle School. These monitors are not intended to determine compliance with NAAQS standards.

Carbon Monoxide

Carbon monoxide (CO) is an air pollutant generally associated with transportation sources. Carbon monoxide also is generated by processes involving incomplete fuel combustion, including home heating appliances and residential wood burning. Carbon monoxide pollution impacts are usually localized. The highest ambient CO concentrations often occur near congested roadways and intersections during periods of low temperatures, light winds, and stable atmospheric conditions.

Because the EPA and the YRCAA do not operate any CO monitoring stations in the lower Yakima Valley, it is not possible to determine CO concentrations for the Grandview area. However, because the traffic volumes on surface streets in the immediate vicinity are relatively low and rarely result in congestion, CO levels are not anticipated to exceed NAAQS standards. In addition, CO concentrations have be~~en~~

decreasing in many areas due to more stringent vehicle emission standards for newer cars and the gradual replacement of older, more polluting vehicles.

Ozone

Ozone is primarily a product of regional (urban) motor vehicle traffic. It is created during warm sunny weather when photochemical reactions occur involving hydrocarbons and nitrogen oxides. Unlike carbon monoxide, however, ozone and other reaction products do not reach their peak levels closest to the source of emissions, but rather at downwind locations affected by the urban air plume after the primary pollutants have had time to mix and react under sunlight.

The Lower Yakima Valley where Grandview is located is not considered an ozone-producing area; therefore, EPA and the YRCAA do not monitor ozone in the Lower Yakima Valley.

Regional NAAQS Violations

The upper Yakima Valley metropolitan area (Yakima, Selah, Union Gap) historically has had air quality problems related to PM_{10} and carbon monoxide (CO). The PM_{10} problems typically occur during the winter months when wood smoke and transportation pollution builds up due to the metropolitan area's topography (valley surrounded by steep hills) and thermal inversions. This set of circumstances causes a PM_{10} pollution levels in the Yakima metropolitan area to periodically exceed NAAQS. Historical violations of NAAQS has led to portions of the Yakima metropolitan area being designated as non-attainment for both PM_{10} and CO. Currently, the Yakima metropolitan area is in attainment for both pollutants and operating under Limited Maintenance Plans.

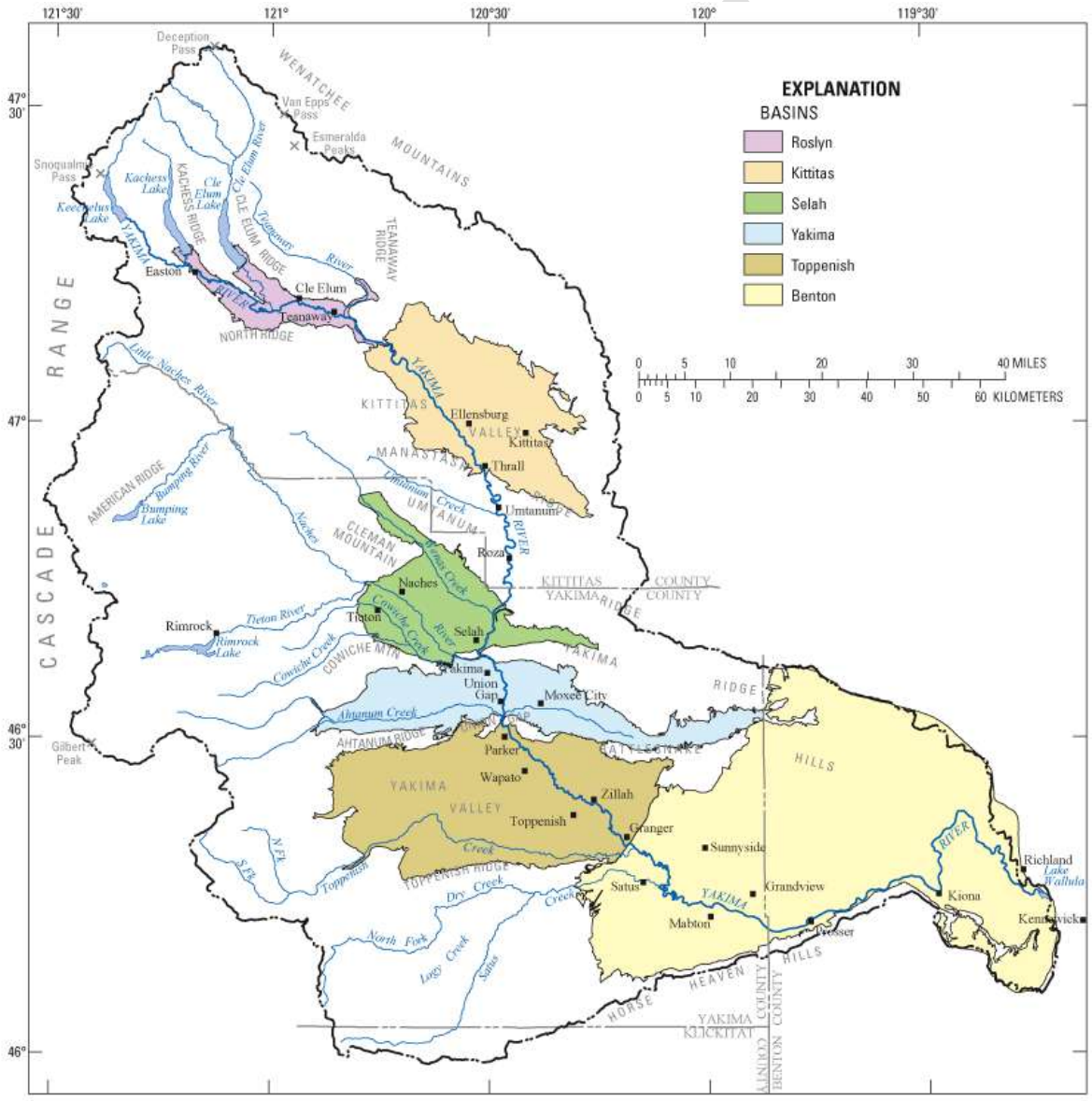
The absence of major topographical features in the lower Yakima Valley, particularly in the relatively flat Grandview area, allows for improved air movement. Increased air circulation reduces the potential for thermal inversions and thus Grandview has not had the same problems that the Yakima metropolitan area has had with regard to PM_{10} and CO pollution. Because of this, Grandview is not part of the designated non-attainment areas and is not included in the current Limited Maintenance Plans for either PM_{10} or CO.

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Water Resources

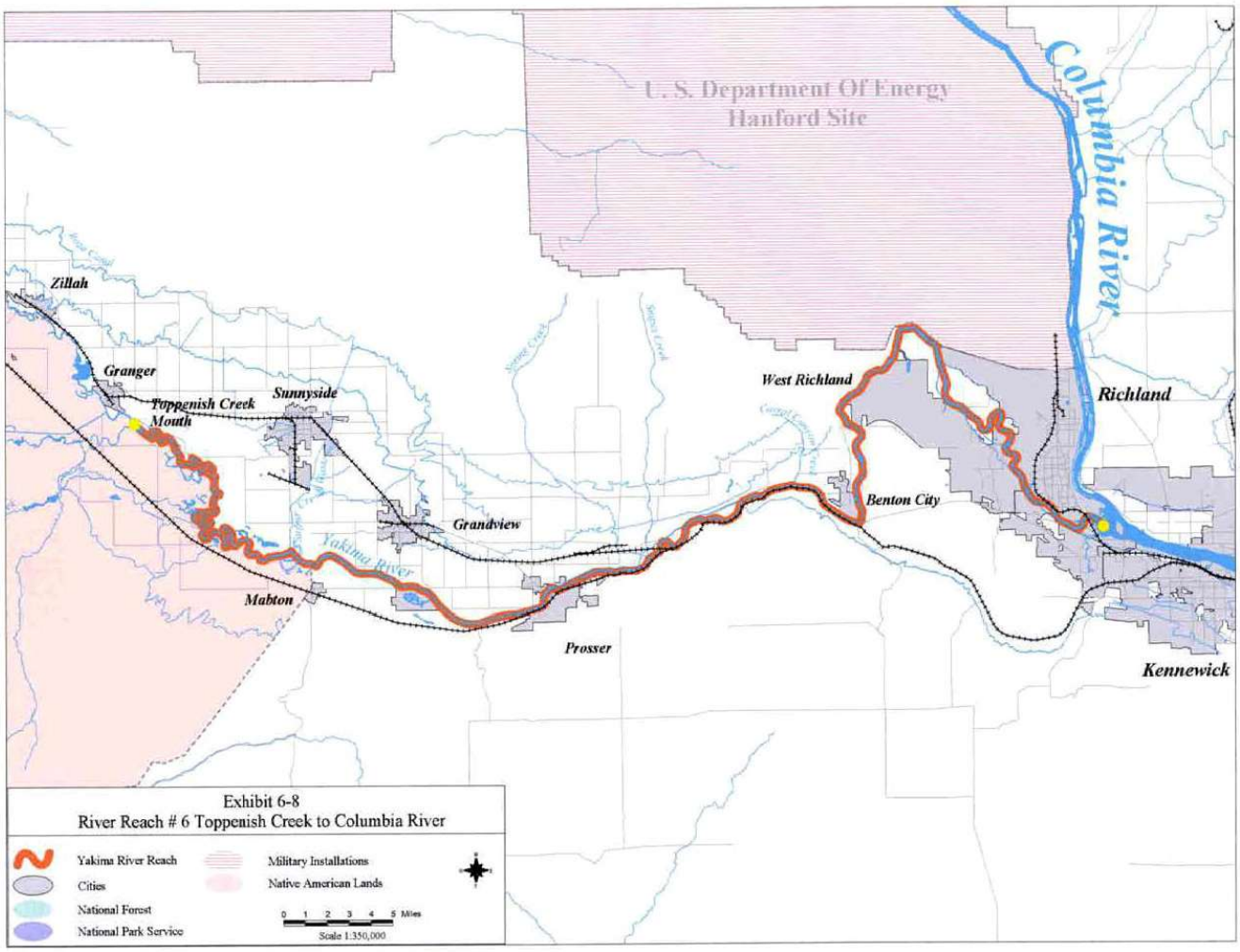
Grandview is located in the Benton sub-basin within the Yakima basin of the Yakima River Basin aquifer system, as designated by the U.S. Geological Survey (Figure 1-2). Grandview is most closely associated with Reach #6 of the Yakima River (Figure). This reach of the Yakima River runs from the mouth Toppenish Creek to the mouth of the Yakima River at the Columbia River in the Tri-Cities.

