

## 9.0 NATURAL ENVIRONMENT

### 9.1 Introduction

The primary components of any environment are the air, water, soil, and living organisms, such as plants and animals. How these components interact with and are modified by each other determines the character of the environment, and how well it meets the needs and desires of the living organisms. The Natural Environment Element of the Yakima Comprehensive Plan summarizes the existing conditions of the City of Yakima with respect to those components, and identifies future goals for management.

### 9.2 Conditions and Trends

Following is a brief description of the components of Yakima's natural environment based on the Existing Conditions Report (2016).

#### Geology

The Yakima Valley can be viewed as part of a larger geologic structural system that is underlain with folded flow layers of a thick sequence of Yakima basalt. The upper basalt layer is primarily composed of

#### Natural Environment – Growth Management Act Goals

- **Open space and recreation.** Retain open space, enhance recreational opportunities, conserve fish and wildlife habitat, increase access to natural resource lands and water, and develop parks and recreation facilities. (RCW 36.70A.020(9))
- **Environment.** Protect the environment and enhance the state's high quality of life, including air and water quality, and the availability of water. (RCW 36.70A.020(10))

sedimentary rocks of the Ellensburg formation, up to 1,000 feet thick. These rocks are then overlain by cemented basalt gravel up to 400 feet thick comprising the second layer. The valley floor and final layer are composed of alluvial sand and gravel, up to 30 feet thick.

## Water Quality

Different measures of water quality are important depending on whether human health or the health of other terrestrial or aquatic organisms is being considered. For example, temperature and dissolved oxygen are critical characteristics that determine suitability of the water for certain fish, but are not critical to human health. On the other hand, high fecal coliform levels can be a health concern for humans, but have little to no effect on fish. In the City of Yakima, impervious surfaces and [industrial](#), commercial, residential, and agricultural uses can generate or convey a variety of pollutants, such as animal wastes, oils, fertilizers and herbicides, and metals, to Yakima’s streams and lakes. These substances can damage groundwater, lakes, rivers, and streams; disrupt human use of these waters; or interfere with the behavior and reduce the survival of aquatic life. The loss of riparian vegetation and the associated shade that it provides has also had an impact on water temperatures.

As part of the federal Clean Water Act compliance, the Washington Department of Ecology implements a testing protocol and tracking procedures for impairments of waters in the state. Six waterbodies in the City have been documented as exceeding standards for one or more parameters (Exhibit 9-1).

**Exhibit 9-1. Water Quality Impairment**

Category	Waterbody / Parameter
<b>5 – Polluted waters that require a TMDL</b>	Myron Lake – Ammonia-N
	Naches River – Temperature, pH
	Shaw Creek – Bacteria (fecal coliform)
	Wide Hollow Creek – Temperature, bacteria (fecal coliform)
	Yakima River - pH
<b>4c – Impaired by a non-pollutant</b>	Rotary Lake – invasive aquatic species (Eurasian water-milfoil)

Category	Waterbody / Parameter
<b>2 – Waters of concern</b>	Wide Hollow Creek – pH, dissolved oxygen Yakima River – pH, temperature

Source: Washington Department of Ecology, 2012

In 2015, the City continued to meet its obligations under the federal Clean Water Act by developing the *Stormwater Management Program for City of Yakima*, and separating from the Regional Stormwater Policy Group led by Yakima County. This local program will ensure that the City is compliant with its National Pollutant Discharge Elimination System (NPDES) Eastern Washington Phase II Municipal Stormwater Permit, and plans and implements performance measures that reduce pollutants in stormwater to the “maximum extent practicable.”

The City also regulates construction and post-construction stormwater management under Chapters 7.82 and 7.83 of the Yakima Municipal Code. These chapters require use of the latest edition of Washington Department of Ecology’s *Stormwater Management Manual for Eastern Washington*.

### Air Quality

An airshed is defined as “a volume of air, bounded by geographical and/or meteorological constraints, within which activities discharge contaminants.” The airshed for the City of Yakima, as defined by the Environmental Protection Agency (EPA), is the Yakima Basin. According to the Yakima Regional Clean Air Agency, “the air quality in Yakima County is fresh, clean and healthy most of the year, yet at certain times it faces challenges...” Although air quality currently meets federal and state air quality standards that has not always been the case. After years of planning and analysis, coordination between Yakima County and incorporated cities, and implementation of targeted projects, the urban areas of Yakima County were removed from non-attainment status for carbon monoxide and particulate matter less than 10 microns in diameter (PM<sub>10</sub>).

In 2014, the Yakima Regional Clean Air Agency developed a plan that strives to ensure that Yakima County can maintain compliance with the standards for PM<sub>2.5</sub> concentrations. These smaller particulates pose a particular health risk to those with lung and heart problems, the elderly, and the young. The greatest outputs are from residential heating (wood-burning stoves), dust on gravel roads, and tilling of fields.

