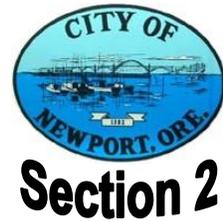


# Study Area



## 2.1 Physical Environment

### 2.1.1 Planning Area Location

The City of Newport is located in Lincoln County Oregon approximately in the center of the County coastline (44°37'57"N, 124°03'23"W) at the mouth of the Yaquina River. The city limits extend to both the north and south sides of Yaquina Bay in Townships 10S, 11S, and 12S, Range 11W. The city extends north from the bayfront along the beach to include Agate Beach, Yaquina Head, and Schooner Point, stopping just south of Moolack Creek. South of the bay the city extends along the beach to include South Beach, the Newport Municipal Airport, and the lower drainage of Thiel Creek. The 2007 City Limits encompasses 6,619 acres or 10.3 square miles.

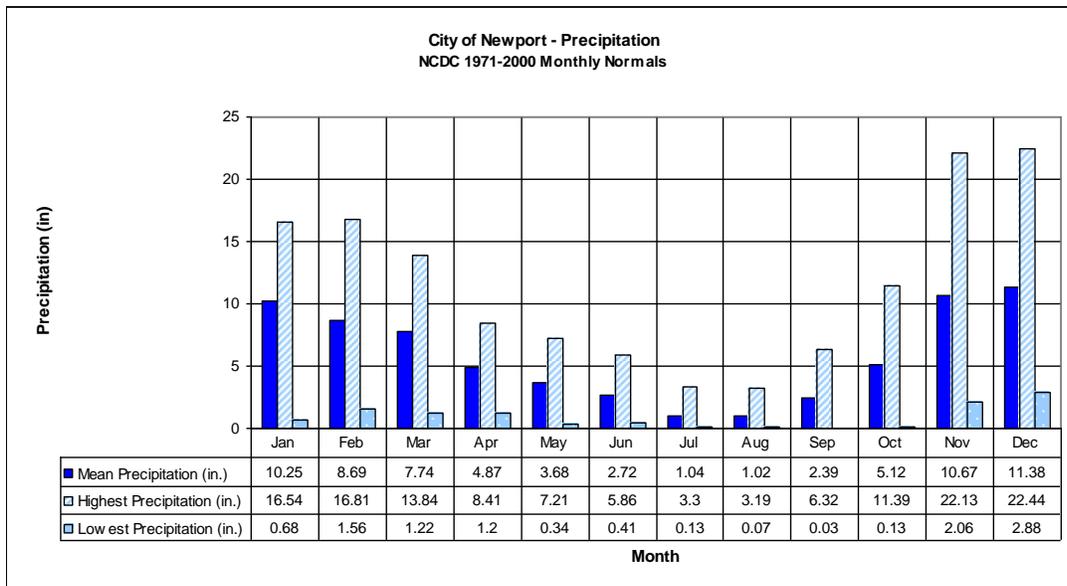


The Master Plan planning area is that contained within the Newport Urban Growth Boundary (UGB) as well as the immediate area surrounding water system components outside the UGB such as the Siletz River intake and pipeline and the Big Creek Reservoirs. The Siletz Intake is located approximately 7 miles northeast of the water treatment plant near the City of Siletz. The Big Creek Reservoirs, created by dam construction on Big Creek, are located just east of the water treatment plant. The area can be seen in Figure 2.1.1-1 “*Planning Area Map*”.