Figure 1-2. Structural Basins within the Yakima River Basin Aquifer System



Source: U.S. Geological Survey. 2009. Hydrogeologic Framework of the Yakima River Basin Aquifer System, Washington, Report 2009-5152.

Figure 1-3. Reach #6 of the Yakima River, Yakima River Basin



Source: Watershed Management Plan Yakima River Basin. January 2003. Yakima River Basin Watershed Planning Unit and Tri-County Water Resources Agency, prepared by Economic and Engineering Services, Inc.

Groundwater

Geologic materials that are able to store and transmit groundwater are called aquifers. In the lower Yakima Basin, aquifers are the main source of groundwater for residences using individual wells. The depth of wells using aquifers ranges from approximately 10 to 200 feet below ground surface. Wells constructed in the unconsolidated sediments typically produce water at a rate of less than 100 gallons per minute (gpm), though production rates of up to 5,000 gpm are reported for wells in some areas.

Groundwater systems are replenished (recharged) by the addition of water to the zone of saturation (aquifer) through precipitation, runoff and infiltration from surface water bodies. An area in which water reaches an aquifer by surface infiltration, and where there is a downward component of hydraulic head (pressure head), is considered a recharge area. The likelihood that water will infiltrate and pass through the surface materials to recharge the underlying aquifer system (recharge potential) is dependent on a number of relatively static physical conditions, including soil permeability, surficial geological materials, depth to water and topography.

Potential for groundwater contamination in these shallow aquifers is high, especially near ditches, canals and the Yakima River. Care must be taken to avoid contamination of groundwater when shallow wells are used in conjunction with septic tanks, as it is possible for septic effluent to seep into the well water supply. This condition typically occurs during peak irrigation periods in areas with high water tables.

Critical Aquifer Recharge Areas

Groundwater systems are replenished (recharged) by the addition of water to the zone of saturation (aquifer) through precipitation, runoff, and infiltration from surface water bodies. A recharge area is an area where surface water resulting from precipitation reaches an aquifer by surface infiltration. The likelihood that water will infiltrate and pass through the surface materials to recharge the underlying aquifer system (recharge potential) is dependent on a number of relatively static physical conditions. These conditions include soil permeability, surficial geological materials, depth to water and topography.

In general, the aquifers in the Yakima River Basin are recharged by precipitation, infiltration of surface water, irrigation water, seepage losses from ditches, canals and rivers, and upward migration of water from lower aquifers. Groundwater discharges into rivers, lakes and streams, or through evapotranspiration, pumping, and upward flow of water into the shallower aquifers.

Figure ~~Figure~~ (page 20) shows the critical aquifer recharge areas in the City of Grandview and UGA, with estimated areas of moderate, high and extreme susceptibility to contamination, in addition to wellhead protection areas. The CARA data was developed by Yakima County based on BAS.

Groundwater Quality

Water quality considerations vary for these different uses. For example, the quality of groundwater in the Yakima Basin is rarely a limitation if the water is used for agricultural purposes. However, groundwater quality must be much higher for drinking water purposes, and in some cases requires treatment to meet state and federal drinking water standards.

Groundwater is the main source of drinking water supplies in the Yakima River Basin, both for public water supplies, and individual domestic wells. With the exception of the Cities of Yakima and Cle Elum, all of the cities and unincorporated communities rely on groundwater for their indoor, domestic water supplies. Degradation of groundwater quality can pose public health threats, raise the cost of treating municipal supplies, and potentially force abandonment or limit the use of supplies.

The State's groundwater criteria serve as a baseline and reference to establish trends in water quality conditions. WAC 173-200 establishes the criteria for all groundwater, based on the premise that it may be used for drinking water. In addition, the federal government has established National Primary Drinking Water Standards, which apply to water supplies delivered to the public by the public water systems.

The *Lower Yakima Valley Groundwater Quality: Preliminary Assessment* (2010) noted that groundwater quality can be affected by a wide variety of activities which introduce pollutants into the subsurface. Key parameters relative to drinking water supplies include fecal indicator bacteria, nutrients such as nitrate, and organic chemicals such as pesticides and industrial chemicals. Regulatory agencies across the U.S. have identified the categories of sources listed below:

- Natural contamination/dissolved salts and minerals (including arsenic and radon, which are the subject of current regulatory activity at the federal level)
- Point source contamination at the wellhead

- Septic systems
- Leaking underground storage tanks
- Application of fertilizers or pesticides
- Application of manure to agricultural lands or gardens
- Chemical or fuel spills
- Leaching from landfills
- Burial or dumping of wastes

Each of these sources is likely to be present in some degree within the Yakima River Basin. Groundwater quality problems such as elevated levels of nitrates occur in the Yakima River Basin in locales where the following two conditions are present: 1) there is relatively dense development that is not served by public sewer systems, and 2) there is a shallow water table. In addition, elevated nitrate levels may occur in areas where irrigated agriculture is present in combination with a shallow water table.

Yakima County does not actively track groundwater quality, and groundwater quality monitoring is not occurring on a regional basis within the Yakima River Basin. Where localized problems have been identified, monitoring activities have sometimes been implemented. In the absence of more comprehensive, long-term monitoring data, trends are unlikely to be quantifiable. In addition, if certain parameters have received little attention, they may pose a threat to drinking water supplies that goes undetected. This may be a limitation for watershed planning in terms of determining a safe and reliable water supply for municipal and domestic purposes.

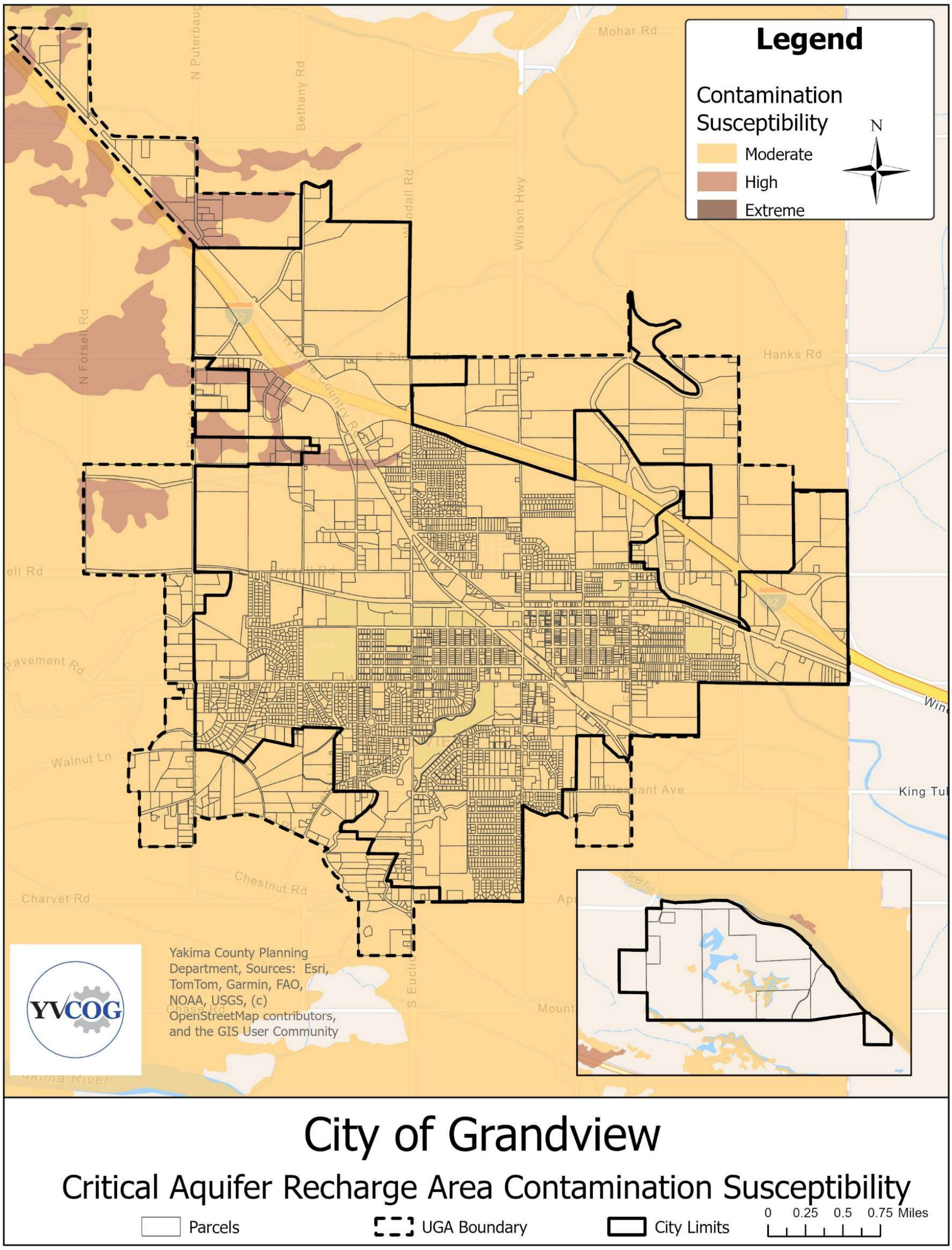
Medium-sized public water systems (serving 10,000-100,000 people) such as the City of Grandview's have the ability to monitor, manage and protect the quality of their groundwater supplies. However, some individual households still rely on their own wells for drinking water. Shallow and/or unprotected groundwater supplies are more susceptible to groundwater contamination, particularly from nitrates, than deep groundwater supplies. The USGS compiled well depth information for Yakima, Kittitas, and Benton Counties, and found that 50% of all wells were less than 151 feet deep.