Because of local topography and climate conditions, the concentrations and associated health problems can be most severe in late-fall and winter. The plan combines a number of regulatory and voluntary tools to achieve reduction targets for PM<sub>2.5</sub> emissions.

## Critical Areas

General conditions in the City of Yakima for each of the critical area types are described below.

### Frequently Flooded Areas

The Federal Emergency Management Agency (FEMA) has mapped the floodplains for the Yakima and Naches Rivers, as well as Wide Hollow, Bachelor, Spring, and Shaw Creeks (see Exhibit 9-2–Floodplains). The City regulates development in or near these areas to ensure compatibility with surrounding properties, and to prevent an increase in risk to upstream or downstream neighbors or the natural functions of floodplains. As currently mapped, eight percent of the City is in a designated floodplain. The majority of the floodplains are associated with the Yakima and Naches Rivers on the east and north sides of the City, and are bounded by a levee system. The smaller streams in the southern and western portions of the City generally have narrow floodplains, except in some of the flat, less-developed agricultural areas, parks, and around the airport.

### Exhibit 9-2. Floodplains – City of Yakima

[UPDATED FIGURE]

Source: City of Yakima GIS 2016

### Fish and Wildlife Habitat Conservation Areas

As defined in Washington Administrative Code 365-190-030, fish and wildlife habitat conservation areas are “areas that serve a critical role in sustaining needed habitats and species for the functional integrity of the ecosystem, and which, if altered, may reduce the likelihood that the species will persist over the long term. These areas may include, but are not limited to, rare or vulnerable ecological systems, communities, and habitat or habitat elements including seasonal ranges, breeding habitat, winter range, and movement corridors; and areas with high relative population density or species richness.” Although largely urbanized,

the City of Yakima still has habitat for fish and wildlife distributed in parks and other preserved open spaces, on agricultural lands, in underdeveloped or vacant spaces, and in and along 51.4 miles of stream corridors and several lakes (see Exhibit 9-3 – Wetlands and Streams).

### Exhibit 9-3. Wetlands and Streams – City of Yakima

[UPDATED FIGURE]

Source: City of Yakima GIS 2016

The WDFW has classified certain important fish and wildlife habitats and species as “priority habitats” and “priority species” to ensure they are considered in land use planning and management. The majority of the priority habitats inside the City of Yakima’s jurisdiction, about 4.5 percent of the City’s land area, are wetlands and high quality riparian zones associated with the Yakima and Naches Rivers, and with Wide Hollow Creek (see Exhibit 9-4 - Wildlife). Other types of priority habitat in Yakima are designated as “urban natural open space” and waterfowl concentration areas. Significant wetlands inside the City include those wetlands associated with the Yakima and Naches Rivers and Wide Hollow Creek. Additional small wetlands are associated with the other streams (see Exhibit 9-3 – Wetlands and Streams). A number of artificial lakes with groundwater connections to the Naches and Yakima Rivers also provide important habitat for birds, and several are stocked for recreational fishing by WDFW.

### Exhibit 9-4. Wildlife – City of Yakima

[UPDATED FIGURE]

Source: City of Yakima GIS 2016

Under the federal Endangered Species Act (ESA), the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the U.S. Fish and Wildlife Service has designated, or listed, several fish species that live in one or more City of Yakima waterways. Additional fish species are designated by WDFW as priority species. Exhibit 9-5 identifies the sensitive fish species documented within the City’s aquatic areas:

**Exhibit 9-5. Sensitive Fish Species Mapped in the City’s Streams and Rivers**

Fish Species Waterbodies	Federal Status	State Status
<b>Chinook salmon</b> Yakima River, Naches River	Threatened	Candidate, Priority
<b>Steelhead trout</b> Yakima River, Naches River, Cowiche Creek, Wide Hollow Creek, Bachelor Creek	Threatened	Candidate, Priority
<b>Bull trout</b> Yakima River, Naches River	Threatened	Candidate, Priority
<b>Coho salmon</b> Yakima River, Naches River, Cowiche Creek	Species of Concern	Priority
<b>Cutthroat trout</b> Yakima River, Wide Hollow Creek	None	Priority
<b>Rainbow trout</b> Yakima River, Naches River, Cowiche Creek, Wide Hollow Creek, Spring Creek, Bachelor Creek	None	Candidate, Priority

Source: WDFW, 2016

In addition to fish, other priority species in the City of Yakima include a number of birds, such as bald eagle, wood duck, common loon, and great blue heron, many of which breed along the Yakima or Naches Rivers; sharp-tailed snake and ring-necked snake; and Townsend’s ground squirrel.

