CHAPTER 3

UGA CHARACTERISTICS

LOCATION

The Irondale & Port Hadlock UGA is located in northeast Jefferson County at the southern end of Port Townsend Bay. Figure 3-1 shows the Irondale & Port Hadlock UGA boundary and land use designations. The UGA includes approximately 1,320 acres. The community is unincorporated and primarily residential with three areas of commercial development:

- **Port Hadlock Core** – The area at the intersection of SR116, Irondale Road, and Chimacum Road where the majority of existing commercial activity is located. This area has a grocery, building supply, gas station, bank, restaurants, and other general commercial development.

- **Rhody Drive** – The area along SR19 that has a building supply, restaurant, auto parts store, automotive repair, business park complex, and other general commercial development.

- **Old Alcohol Plant** - The "Old Alcohol Plant" and adjacent areas located east of the Port Hadlock Core near the intersection of Oak Bay Road and Highway 116. This area has a marina, hotel complex, and restaurant.

Other developments in the UGA include the Chimacum Creek Elementary School, County Library, Post Office, and County Jail and road maintenance shop

SERVICE AREA AND URBAN GROWTH AREA

The service area for the Irondale & Port Hadlock UGA Stormwater Management Plan will essentially consist of the UGA's boundary. However, the stormwater drainage basins reviewed and developed in this report extend beyond the UGA borders to the south and west.

LAND USE AND ZONING

Commercial and residential development in Irondale and Port Hadlock has generally been low to moderate density. Stormwater runoff and drainage have been accommodated primarily along the streets through open ditches, culverts, small-sized pipes, and natural drainage ways.

The Urban Growth Area land use designations depicted on Figure 3-1 will permit more intense, urban development, particularly in areas designated for commercial and multi-family residential development. Table 3-1 depicts the acreages designated for various land uses. These are in turn the basis for the impervious surface area projections and stormwater runoff modeling in Chapter 5.

TABLE 3-1

Irondale and Port Hadlock Land Use Classifications

Land Use Category	Irondale & Port Hadlock UGA Acres
Commercial	239.0
Visitor Oriented Commercial	13.7
Light Industrial	24.9
Low Density Residential	824.2
Moderate Density Residential	55.6
High Density Residential	49.9
Parks and Open Space	44.0
Public/Quasi-Public	38.0
TOTAL	**1,320.3**

Source: April 12, 2004 Jefferson County GIS Shape Files

POPULATION AND GROWTH

Preparation of the UGA Capital Facilities Plan (CFP) requires projecting the rate of population growth and commercial, industrial, and multi-family residential development. The rates of growth and development are significant factors in estimating expenditures and timing for development of sanitary sewer, transportation, and stormwater management facilities.

The Irondale and Port Hadlock UGA was sized to accommodate the entire projected planning area population under the Joint Growth Management Steering Committee (JGMSC) forecast for the year 2016, or 5,489. The population within the area designated as the UGA was 2,553 in 2000.[1] The proposed allocation of 2,353 in urban population for the period 2000 – 2024 would result in a projected 2024 population of 4,906, some 583 under the County's anticipated 2016 population for the UGA. Thus, it is unnecessary to contemplate any expansion of the UGA boundary in order to accommodate the suggested 2024 population allocation.

The Jefferson County Board of Commissioners have adopted a 2.76% projected annual rate of population growth for the Irondale and Port Hadlock UGA.

[1] Source: Estimated using tract and block data, 2000 U.S. Census.

Jefferson County expects the following projected rates of commercial, industrial, and multi-family residential land developed per year:

TABLE 3-2

Irondale and Port Hadlock UGA - Actual and Projected Commercial, and Industrial, Development

Time Period	Projected Development Rate (acres/year)
1998 – 2003	0.9 (Actual)
2004	0.9
2005 – 2010	2.1
2011 – 2024	3.9

TABLE 3-3

Irondale and Port Hadlock UGA - Projected Multi-Family Development

Time Period	Projected Development Rate (units/year)
2005	28
2005 – 2024	62

The Growth Management Act allows annual revision of the CFP. The UGA Plan should include provision for annual review of development. This would allow the projected rate and the CFP to be revised if the projected development rate varies significantly from the actual rate.

The population and development projections are the basis for projections of impervious surface and stormwater runoff.

PHYSICAL DESCRIPTION

TOPOGRAPHY

The topography of the Irondale & Port Hadlock UGA is generally flat with moderate slope toward Port Townsend Bay. The outlying area of the UGA encompasses some hilly terrain with elevations ranging from sea-level in the south and eastern portion of the UGA and up to 100 feet in the west portion.