The Washington State Department of Ecology (Ecology) estimates that for shallow well use, the size of lots should be greater than two acres. Deeper wells would help a great deal to prevent these problems, but the added cost of well drilling and lack of state legislation requiring it (except for community wells) have prevented this from occurring.

The main uses of groundwater in the lower Yakima Basin are for domestic water supply, fire protection, commercial/industrial use, irrigation, orchard frost protection, stock watering, fish propagation, recreation and beautification, and heat exchange.

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Figure 1-4. Critical Aquifer Recharge Areas, Grandview UGA



Surface Water

The Yakima River Basin occupies approximately 6,150 square miles. Its headwaters are situated along the crest of the Cascade Range. The mainstream Yakima River is joined by a number of tributaries and flows generally southeast until it joins the Columbia River.

Precipitation is seasonal throughout the Basin, with approximately 60 to 80 percent of annual precipitation occurring from October to March. Much of this precipitation falls as snow during the winter months and becomes stored in the Cascade Range as snow pack. As a result, runoff in the Yakima River Basin exhibits a pronounced spike from April to June, with lower levels of runoff occurring during the remaining months of the year.

WAC 222-16-031 establishes an "interim" water typing system to be used until a permanent typing system is established. Figure , page 31~~30~~ illustrates the surface waters falling in the City and the unincorporated UGA. Water typing is established based on the structure and function of waterways. Grandview has one Type 4 stream identified in the noncontiguous portion of the City limits to the northeast. Type 4 streams are "all segments of natural waters within the bankfull width of defined channels that are perennial nonfish habitat streams. Perennial streams are flowing waters that do not go dry any time of a year of normal rainfall and include the intermittent dry portions of the perennial channel below the uppermost point of perennial flow."

The Yakima River is classified as a Type 1 Stream and is designated as a "Shoreline of the State," falling under the purview of the Washington State Shoreline Management Act (SMA). In compliance with the SMA, Grandview adopted the Yakima County Regional Shoreline Master Program (SMP), effective January 22, 2010. Shoreline Master Program designations in the Grandview vicinity are illustrated in Figure , page 25.

Major canal systems which pass through the Benton sub-basin are the Sunnyside Canal and the Roza Canal. Only the Sunnyside Canal passes through the City and its UGA.

Surface Water Quality

Water quality is a key consideration in planning for the Yakima River Basin, and a wide variety of physical, chemical, and biological parameters have been studied with respect to surface water quality in the Basin. These include:

- Temperature
- Dissolved oxygen (DO)
- Nutrients (i.e. substances that stimulate growth of aquatic plants)
- Fecal indicator bacteria
- Suspended sediments and turbidity
- Pesticides

A number of previous studies and planning processes have addressed surface water quality in the Yakima River Basin. Reports prepared by the USGS under the National Water Quality Assessment (NAWQA) program provide the most extensive study of surface water quality in the Yakima River Basin. This information was compiled by the Yakima Basin Water Resources Agency (YBWRA) in their Watershed Plan, approved in 2003. Yakima River Basin Integrated Water Resource Management Plan (YBIP), completed in 2021, is the result of an extensive study of the Yakima River and its tributaries as part of the Yakima River Basin Water Enhancement Project (YRBWEP). The Plan addresses water, fisheries, habitat and climate variability challenges in the Yakima River Basin. The plan identifies and implements strategies and projects that address reservoir fish passage, structural and operation changes, surface and ground water

storage, habitat and watershed protection, enhanced water conservation and market reallocation. ~~The current planning process is the Yakima River Basin Integrated Water Resource Management Plan being developed by the U.S. Bureau of Reclamation and Washington State Department of Ecology, for which a Final Programmatic Environmental Impact Statement has been released.~~

The studies found that Reach #6 of the Yakima River, the reach most closely associated with the City of Grandview (Figure) is seriously degraded by toxics (metals, PCBs, pesticides) fecal coliform, and elevated temperatures. Sediments from agricultural drains blanket the river bottom. There are also localized deficiencies in riparian shade and off-channel habitat. Fall chinook spawn in Reach #6 and it is considered an important migratory corridor.

The federal Clean Water Act includes provisions for addressing surface waters that do not meet established water quality standards, and Washington State must identify surface-water bodies that do not achieve water quality standards. These water bodies comprise what is commonly known as the 303(d) list.

In the Yakima Basin, 150 listings have been placed on 70 water bodies listed on the 303(d) list. Ecology has a program to develop water quality cleanup plans for each listed stream segment. These cleanup plans are known as Total Maximum Daily Load (TMDL) reports. No water bodies within the City of Grandview are on the 303(d) list. The lower reaches of the Yakima River are on the 303(d) list with TMDLs related to PCBs, pesticides, and sediments.

A variety of legal requirements exist related to the quantity of instream flows (water flowing in a stream) in the Yakima River Basin. Generally these are based on court orders and federal legislation related to the Yakima Irrigation Project. The State of Washington has not established minimum instream flows for the Yakima River Basin. Instream flows in the Yakima River Basin mandated by the courts are not quantified. Rather, the amount of water necessary to maintain fish life is to be determined annually depending on existing prevailing conditions. Specific mandates from the state and federal courts include orders directed at United States Bureau of Reclamation's operation of the Yakima Irrigation Project to reduce negative impacts on the fisheries resource, orders with respect to treaty reserved rights for fish, and orders with respect to instream flows to support treaty fishing rights at "usual and accustomed places."

In addition to the quantity of instream flows mandated by the courts, "target flows" have been defined and mandated by Congress in 1994 (Public Law 103-434). The legislation provides that the Yakima Irrigation Project Superintendent shall estimate the anticipated availability of water supply to meet water entitlements, and provide instream flows in accordance with the biological needs of fisheries.

Flooding

Although flooding is a problem that has significant impact upon the use of the land, the floodplain of the Yakima River in the Grandview area is narrow and of sufficient distance from the built-up portion of the City that it is not affected by this potential problem. The only area of the UGA or City limits that is affected by the 100-year or 500-year floodplain is a small section of the southern noncontiguous portion of the City that houses the wastewater treatment plant and sprayfields. This small section borders the Yakima River and does not affect the built-up portion of the City.

The Yakima River Basin is subject to two types of floods – the more severe, but less frequent winter floods resulting primarily from rainfall; and the spring floods caused mainly by snowmelt. The more severe rain-type floods may be expected from November through March.

Prolonged warm temperatures during May and June, accompanied by rainfall, cause rapid snowmelt in the mountains, producing the lower-crested spring and early summer floods. These floods are of importance

as they adversely affect farmlands after crops are beginning to grow.

Flooding is reduced in the floodplain area by the various reservoirs and diversion canals. The reservoirs serve to reduce flood discharges of the rain-type floods which come at a time when the reservoirs are drawn down after the close of the irrigation season. The effect of the reservoirs on the snowmelt, or spring floods depends on the reservoir filling program. It is possible for the reservoirs to be completely filled at the beginning of a spring flood, in which event no reduction in flood discharge could be effected. On the other hand, if unusually large late runoff from snowmelt is foreseen, and the reservoirs are left unfilled in order to capture the late runoff, a potential spring flood may be reduced to harmless proportions.

Controlling bank erosion and preventing damaging overflow are the main flood problems in the lower Yakima Valley. Levees and reservoirs have reduced the danger of considerable damage from flooding and have provided some degree of protection to homes and farms which have encroached on the floodplain. However, because there is great variability in the volumes and heights of flood waters, flooding will undoubtedly occur again in the future. The most recent large flood along the Yakima River in the lower Yakima Valley occurred in 1996~~1974~~. Damage to property at that time was very significant.

As indicated by the Federal Emergency Management Agency - Flood Insurance Rate Map, Community Panel No. 530217 2225 B for Yakima County and Community Panel No. 530218 0005 B for the City of Grandview, the only area within the 100-year floodplain within the City or its UGA is a narrow strip of land on either side of the Yakima River adjacent to the City limits on the south side of the Yakima River (see ~~Figure~~ , page 26).

Yakima County and the City of Grandview regulate building in floodplain areas. These permits require all development to be floodproofed; i.e., the elevation of the first inhabited floor must be one foot above the 100-year flood elevation. In addition, the City of Grandview and Yakima County also regulate shoreline management along the Yakima River. Within the City of Grandview, the only area within the 100-year floodplain and subject to flood control provisions is also City property.