**Wetlands**

The U.S. Fish and Wildlife Service has mapped and classified wetlands in the City as part of its National Wetland Inventory (see Exhibit 9-3 – Wetlands and Streams). Most of these wetlands are large complexes associated with the Yakima and Naches Rivers, although smaller wetlands are scattered throughout the

City along the smaller streams and in other localized depressions. As currently mapped, a little more than three percent of the City is considered a potential wetland, although this is likely an under-representation of the true area of wetland.

### Geologically Hazardous Areas

Geologically hazardous areas include areas of erosion hazard, landslide hazard, seismic hazard, and other hazard, including volcanic. The primary purpose of regulating geologically hazardous areas is to reduce the risk of harm to people or property, although there are secondary consequences of such hazard events on fish, wildlife, and their habitats. In the City, three types of landslide hazards have been mapped: intermediate risk oversteepened slopes, high risk oversteepened slopes, and channel migration zones that are associated with shoreline waterbodies (Exhibit 9-6 – Geologic Hazards). In Yakima, the high risk steep slopes are mainly isolated in the City’s north and northwestern boundaries along West Powerhouse Road, Prospect Way, and Canyon Creek Road. Moderate risk steep slopes are found nearby near Scenic Drive and Englewood Crest Drive.

#### Exhibit 9-6. Geologic Hazards – City of Yakima

[UPDATED FIGURE]

Source: City of Yakima GIS 2016

### Critical Aquifer Recharge Areas

Critical aquifer recharge areas are lands where surface waters or pollutants can infiltrate into groundwater that is utilized for drinking water. The City’s drinking water comes from the Naches River water treatment facility, but the backup supply comes from four municipal groundwater wells that can pump a combined 11,050 gallons per minute. Once groundwater is contaminated it can be difficult and costly to clean. In some cases, the quality of groundwater in an aquifer is inextricably linked to its recharge area. To date, the City has identified five discrete areas that have high vulnerability to contamination (see Exhibit 9-7– Aquifers) that cover about 8 percent of the city limits. The Washington Department of Health maintains updated maps of wellhead protection zones around drinking water sources on its website.

## Exhibit 9-7. Aquifers – City of Yakima

[UPDATED FIGURE]

Source: City of Yakima GIS 2016

### 9.3 Challenges and Opportunities

Environmental quality is an essential element of the City’s livability. By considering both the natural and built environment in planning for the future, the City of Yakima has the opportunity to create a sustainable urban environment that provides clean air and water, habitat for wildlife, and comfortable and secure places for people to live, work and recreate. Through policy, decisions and actions, the City of Yakima will continue to seek balance between various environmental goals and economic development, allowing multiple objectives to be met.

The City has been a participant in regional efforts to study and develop solutions to address the recent water flow problems in the Yakima River Basin, which has culminated in the development of a proposed Integrated Water Resource Management Plan. As stated in the plan, “The goals of the Integrated Plan are to protect, mitigate, and enhance fish and wildlife habitat; provide increased operational flexibility to manage instream flows to meet ecological objectives, and improve the reliability of the water supply for irrigation, municipal supply, and domestic uses.” These goals are consistent with the GMA, the City’s critical areas regulations and SMP, and the desires of the citizens of Yakima to have a healthy ecological system that can serve multiple needs.

### 9.4 Goals and Policies

#### GOAL 9.1. ENHANCE AND PROTECT SURFACE, STORM, AND GROUNDWATER QUALITY AND QUANTITY. (Streamlined Goal 10.7)

##### Policies

- 9.1.1. Implement the City’s stormwater program and require use of appropriate stormwater manuals or best management practices for the design, construction, and operation of developments or activities which could alter surface or ground water quantity or quality. (New Policy)

- 9.1.2 Continue to implement and refine water conservation programs. (Similar to Policy 10.7.5)
- 9.1.3 For the multiple purposes of ensuring sufficient and sustainable supplies of water for fish habitat, agricultural and industrial needs, and drinking water, support implementation of the Yakima River Basin Integrated Water Resource Management Plan. (New Policy)
- 9.1.4 Continue implementing the City's local Wellhead Protection Program, which includes education, inter-agency coordination, and regulation, to prevent contamination of public groundwater supplies. (Expanded and similar to Policy 10.7.7)
- 9.1.5 Update standards to allow and encourage use of low impact development techniques and other construction methods that offset or mitigate the effects of increased impervious areas. (Broadened and updated version of Policy 10.7.11)

### **GOAL 9.2. PROTECT AND ENHANCE AIR QUALITY. (Streamlined Goal 10.3)**

#### Policies

- 9.2.1. Cooperate with local, State and federal air pollution control agencies and comply with applicable regulations that govern air pollutants during land development, construction and operation. (Update and expansion of Policy 10.3.1)
- 9.2.2 Develop a land use pattern and associated infrastructure that encourages trip reduction, minimizes vehicular emissions, and facilitates use of alternate modes of transportation. (Update of Policy 10.3.3)