SOILS

The soils characteristics for the Irondale & Port Hadlock UGA area were obtained from the Soil Survey of Jefferson County Area, Washington, August 1975, provided by the

USDA Natural Resource Conservation Service (formerly known as the Soil Conservation Service). The specific soil series within the area of the UGA include:

AgB – Agnew silt loam
Bk – Belfast silt loam, wet variant
Bm – Belfast silty clay loam, wet variant
CfC – Cassolary sandy loam (0-15% slopes)
CfD – Cassolary sandy loam (15-20% slopes)
Co – Coastal Beach
Cu – Cut & Fill
DcC- Dick loamy sand
HuD – Hoypus gravelly loamy sand (15-30% slopes)
HvC – Hoypus gravelly sandy loam (0-15% slopes)
Mm – McMurray and Mukilteo peats
Mu – Mukilteo peat
Ro – Rough Broken Land
Sh – Semiahmoo muck, moderately shallow vari
Sm – Semiahmoo muck, shallow variant
SuB – Swantown gravelly loam
Th – Tisch silt loam
TuD – Tukey gravelly loam
Wa – Wapato silty clay loam

The soils vary significantly in runoff potential. Generally, Dick loamy sand (DcC) and Hoypus gravelly loamy sand (HuD, HvC) are highly permeable and allow significant infiltration. The other soil types have low permeability and poor infiltration. A soils map is shown in Figure 3-2.

SURFACE WATER

The Irondale and Port Hadlock UGA is located approximately 5 miles south of the City of Port Townsend, adjacent to Port Townsend Bay. The UGA is located within Water Resource Inventory Area 17. Chimacum Creek flows into Port Townsend Bay at the northeasterly corner of the UGA.

The Chimacum Creek watershed encompasses approximately 24,000 acres, or about 37.5 square miles. The upper Chimacum Creek watershed is predominantly forest, agricultural, and low-density rural residential land uses. The lower Chimacum Creek watershed is primarily residential and commercial land uses in Irondale, Port Hadlock, and Chimacum. Overall, there are 9,242 acres (39%) designated forest land, 3,111 acres designated agricultural land (13%), and 9,320 acres (39%) designated rural residential in the watershed. Of the UGA's total 1,320 acres, 1,035 acres are located within the lower Chimacum Creek watershed.

UGA designation will require the provision of drainage and stormwater management facilities at an urban level of service standard in order to avoid significant stormwater run-off and water quality impacts to Chimacum Creek.

CLIMATE

The Irondale and Port Hadlock UGA are located adjacent to the Olympic Mountains and lies partially within a "rain shadow," which is a natural barrier to storms flowing inland from the Pacific Ocean. The air temperature is influenced by the surrounding water temperatures and remains fairly constant year round, cool during the summer days and warmer in winter months. In general, rainfall averages between 28 and 34 inches, snowfall averages 3 to 12 inches, and there are 200 days of sunshine per year. Typical summer temperatures range from 50 degrees at night to 70 degrees during the day and typical winter temperatures range from 35 degrees at night to 45 degrees during daytime.

Climate data for Port Townsend is included since it is the closest National Oceanic and Atmospheric Administration station.

TABLE 3-4

Port Townsend Climatological Data, 1967 – 1999

Month	Average Temperature (F°) (Port Townsend)	Average Precipitation (Inches) (Port Townsend)
January	41	2.41
February	44	1.63
March	46	1.92
April	49	1.69
May	54	1.61
June	59	1.33
July	62	0.88
August	62	0.90
September	59	1.23
October	52	1.53
November	46	2.65
December	42	3.24
Average	51	
Total (annual average)		21.02

The average annual rainfall within the region for a 32-year period is 21.02 inches. Data regarding the 2-year, 25-year, and 100-year storms with a 24-hour duration were obtained from isopluvial maps in Ecology's *Stormwater Management Manual for the Puget Sound Basin.* These values were used throughout the model described further in this plan. The

2-year, 25-year, and 100-year storms equated to 1.5-inches, 3.0-inches, and 3.5-inches, respectively.

FISH AND SHELLFISH HABITAT

Chimacum Creek

Chimacum Creek and the adjacent waters of Port Townsend Bay provide habitat for anadromous fish, including summer and fall Chum salmon, coho salmon, steelhead trout, and sea-run cutthroat trout. The summer Chum stock is listed as a threatened species under the Endangered Species Act. While large areas of the Creek have been impacted by agriculture, residential development, and forestry, the lower reach of the Creek downstream from the Irondale Road has very high habitat value.

Shellfish Habitat

The intertidal shoreline and near shore areas of Port Townsend Bay are excellent shellfish habitat. There are both commercial and recreational shellfish beds. Recently elevated fecal coliform bacteria counts have been recorded during summer months in Port Townsend Bay off of Lower Hadlock. These bacteria indicate the presence of pollutants typically related to marine mammals, failing septic systems, or recreational boaters.