Wetlands

Wetlands provide a broad spectrum of natural and physical functions. Freshwater wetlands have flood storage capacity, serve as groundwater recharge areas, and tend to moderate flow regimes of associated drainages. Wetlands also work to remove suspended solids from water, absorb and recycle mineral and organic constituents, and otherwise contribute to improved water quality. Biological functions include food chain production, general habitat, nesting, spawning, rearing, and resting sites for aquatic and land species.

Efficiency of wetland functions can be broadly described according to wetland type. Primary productivity is low to moderate in streams and drainages and moderate to high in marshes and swamps. Relative export efficiency of nutrients is generally rated high for perennial riverine marshes, seasonally flooded riverine swamps, and overflow systems; moderate for freshwater wetlands adjacent to or linked to intermittently inland swamps and bogs, and freshwater wetlands adjacent to or linked to ephemeral riverine systems.

Many wetlands such as swamps, wet meadows, and riverine- and drainage-related wetlands, serve as groundwater discharge/recharge zones. Hydrologically isolated wetlands do not provide those functions unless linked to the groundwater system. Assessing water purification capabilities for wetlands is complicated, but in general, those wetlands with greater vegetative cover and an optimal ratio of aerated water surface to total wetland size have the most value.

Wetlands are regulated through the Critical Areas Ordinance (CAO) and the Shoreline Management Act. Grandview hereby adopts Yakima County's CAO as amended. ~~In the Grandview CAO adopted 2012,~~

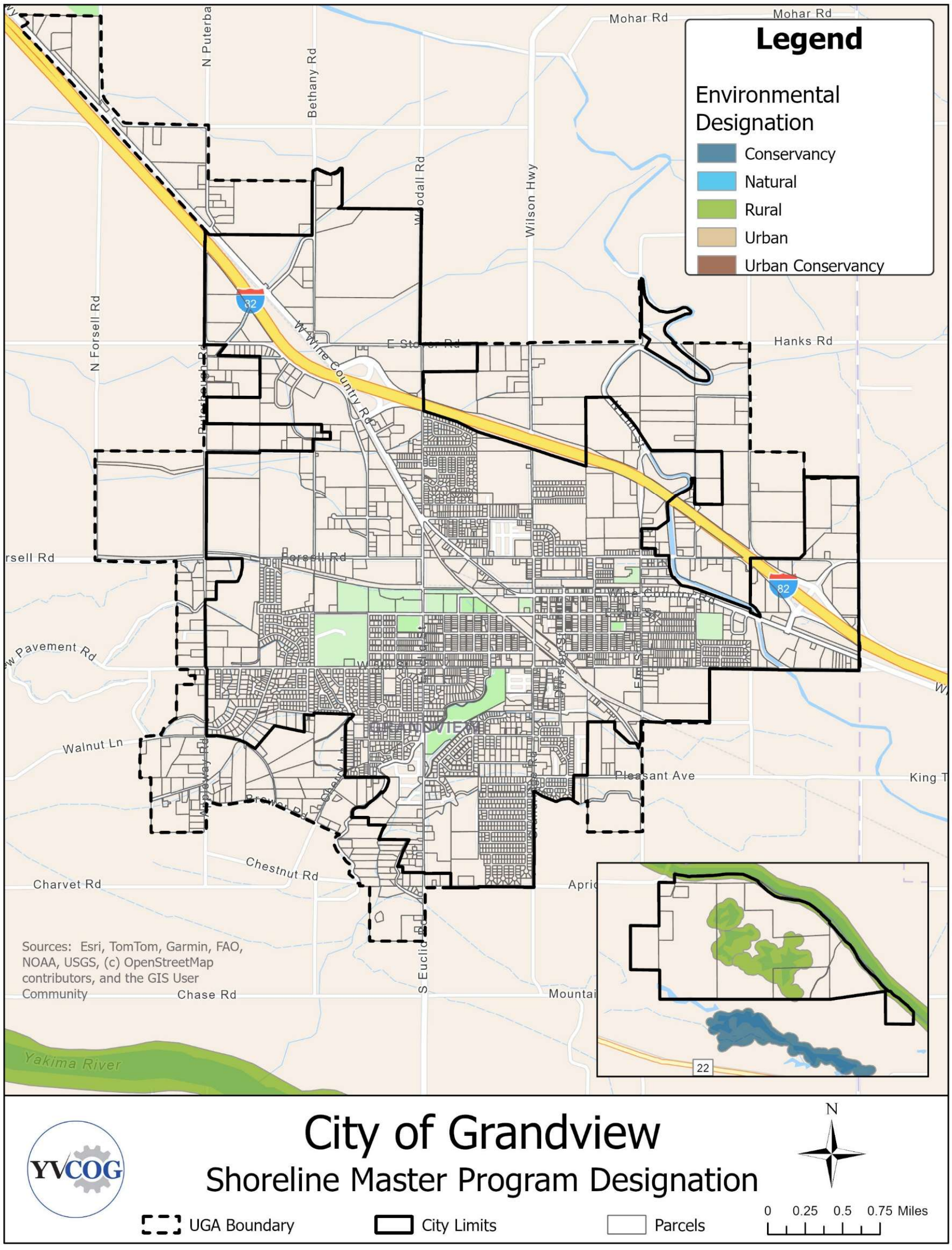
~~wetlands are rated according to the Washington State Department of Ecology wetland rating system found in the Washington State Wetland Rating System documents Washington State Wetland Rating System for Eastern Washington — *Revised* August 2014 (Ecology Publication #04-06-030), as updated or amended.~~

Figure (page 31~~30~~) illustrates wetland data for the Grandview vicinity, which were mapped using the wetlands data set developed for the Yakima County CAO. The map includes information from the National Wetlands Inventory produced by the U.S. Fish and Wildlife Service and soil maps produced by United States Department of Agriculture National Resources Conservation Service that are useful in helping to identify potential wetland areas. The wetland map is used as a guide for the City, project applicants and/or property owners, and may be continuously updated as wetlands are more accurately identified, located and delineated.

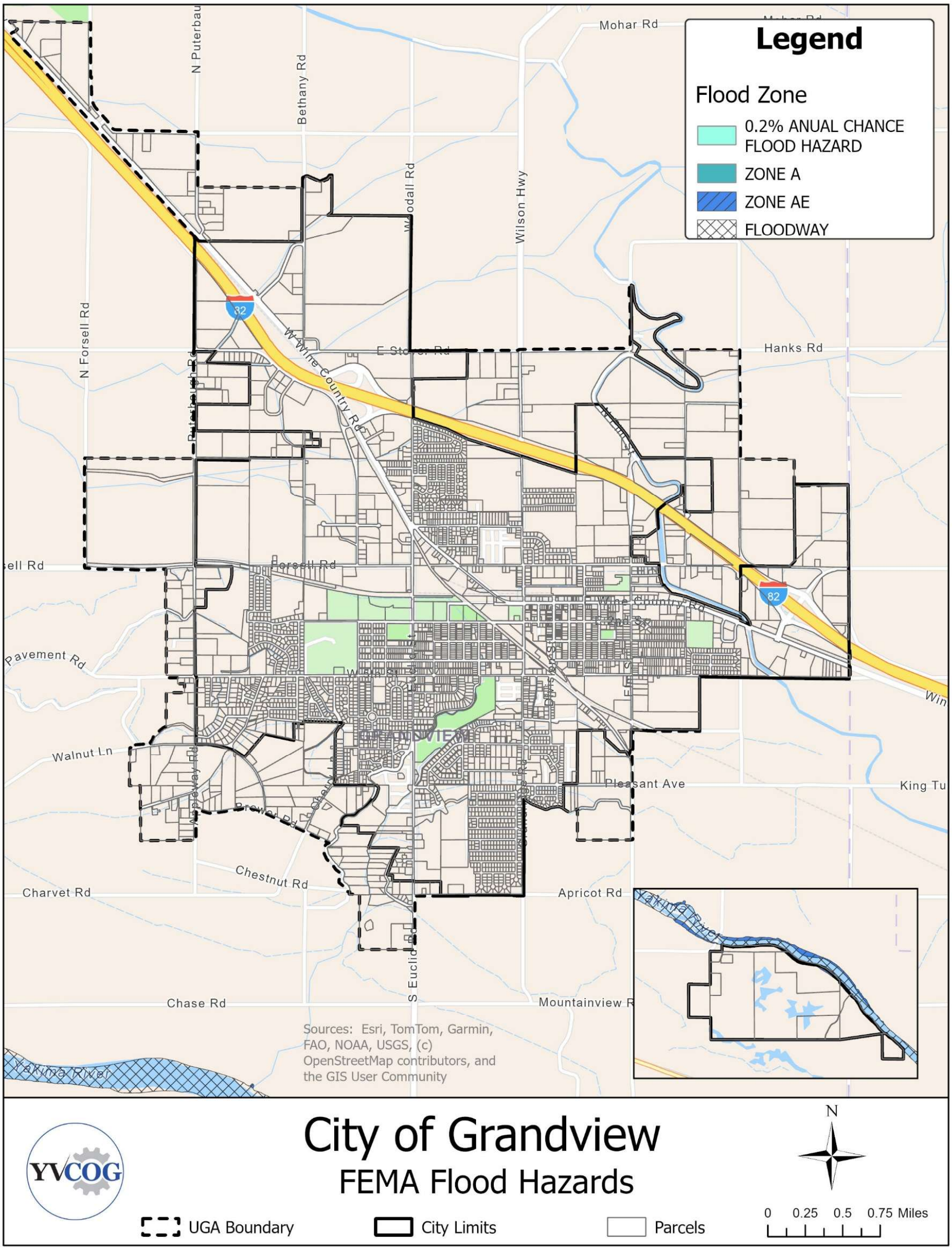
The Grandview CAO provides standards and procedures for protection of wetlands.