### **GOAL 9.3. MANAGE FLOODPLAINS TO PROTECT PUBLIC HEALTH AND SAFETY, AND TO SUPPORT ECOLOGICAL FUNCTION. (Replacement of Goal 10.9)**

#### Policies

- 9.3.1. Protect natural drainage systems associated with floodways and floodplains through application of ~~science-based~~ best available science regulations. (Update of Policy 10.9.1)
- 9.3.2 Ensure adequate protection of life and property from flood events in floodways and floodplains through application of appropriate limitations on and mitigation requirements for development,

and implementation of Comprehensive Flood Hazard Management Plans, when available. (Expansion of Policy 10.9.3)

- 9.3.3 Emphasize non-structural methods in planning for flood prevention and damage reduction. (Same as Policy 10.9.5)
- 9.3.4 Require use of best management practices to minimize adverse stormwater impacts generated by the removal of vegetation and alteration of landforms that increase impervious surface areas. (new Policy; related to Policy 10.9.10)
- 9.3.5 Encourage and support the retention of natural open spaces or land uses that maintain hydrologic function and are at low risk to property damage from floodwaters within frequently flooded areas. (Same as Policy 10.9.11)

#### **GOAL 9.4. PRESERVE AND ENHANCE TERRESTRIAL AND AQUATIC HABITATS TO MAINTAIN VIABLE POPULATIONS OF PLANTS AND ANIMALS. (New Goal replacing 10.8 and 10.10)**

##### Policies

- 9.4.1. Maintain and implement a system of environmental regulations based on best available science that will protect fish and wildlife species and habitat with special local, state or federal status, giving special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries. (New Policy; related concepts to 10.8.1-10.8.5)
- 9.4.2 Continue participating in and supporting the work of the regional Yakima Basin Fish and Wildlife Recovery Board to plan and implement fish and wildlife habitat restoration. (New Policy)
- 9.4.3 Locate, design, construct, and operate development to first avoid, and then minimize and mitigate adverse impacts to the functions and values of streams, wetlands, and other fish and wildlife habitat conservation areas. (New Policy; Combination of Fish and Wildlife and Wetlands policy concepts under Goals 10.8 and 10.10)
- 9.4.4 Promote stream, wetlands, and other fish and wildlife habitat conservation areas protection through education and cooperation with the Greenway Foundation, [Cowiche Canyon Conservancy](#), the Trust for Public Land, and other similar organizations. (New Policy)

**GOAL 9.5. MANAGE USE AND DEVELOPMENT IN GEOLOGICALLY HAZARDOUS AREAS TO PROTECT PUBLIC HEALTH AND SAFETY. (Modified Goal 10.11)**

Policies

- 9.5.1. Apply and enforce current and future environmental regulations to protect and promote public health and safety from geologic hazards during construction and operation. (New Policy)
- 9.5.2. Locate development within the most environmentally suitable and naturally stable portions of the proposed property. (Same as Policy 10.11.2)
- 9.5.3. Classify and designate areas on which development should be prohibited, conditioned, or otherwise controlled because of danger from geological hazards. (Same as Policy 10.11.3)

**9.5 Implementation**

Environmental protection and enhancement, based on “Best Available Science” (as defined in the GMA), are important factors in the City of Yakima’s land use planning, zoning and development regulations. Development that does not reasonably avoid or accommodate critical areas will be required to provide mitigation for potential impacts to prevent a net loss of function and value. The GMA requires updating of critical area regulations as necessary to maintain consistency with State law. As part of that review, the City of Yakima will evaluate Chapter 15.27, last updated in 2008, and amend as needed.

In addition to critical areas regulations, which are part of the City’s Land Use Code, the following items aid in the implementation of this element of the Comprehensive Plan.

**Exhibit 9-8. Natural Environment Element Implementation**

Implementation Item	Action Type
Land Use Code	Regulatory law that addresses critical areas and shoreline protection
Development Review	Review Process that ensures critical areas and shoreline protection

Implementation Item	Action Type
<b>City of Yakima Stormwater Management Program 2015</b>	Plan, updated periodically, that minimizes adverse effects on water quality and quantity
<b>2012-2017 Parks and Recreation Comprehensive Plan</b>	Plan, updated periodically, that strives to balance active and passive uses of the City's more natural areas
<b>Comprehensive Flood Hazard Management Plans</b>	Plans that include short- and long-term approaches to balancing the competing needs of new and existing development with the environment.
<b>Yakima Regional Stormwater Group</b>	Coordination with Yakima County, Union Gap and Sunnyside to perform permit compliance under the Department of Ecology's Phase II NPDES Stormwater Permit