### 2.1.2 Climate

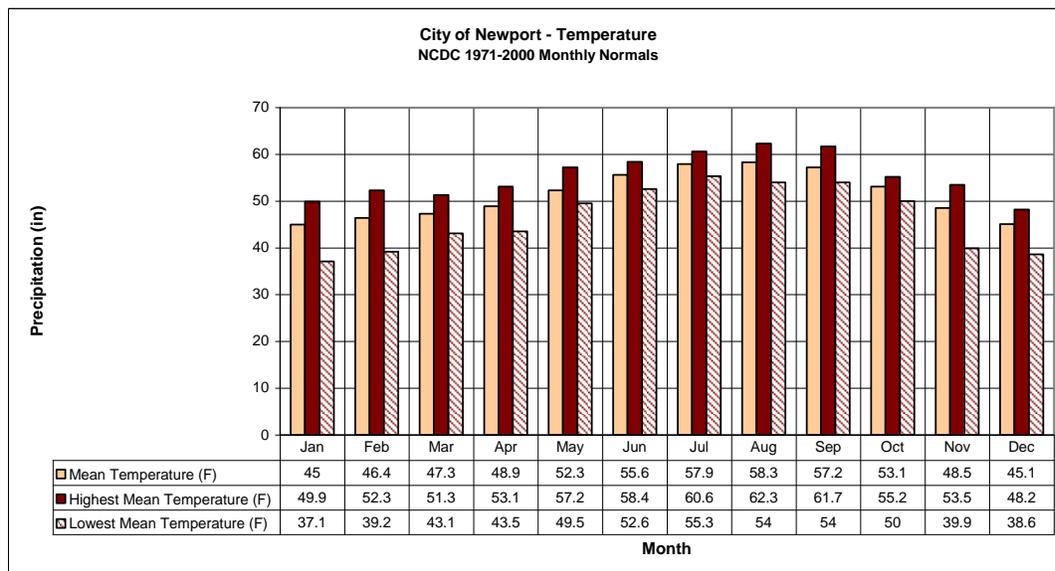
Climate data was obtained using long-term records collected at the Newport Station (Station 356032) as reported by the Western Regional Climate Center.

Average annual precipitation is approximately 70-inches in Newport. Record low and high precipitation years recorded were 43-inches in 1944 and 111-inches in 1968. The maximum recorded 24-hour rainfall was 4.99-inches on November 19, 1996. On average, 46% of the annual precipitation occurs in November, December, and January. Snowfall is rare with most years recording little or no snowfall; however, record snowfall of 11-inches was reported in 1942-43 and again in 1972-73. The mean annual snowfall during the period from 1930 to 2007 is 1.02-inches. No statistically significant increasing or decreasing trend in annual rainfall is evident. Based on the NOAA Atlas 2, Volume X Isopluvial maps, the 5-year storm 24-hour rainfall is 4.5 inches.



**Figure 2.1.2-1 – Precipitation Normals, NCDC 1971-2000**

The average annual temperature in Newport ranges from 45 to 58°F with an annual mean of 51°F. A record high temperature of 100°F was recorded on July 11, 1961. A record low temperature of 1°F was recorded on December 8, 1972. August is statistically the warmest month with a mean of 58°F while December and January are the coldest with a mean of 45°F.



**Figure 2.1.2-2 – Temperature Normals, NCDC 1971-2000**

### 2.1.3 Land Use

Land use within the City Limits of Newport is a typical mixture of residential, commercial, and industrial zoning. The City is bounded on the west by the Pacific Ocean. Land to the east of the UGB is primarily zoned Timber-Conservation (T-C) including land inside the UGB east of the airport and some of the land inside the UGB northeast of Yaquina Head. Portions of land outside the City Limits but inside the UGB in the South Beach area are zoned for Public Facilities (P-F) and Planned Industrial (I-P) and the remaining land outside the City Limits but inside the UGB is zoned for residential use. The Big Creek reservoirs and the raw water transmission piping from the Siletz River Intake are located in Timber-Conservation zoned land. Formally classified lands within the area include the South Beach State Park, Yaquina Bay State Park, Agate Beach State Recreation Site, and the Yaquina Head Outstanding Natural Area. No Wild and Scenic Rivers are located in the planning area.

### 2.1.4 Floodplains

Areas of the City are within the 100-year floodplain. Floodplain areas occur along the beach and several creeks. FEMA FIRM maps for Newport are included at the end of this Section.

### 2.1.5 Wetlands

Several wetland designations occur in Newport according to the National Wetlands Inventory (NWI). Estuarian and Marine Wetland areas occur along the beach and tidal flats of the Yaquina River. Freshwater Forested-Shrub Wetlands occur in low areas east of South Beach State Park and near Thiel Creek, Moore Creek, Grant Creek, and Henderson Creek south of the Bay. Pockets of Freshwater Emergent Wetlands also occur along creeks and in the low areas near South Beach State Park. A Wetlands Map produced from the digital NWI data is shown as Figure 2.1.5-1.

### 2.1.6 Cultural Resources

According to the Oregon National Register List, five historic properties are located in the planning area. All listed properties lie inside the current Newport City Limits.