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Figure 1-5. Shorelines of the State Under the Shoreline Management Act, Grandview



~~Figure 1-6. FEMA Flood Hazard Areas, Grandview UGA~~



Plants and Wildlife

Plants

The Grandview area lies within the big sage brush-blue bunch wheatgrass (*Artemisia tridentate-Agropyron spicatum*) association of the Columbia Basin Province. This association is found in the driest part of the Columbia Basin Province and was historically composed of shrubs, grasses, forbs, and a surface crust of lichens and mosses. As previously stated, farming practices have resulted in alteration of vegetation over much of the landscape in the Grandview area. Very few native plants exist within the area with areas of invasive and noxious weeds present within and adjacent to the farmed portions of the area.

Some of the canals and ditches that traverse the Grandview area possess an overstory of young narrow-leaf willow (*Salix exigua* spp. *exigua*) and Russian olive (*Elaiagnus angustifolia*), with elm (*Ulnus* sp.) along the top of bank. Other canals and ditches that traverse the area have no overstory or shrubs and appear to be cleared of vegetation regularly. Emergent marsh vegetation within the ditches includes smartweeds (*Polygonum* spp.), watercress (*Rorripa nasturtium-aquaticum*), cattails (*Typha latifolia*), marshelder (*Iva xanthifolia*), and reed canarygrass (*Phalaris arundiances*). This habitat provides food, cover, and water as well as a movement corridor for birds and mammals. Small wetlands may also be found within the area. The vegetation of these wetlands is similar to that within the ditches. Amphibians may find limited breeding sites within the ditches and wetlands, though runoff of agricultural chemicals renders this somewhat less than desirable. The farmed portions of the area are used to grow corn, asparagus, mint, alfalfa and wheat. Little other vegetation is found among the crops and other species that occur are primarily noxious weeds such as puncturevine (*Tribulus terrestris*), redroot, pigweed (*Amaranthus retroflexus*), morning glory (*Convolvulus arvense*), and kochia (*Kochia scoparis*). Farmed lands offer fluctuating levels of food and cover for wildlife in correlation with harvest regimes.

Some wetlands are created as a consequence of irrigation practices. These wetlands may be used as pasture for grazing cattle, thus decreasing their value for wildlife species. Vegetation within these wetlands is limited to herbaceous species such as smartweeds and quackgrass (*Agropyron repens*) and has been heavily grazed offering only limited cover and food. Other wetlands are formed from impoundments adjacent to roads and the railroad and receive runoff from these sources as well as irrigation, also decreasing their value for wildlife.

Information on rare plants was requested from the Washington State Department of Fish and Wildlife (WDFW) Priority Habitat and Species Program. No rare plant populations were detected through the use of the database. One endangered and four threatened plants are known to occur in Yakima County. Little native vegetation is found within the area and it is unlikely that rare plants would have survived the severe alternations of the habitat; however, it should be noted that no formal rare plant survey has been completed for the Comprehensive Plan.

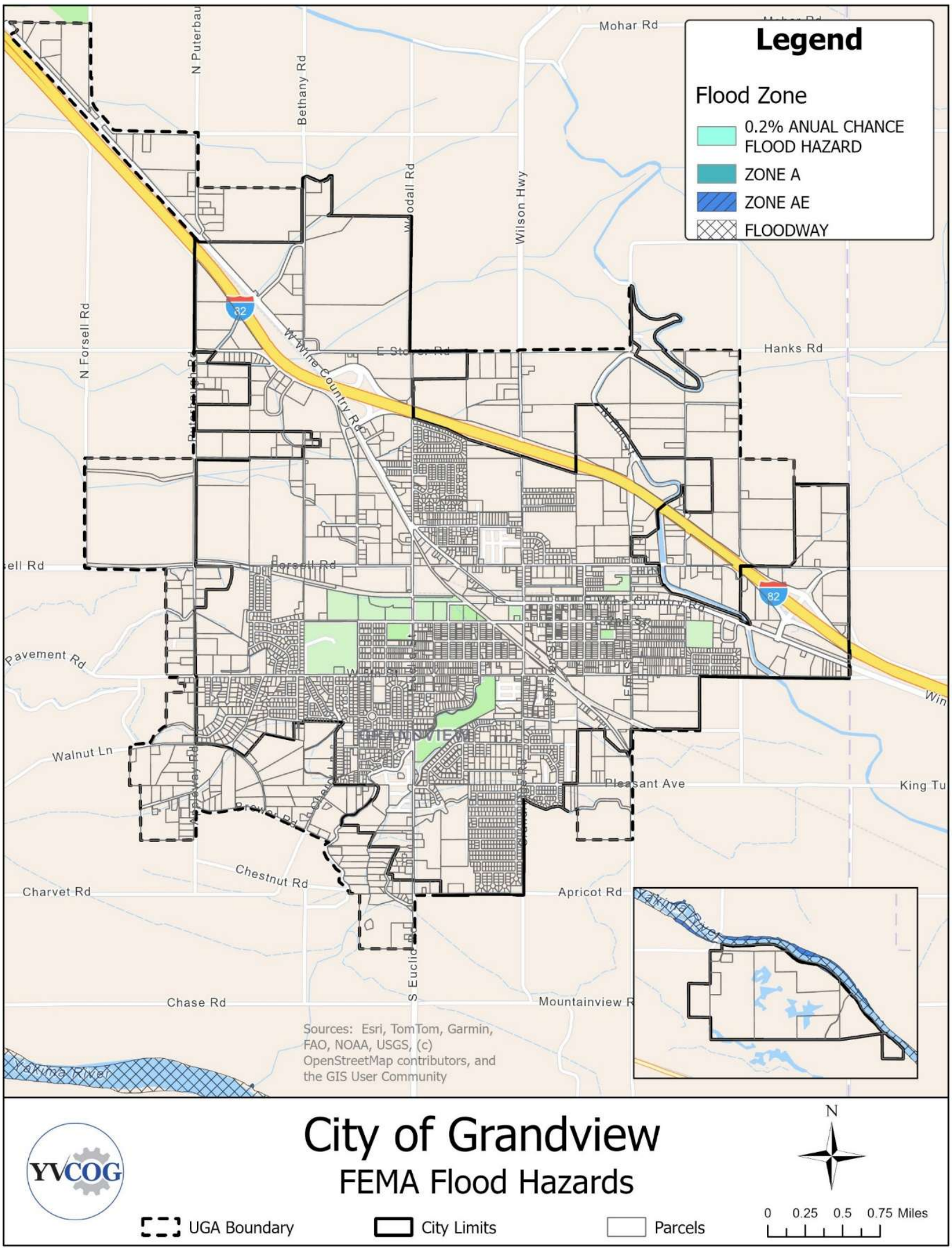
Wildlife

Information was requested from the WDFW Priority Habitat and Species Program concerning priority habitats and species in the Grandview vicinity. No threatened, endangered, or candidate species were reported to occur within the area. The WDFW has identified the following non-fish priority species or habitats within the City of Grandview:

1. Great Blue Heron – breeding area in ponds at the Byron Unit of the Sunnyside-Snake River Wildlife

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Figure 1-7 FEMA Flood Hazards. Grandview UGA



2.

Area

~~1.~~3.
~~2.~~4. Palustrine Aquatic Habitat[2]

The City of Grandview falls within the breeding range of the ferruginous hawk (*Buteo regalis*), a State threatened species; however, the ferruginous hawk is not known to occur in the City of Grandview or its UGA. Non-endangered bird species that may be present in the Grandview area are those species common in Eastern Washington grasslands and open areas. Species frequenting these areas include the American kestrel, western meadowlark, mourning dove, ruffed grouse, black-billed magpie, common snipe, California quail, killdeer, starlings, western kingbird, Brewer's blackbird, and ring-necked pheasant. Additionally, in the scrub/shrub habitat associated with the return flow ditches, ducks, yellow warblers and song sparrows are found. Eagles and great blue herons have also been observed along the Yakima River. The greater sage grouse (*Centrocercus urophasianus*) is a candidate species for listing under the federal Endangered Species Act (ESA). The sage grouse was common in pre-settlement times throughout central and eastern Yakima County; however, its known range in the County is now limited to the northeast corner of the County. The sage grouse is not known to occur in the City of Grandview or its UGA.

Amphibians or reptiles may be present within the irrigation canals supported on the food, cover, water, and marginal breeding habitat these areas provide. Small mammals such as mice and voles may be abundant throughout the area. Ground squirrels may also occasionally be seen. Larger mammals make use of the canals and ditches, particularly the more vegetated edges, as a corridor leading to the more sheltered habitat found elsewhere. Signs of deer, coyote, and raccoons are found throughout the more rural portions of the UGA. Portions of the area are particularly valuable as a foraging area for raptors. Red-tailed hawks can be seen circling agricultural properties and other raptors including eagles may make use of the habitat.

Fish

Fish have different habitat needs based in part on their life history stages. Anadromous fish migrate and have unique needs throughout the aquatic system which may be frustrated by the presence of dams or other barriers, low stream flow, and high temperatures during times of passage. Resident fish have year round requirements as well as specific habitat needs during critical times such as spawning. Salmonids need colder temperatures than many non-game fish and require higher dissolved oxygen concentrations particularly over spawning gravels. Successful salmonid reproduction requires channel and substrate stability and adequate winter water flow to prevent freezing. Channels to accommodate fish moving between safe wintering areas and summer foraging areas are also necessary.