GEOLOGIC HAZARD AREAS

Geologically hazardous areas are areas that because of their susceptibility to erosion, sliding, earthquakes, or other geological events are not suited to siting commercial, residential, or industrial development consistent with public health or safety concerns. The Jefferson County Environmentally Sensitive Areas maps show the steep slopes adjacent to Port Townsend Bay and lower Chimacum Creek as prone to impacts related to erosion, seismic events and landslides.

The Department of Ecology's website provides "Slope Stability Maps" for Jefferson County based on the Coastal Zone Atlas. Steep bluffs line the outside shoreline between Port Hadlock and Chimacum Creek for about one mile north and are considered "unstable recent slide" (Urs) areas. An area upland of Port Townsend Bay is designated as "unstable" (U).

FLOOD HAZARD AREAS

The 100-year flood plain is shown in Figure 3-4. These boundaries are in accordance with the Federal Emergency Management Agency (FEMA). The boundaries of the 100-year flood essentially encompass Port Townsend Bay, the shorelines of the Irondale and Port Hadlock community, and the mouth of Chimacum Creek. FEMA highly recommends against the placement of any structure in the 100-year flood plain. Any structure built within the flood plain's boundaries must provide for adequate protection against the 100-year flood (i.e., structures within the floodplain are constructed at a minimum of one foot above the flood plain elevation).

The 100-year flood plain does not cover all areas subject to localized flooding. Conveyance and detention facilities may be undersized or not maintained leading to flooding problems.

WETLANDS

Wetlands are defined as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

The National Wetlands Inventory (NWI) documents several wetland areas in and around the UGA. Figure 3-5 illustrates the wetlands identified by the National Wetlands Inventory. There are wetlands at along Chimacum Creek, as well as estuarine, intertidal, unconsolidated shore, and regularly flooded wetlands (E2USN).

The United States Fish and Wildlife Service (USFWS) produced a document titled "Classification of Wetlands and Deepwater Habitats of the United States," dated December 1979. This document provides a description of the Classification System and Heirarchical Structure of the wetland subgroups listed above. The definitions of these wetland systems are summarized below:

Estuarine System

The Estuarine system "consists of deepwater tidal habitats and adjacent tidal wetlands that are usually semi-enclosed by land but have open, partly obstructed, or sporadic access to open ocean, and in which ocean water is at least occasionally diluted by fresh water runoff from the land."

Palustrine System

The Palustrine system includes a vegetated group of wetlands called "marsh, swamp, bog, fen, or prairie." This system also includes the "small, shallow, permanent or intermittent water bodies often called ponds. Palustrine wetlands may be situated shoreward of lakes, river channels, or estuaries; on river floodplains; in isolated catchments, or on slopes."

Emergent Wetland

The Emergent Wetland Class is characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. The Emergent wetland is "in areas with stable climatic conditions" and "are known by many names, including marsh, meadow, fen, prairie pothole, and slough". All water regimes are included except subtidal and irregularly exposed.

Marine System/Open Water Wetland

The Open Water wetland is also known as the Marine System and "consists of open ocean overlying the continental shelf and its associated high-energy coastline. Marine habitats are exposed to the waves and currents of the open ocean and the water regimes are determined primarily by the ebb and flow the ocean tides."

Scrub-Shrub Wetland

The Class Scrub-Shrub Wetland includes areas dominated by wood vegetation less than 6 m (20 feet) tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. These wetlands may be successional to Forested wetlands or remain somewhat stable in its growth. Scrub-shrub wetlands occur only in Estuarine or Palustrine systems. These wetlands have been commonly referred to as shrub swamp, shrub carr, bog, and pocasin.

Forested Wetland

The Forested wetland consists of woody vegetation that is 20 feet or taller. These wetlands are most common in the eastern United States but exist in the West where moisture is abundant such as along river and in mountains. Forested wetlands occur only in Estuarine and Palustrine systems and all water regimes except for subtidal. They typically possess an overstory of trees, an understory of young trees or shrubs, and a herbaceous layer.

Tidal Water Regimes

Water regimes are largely determined by ocean tides. Subtidal is substrate that is permanently flooded with tidal water. Intertidal is substrate exposed and flooded by tides, including splash zones. These water regimes are subsystems to the Marine, Estuarine, and Palustrine systems.

AQUIFER RECHARGE AREAS AND GROUND WATER

Portions of the UGA are designated as critical aquifer recharge areas due to susceptible soils.

The Jefferson County Public Utility District owns the water system that serves the UGA. The water system relies on groundwater wells with an annual capacity of 80 million gallons. There is a designated wellhead protection area around the PUD's Sparling Well. Figure 3-6 shows wellhead protection areas and susceptible soils.

Development of the UGA must ensure that stormwater runoff doesn't contaminate ground water resources.