Grandview is most closely associated with Reach #6 of the Yakima River. This reach of the Yakima River runs from the Toppenish Creek southeast of Granger, east to the confluence of the Yakima River and the Columbia River. Yakima River mainstream conditions are more suitable for fish habitat in Reaches #1-3 in the upper Yakima Valley, and generally deteriorate in a downstream direction. Reach #6 of the Yakima River is important as a migratory corridor for a number of fish species. According to the WDFW, the reach is a known spawning ground for fall chinook, and a known rearing ground for spring chinook. Coho and summer steelhead salmon are also documented in Reach #6. Bull trout are presumed to occur in the reach, but are not documented. The US EPA has designated this reach as Critical habitat for Bull trout.

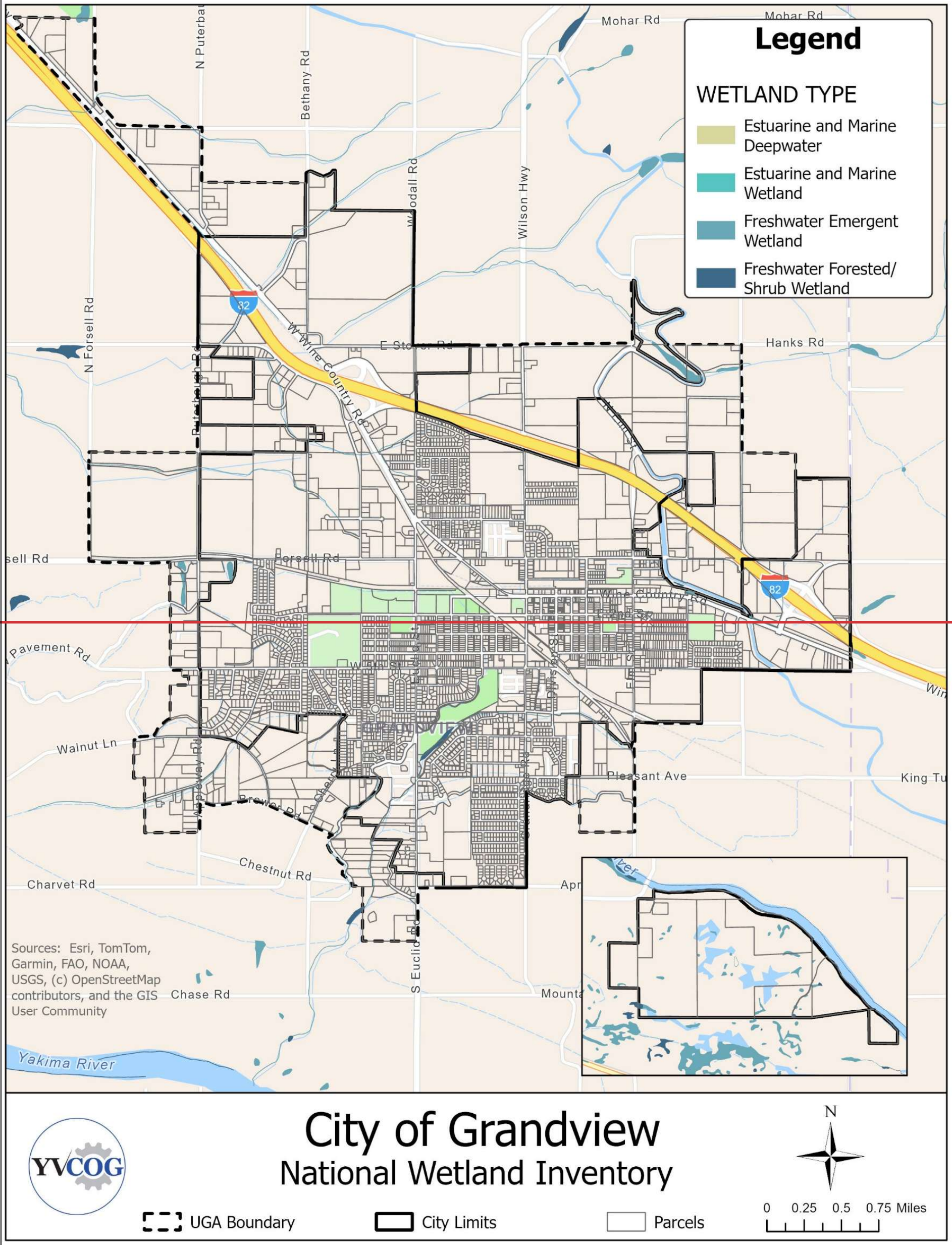
The National Marine Fisheries Service (NMFS) divides watersheds into evolutionary significant units (ESUs) for purposes of listing threatened or endangered fish species. The City of Grandview is located in the Mid-Columbia River ESU. The USFWS listed bull trout as threatened in the Columbia River Watershed

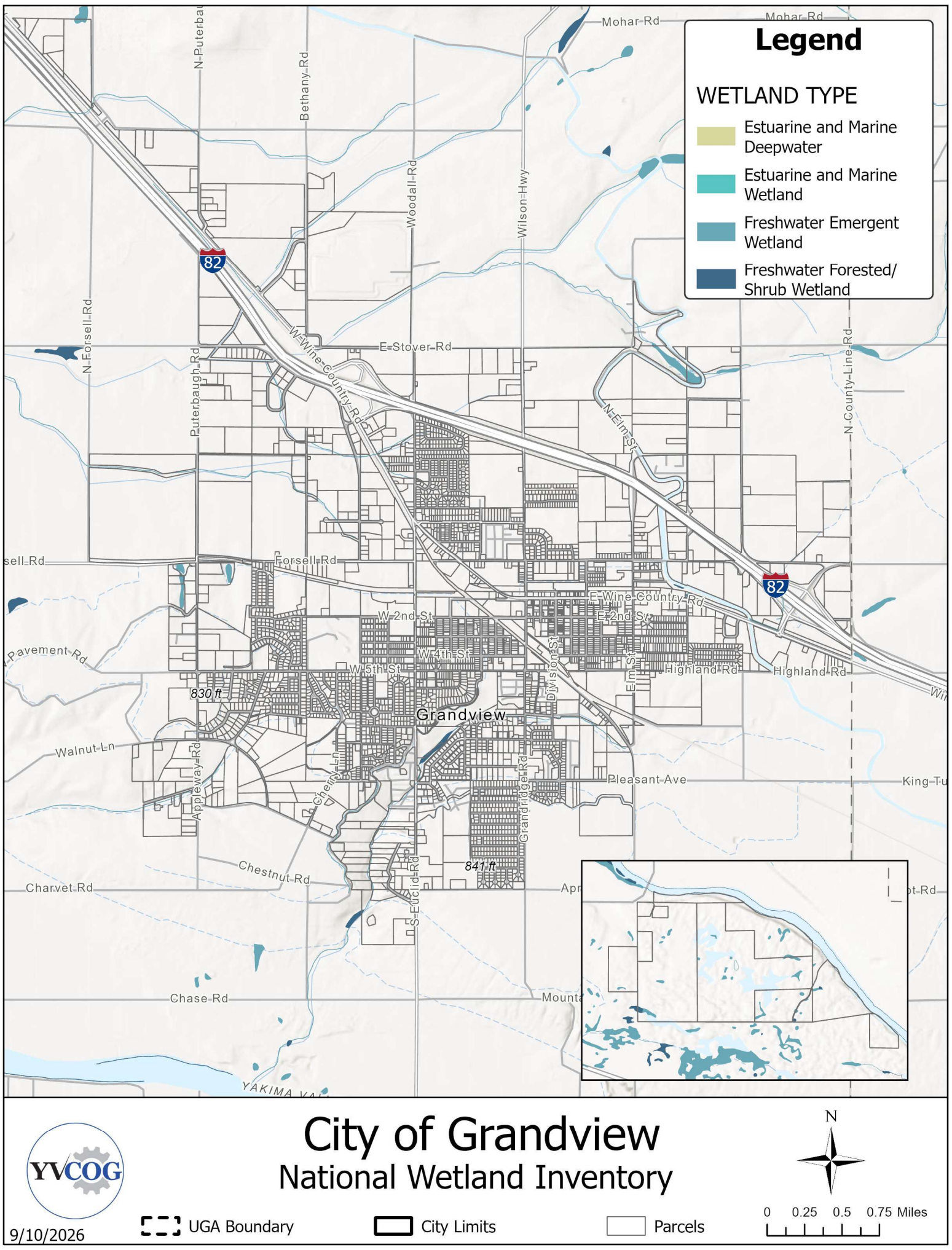
[2] Wetlands dominated by plants that persist throughout the year or the growing season.

in June 1997. The NMFS listed steelheads as threatened in the Mid-Columbia River ESU in March 1999. In June 2005, the NMFS listed coho salmon as threatened in the Lower Columbia River ESU. Spring chinook salmon are listed as endangered or threatened by the NMFS in some ESUs of the Columbia River Watershed. However, spring chinook salmon is not listed in the Mid-Columbia River ESU.

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Figure 1-7. Hydrology and Wetlands, Grandview UGA




Legend
WETLAND TYPE
Estuarine and Marine Deepwater
Estuarine and Marine Wetland
Freshwater Emergent Wetland
Freshwater Forested/ Shrub Wetland
Mohar Rd
N Puterbaugh Rd
Bethany Rd
Woodall Rd
Wilson Hwy
N Forsell Rd
82
W Wine Country Rd
E Stover Rd
Puterbaugh Rd
N Elm St
N County Line Rd
Forsell Rd
E Wine Country Rd
W 2nd St
E 2nd St
Pavement Rd
W 4th St
W 5th St
Division St
Highland Rd
830 ft
Grandview
Walnut Ln
Appleway Rd
Cherry Ln
Grandridge Rd
Pleasant Ave
841 ft
Chestnut Rd
Charvet Rd
S Euclid Rd
Chase Rd
YAKIMA
City of Grandview
National Wetland Inventory
YVCOG
9/10/2026
UGA Boundary
City Limits
Parcels
N
0 0.25 0.5 0.75 Miles

III. GRANDVIEW NATURAL RESOURCE LANDS AND CRITICAL AREAS

Critical Areas

Wetlands

Figure (page 3130) identifies Category 1, 2 and 3 wetlands inside City limits, as well as Category 2 and 3 wetlands in the unincorporated UGA.

Critical Aquifer Recharge Areas

Critical Aquifer Recharge Areas in Grandview and UGA are illustrated in

Figure ~~Figure~~ (page 20), which also shows that some of the recharge areas in the City and unincorporated UGA have a "high" susceptibility to contamination.

Fish and Wildlife Habitat Conservation Areas

Fish and wildlife habitat conservation areas include:

- Areas with which state or federally designated endangered, threatened, and sensitive species have a primary association;
- Habitats of local importance, including but not limited to areas designated as priority habitat by the Washington Department of Fish and Wildlife;
- Naturally occurring ponds under 20 acres and their submerged aquatic beds that provide fish or wildlife habitat, including those artificial ponds intentionally created from dry areas in order to mitigate impacts to ponds;
- Waters of the state, including lakes, rivers, ponds, streams, inland waters,
- Underground waters, and all other surface waters and watercourses within the jurisdiction of the State of Washington;
- Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity.
- "Fish and wildlife habitat conservation areas" does not include such artificial features or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of and are maintained by a port district or an irrigation district or company.

As discussed previously, the WDFW has identified the following non-fish priority species or habitats within the City of Grandview:

1. Great Blue Heron – breeding area in ponds at the Byron Unit of the Sunnyside-Snake River Wildlife Area
2. Palustrine Aquatic Habitat[3]

These areas are designated as Fish and Wildlife Habitat Conservation Areas.

Frequently Flooded Areas

The 100-year floodplain of the Yakima River within the City is confined to a narrow strip of land along the northern boundary of the City's wastewater treatment plant and sprayfield area. This strip of land has been designated an area of special flood hazard in the City's Flood Control Ordinance. This area is designated as a frequently flooded area and development in this area is controlled by the provisions of the City's Flood

[3] Wetlands dominated by plants that persist throughout the year or the growing season.

Control Ordinance. No other areas of the City or its UGA have been identified as areas of special flood hazard by FEMA. See ~~Figure~~ page 26.

Geologically Hazardous Areas

Yakima County compiled geologic hazard data during the update to the Yakima County CAO. The geologic hazards inventory consists of areas of the county susceptible to hazardous geologic events. Geologic hazards are subdivided on the basis of risk. The categories used are high risk, intermediate risk, low risk, suspected risk, and unknown risk. The following hazards are depicted in the inventory: landslides, over steepened slopes, stream undercutting, alluvial fans/flash flooding, avalanche risk, and earthquake activity.

Figure 1-, page 36~~34~~ illustrates Geologically Hazardous Areas in the city of Grandview and unincorporated UGA. These hazards include areas in the category of "Intermediate Hazard – Over-steepened Slope." Over-steepened slope hazard areas include areas with slopes steep enough to cause potential problems. Intermediate risk areas are less likely to fail than high risk areas, but are still potentially hazardous. The intermediate risk category includes some slopes between 30-40%.

Natural Resource Areas

Agricultural Lands

Agricultural lands were identified through the County Assessor's database of existing land use. There are 39 agricultural parcels (either follow or in current agricultural use) totaling 532 acres in the Grandview City limits (

Figure ~~Figure~~ , page 37~~35~~). These parcels are on prime farmland soil. For the most part, they are also adjacent to residential, commercial, light industrial/manufacturing, and other urban development.

For the reasons stated as follows, the City has determined that it is not appropriate to designate these parcels of land as agricultural lands of long-term commercial significance.

1) A majority of the City's area is already built-up; and
2) These parcels are near the built-up area, are zoned for a more intensive land use, or are near infrastructure with the capacity to serve additional growth on these parcels. These parcels represent the next logical areas for residential, commercial, or light industrial/manufacturing urban growth; and
3) These parcels are within the City limits and as such are part of the UGA. State law does not allow agricultural lands within a UGA to be designated as "agricultural lands of long-term commercial significance," unless the governing jurisdiction already has in place a program for purchase or transfer of development rights.

Mineral Lands

The City of Grandview has no areas of good economic potential for the extraction of commercial-grade deposits of gravel or any other mineral. There are no mineral extraction permit sites located within Grandview's borders. As illustrated in Figure 1-, page 36~~34~~, there is one mineral resource site identified outside of the City limits and UGA, to the northeast of the wastewater treatment plant area. No mineral resource lands of long-term commercial significance have been identified within the City of Grandview, therefore, no designation is necessary.

Forest Lands

In the City of Grandview, there are no lands (commercial or noncommercial) that are used to grow trees, including Christmas trees subject to the state excise tax that is imposed on harvesters of timber. Thus, no forest lands of long-term commercial significance have been designated within the City.

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Figure 1-8. Geologic Hazard and Mineral Resource Areas, Grandview UGA

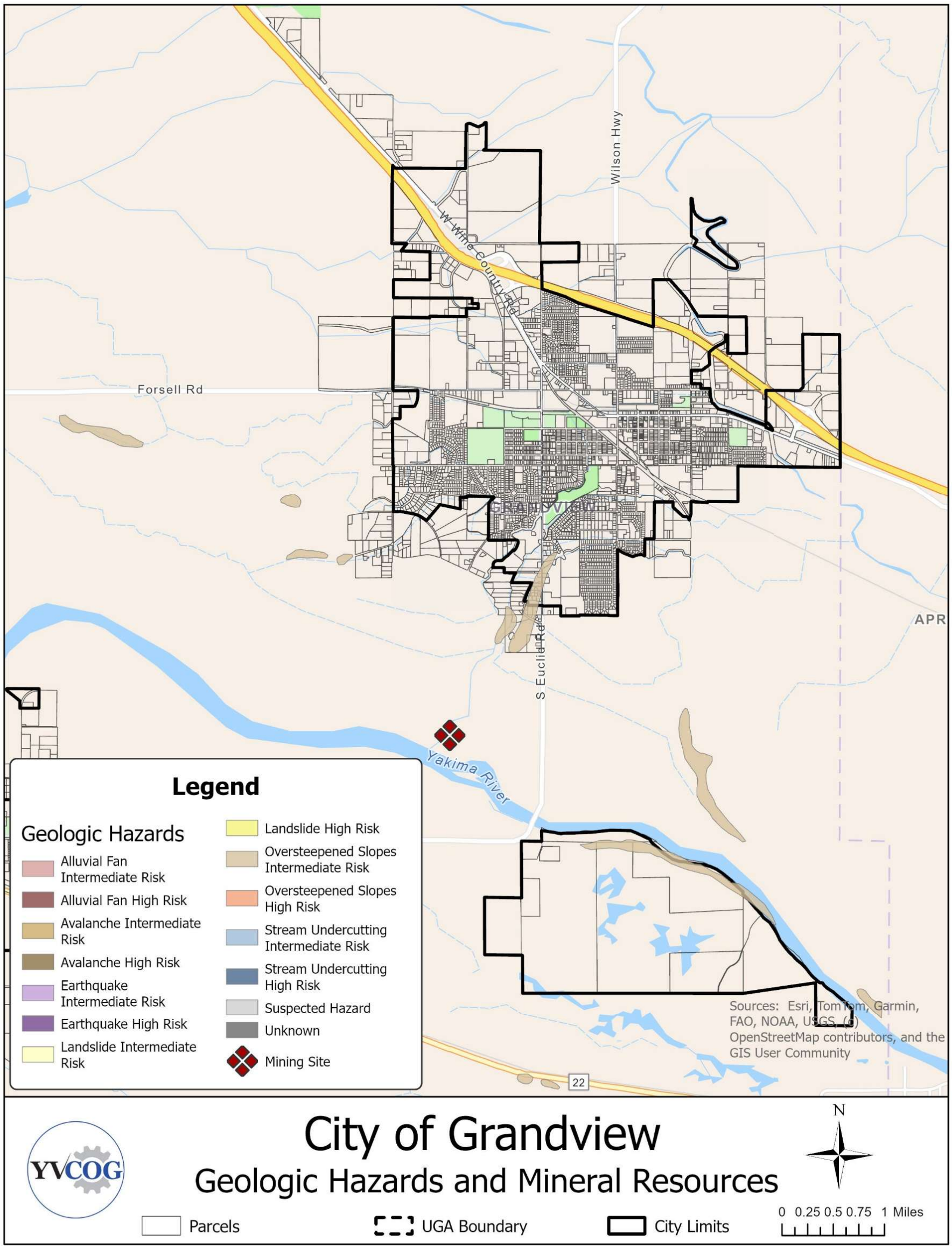
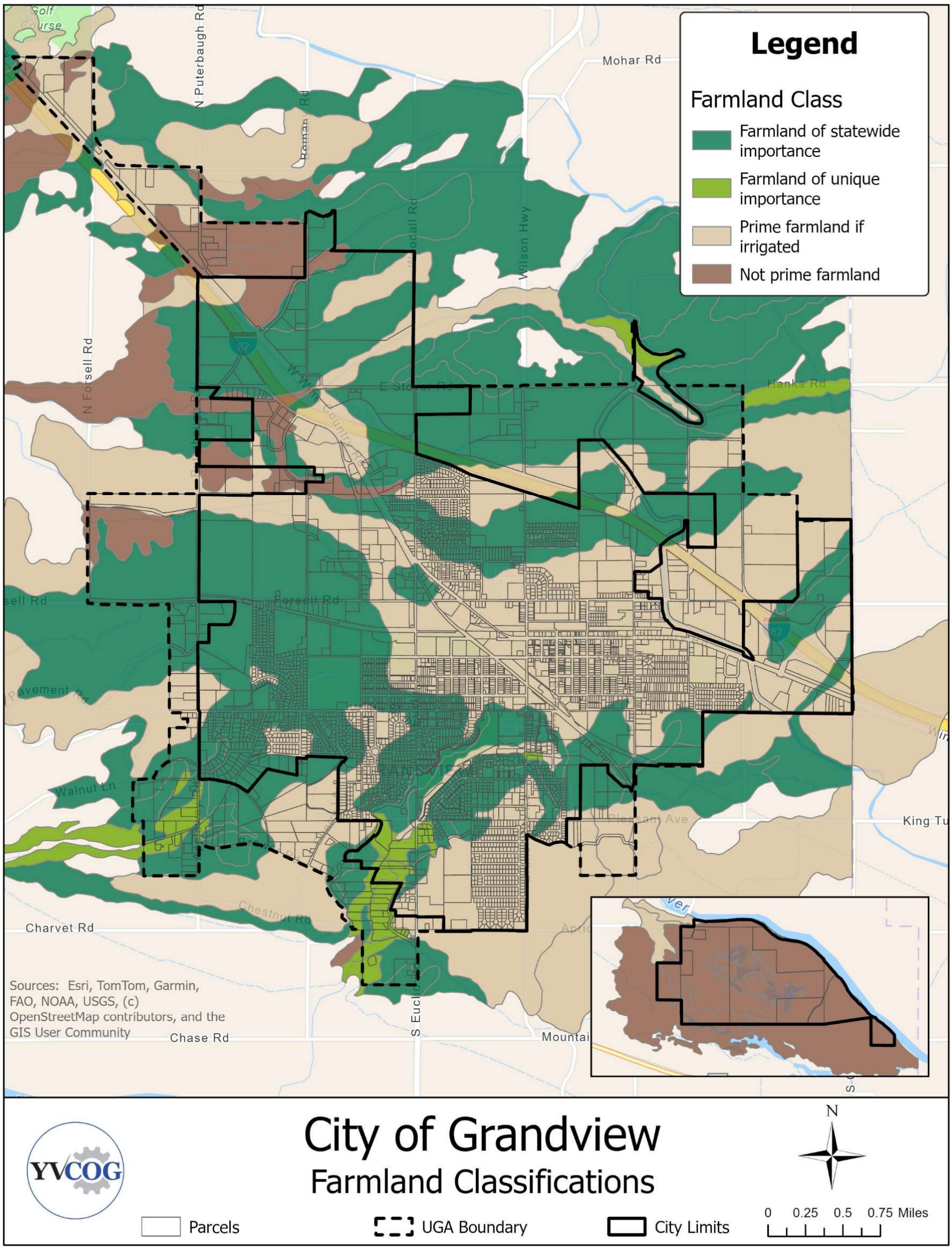


Figure 1-9. Current Agricultural Use, Grandview UGA



IV. GOALS AND POLICIES

Goal 1: ***Manage development according to the severity of natural constraints in order to reduce risks and minimize damage to life and property.***

Policy 1.1 The City will continue to amend and adopt land development regulations which ensure the protection of the attributes, functions and amenities of the natural environment under all projected growth scenarios.

Policy 1.2 Support the preservation and enhancement of natural resource lands and support occupations associated with agriculture, farming and tourism within agricultural areas adjacent to the City and its UGA.

Policy 1.3 Support the protection of agricultural and other resource lands within the Grandview area from incompatible development, keeping them available for recreational use and economic purposes.

Policy 1.4 Encourage new developments to locate in areas that are relatively free of environmental problems relating to soil, slope, bedrock, and the water table. Proposed developments should be reviewed by the appropriate City staff or consultants to identify site-specific environmental problems.

Policy 1.5 Development shall take adequate measures to minimize significant erosion and flash flooding conditions by:

1) Limiting the total amount of impervious surface to be created;
2) Planting sufficient vegetation to offset the effects of the impervious surfaces created; and/or
3) Providing sufficient drainage facilities to control storm runoff.

Goal 2: ***Maintain acceptable air quality standards***.

Policy 2.1 Support the Yakima County Clean Air Authority in their efforts to prevent degradation of air quality.

Policy 2.2 Where there is a high probability of erosion, grading should be kept to a minimum and disturbed vegetation should be restored as soon as is feasible. In all cases, appropriate measures to control erosion and sedimentation shall be required.

Policy 2.3 Development shall take adequate precautions to avoid an increase in erosion potential by:

1) Requiring dust control of construction projects during and after construction;
2) Requiring vegetation to be replanted to increase the surrounding soils' capacity to withstand wind and water erosion; and
3) Require all roads in new subdivisions to be paved in accordance with Grandview's

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subdivision regulations.

Policy 2.4 Keep dust to a minimum on all public streets and alleys:

1) All streets and roads inside the City should be paved and maintained; and
2) Dust abatement programs should be continued for remaining unpaved roads until paving can be done.

Policy 2.5 Encourage alternatives to the use of the private automobile.

Policy 2.6 Approve the location and operation of potential new pollution producing activities (including light, noise, and odor), and after careful review for potential nuisance and/or compatibility with adjacent land use. Seek supplemental review, as needed by the:

1) Yakima County Clean Air Authority;
2) Washington State Department of Ecology; and/or
3) Washington State Department of Social and Health Services.

Goal 3: ***Maintain high ground water quality.***

Policy 3.1 Coordinate with Yakima County to limit development outside the projected service area to a density where cumulative groundwater degradation for Grandview area residents will be prevented.

1) Ensure that lot sizes in areas lacking public sewer service are large enough to accommodate individual septic systems without cumulative degradation of water quality by continuing Yakima County Health District's requirement of on-site tests as a prerequisite for building permits; and
2) Require development to include provisions which ensure that increased runoff from impervious surfaces does not damage the natural drainage system or deteriorate water quality.

Policy 3.2 Conduct and support educational efforts which inform citizens of measures they can take to reduce contaminant loading of groundwater systems.

Policy 3.3 The City shall consider the impacts of new development on water quality as part of its review process and will require any appropriate mitigating measures.

Policy 3.4 Encourage development and expansion of community public water systems within the Urban Growth Area to lessen the reliance on individual wells.

Policy 3.5 Ensure that abandoned wells are closed properly.

Goal 4: **Protect surface waters from degradation.**

Policy 4.1 Identify those natural conditions, land uses and practices that together could result in loss of water quality if not properly managed.

Policy 4.2 Evaluate the measures that are already in place to prevent degradation, and determine the best, cost effective means for protecting surface water from identified threats to water quality.

Policy 4.3 Adequate on-site disposal of surface water runoff shall be provided by all types of development.

Policy 4.4 Support efforts to encourage improved farming practices which will minimize runoff from farmlands and subsequent degradation of surface water by fertilizers, insecticides, sedimentation, etc.

1) Coordinate with the exiting conservation districts and support their planning and implementation effort by:
   a) Supporting long-range planning efforts which address conservation in a variety of different areas; and
   b) Implementing appropriate methods and techniques for conservation and
   c) Using the Yakima County Extension Service, the Natural Resources and Conservation Service, the Bureau of Reclamation, etc., for more information on related subjects.

Policy 4.5 Review available best management practices which can be used to reduce erosion and sedimentation associated with development within Grandview. Investigate the need for additional erosion control measures for construction projects.

Policy 4.6 Maintain local control over water quality planning by: 1) providing guidance to state and federal agencies regarding water quality issues, priorities and needs; and 2) demonstrating progress in accomplishing the goals and objectives of locally developed water quality plans, thereby pre-empting externally-imposed solutions to water quality problems as much as possible.

Policy 4.7 Encourage the implementation of best management practices through information dissemination and cooperation.

Policy 4.8 Investigate the need for additional measures to control storm drainage and improve the storm drainage system.

Policy 4.9 Work cooperatively with other jurisdictions and agencies to educate the public on the proper use and disposal of stored chemicals and hazardous materials.

Policy 4.10 Maintain commercially viable farmland in agricultural production.

Policy 4.11 Discourage urban density development on productive agricultural lands outside of areas needed for future growth and development.

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Goal 5: ***Establish critical areas protection measures to protect environmentally sensitive areas, and protect people and property from hazards.***

Policy 5.1: Use the best available science in a reasonable manner to develop regulations to protect the functions and values of critical areas. (WAC 365-195-900)

Policy 5.2: Ensure proposed subdivisions, other development, and associated infrastructure are designed at a density, level of site coverage, and occupancy to preserve the structure, values and functions of the natural environment or to safeguard the public from hazards to health and safety.

Shorelines

The goals and policies of the Yakima County Shoreline Master Program, adopted by the City of Grandview effective January 22, 2010, are hereby adopted by reference, as amended.

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