**Table 2.1.6-1 – Listed National Register Historic Properties, Newport**

Historic Property Name	Street Address	Construction Date	Listed Date	NR Number
New Cliff House	267 NW Cliff St.	1911	11/6/1986	86002962
Old Yaquina Bay Lighthouse		1871	5/1/1974	74001692
Roper, Charles & Theresa, House (Hilan Castle)	620 SW Alder St.	1913	12/9/1981	81000500
Yaquina Bay Bridge #01820	Hwy. 101	1936	8/5/2005	05000821
Yaquina Head Lighthouse	Yaquina Head	1872	5/13/1993	73002340

Lincoln County is part of the Siletz Service Area of the Confederated Tribes of Siletz Indians. Areas around Yaquina Bay and River were once home to the Yaquina Tribe (now included in the Siletz Tribe). Several remnants of tribal settlements in the area have been discovered including fishing-weirs at Yaquina Bay at the Ahnkuti site<sup>1</sup>, skeletal remains at Yaquina Head<sup>2</sup>, and shell middens at north Yaquina Head<sup>3</sup>.

<sup>1</sup> R. Scott Byram. Oregon Historical Quarterly, Vol. 108, No. 2

<sup>2</sup> Minor, Rick, Kathryn Ann Toepel, and Ruth L. Greenspan. Arch. Investigations at Yaquina Head. 1987

<sup>3</sup> Minor, Rick. Archaeology of the North Yaquina Head Shell Middens. U.S.Dept. of Interior. 1989

### 2.1.7 Biological Resources

Biological resources in the area include numerous fish, shellfish, birds and mammals. Fish species include white sturgeon, pacific herring, steelhead, flatfishes, perch, coho, chinook salmon, chum salmon, surf smelt, longfin smelt, lingcod, English sole, and starry flounder. Shellfish include Pacific oysters, blue mussels, various clams, bay shrimp, and dungeness crab. A variety of bird species are present including the threatened brown pelican and threatened western snowy plover. Marine mammals in the area include California sea lions, harbor seals, and the threatened northern sea lion. Biological habitat in the area includes tidal, marine, and forest habitat.

### 2.1.8 Coastal Resources

The Oregon Coastal Zone roughly includes all land west of the crest of the Coast Range. The entire planning area is therefore within the Coastal Zone. Coastal resources in Newport include coastal and marine habitat, tidal wetlands, commercial and sport fisheries, the Yaquina Bay deep draft estuary, and tourism related to the beach and Oregon Coast Aquarium.

## 2.2 Population

### 2.2.1 Historic and Existing Population

Records for the first municipal water right for Newport lists the 1910 population at 1,100 persons. Subsequent water right applications indicate the population had risen to 3,200 by 1951. US Census data records a population increase from 5,344 in 1960 to 9,532 in 2000. The Portland State University Population Research Center (PSU PRC) has published certified estimates for 2001 to 2006 and a preliminary estimate for 2007. PSU certified estimates show a population increase from 9,660 in 2001 to 10,240 in 2006. The PSU certified estimate for the July 1, 2007 population of Newport is 10,455 persons.

Based on the 2000 Census data, there are 1.89 persons per housing unit in Newport on average when vacant and seasonal housing units are included. The 2000 Census identified 437 housing units out of the total 5,034 housing units (8.68%) that were seasonally occupied, recreational, or occasional use homes. 922 housing units were identified as vacant. When seasonal and vacant housing units are not included, the persons per full-time occupied housing unit is 2.59.

**Table 2.2.1-1 – Historic Population Summary, 1910-2007**

Year	Population	Housing Units	Source
1910	1,100		1910 water use permit application
1923	1,200		1923 water use permit application
1951	3,200		1951 reservoir storage permit application
1960	5,344		US Census
1970	5,188	2,106	US Census
1980	7,519	3,862	US Census
1990	8,437	4,105	US Census
2000	9,532	5,034	US Census
2001	9,660		Portland State University PRC
2002	9,650		Portland State University PRC
2003	9,740		Portland State University PRC
2004	9,760		Portland State University PRC
2005	9,925		Portland State University PRC
2006	10,240		Portland State University PRC
2007	10,455		Portland State University PRC

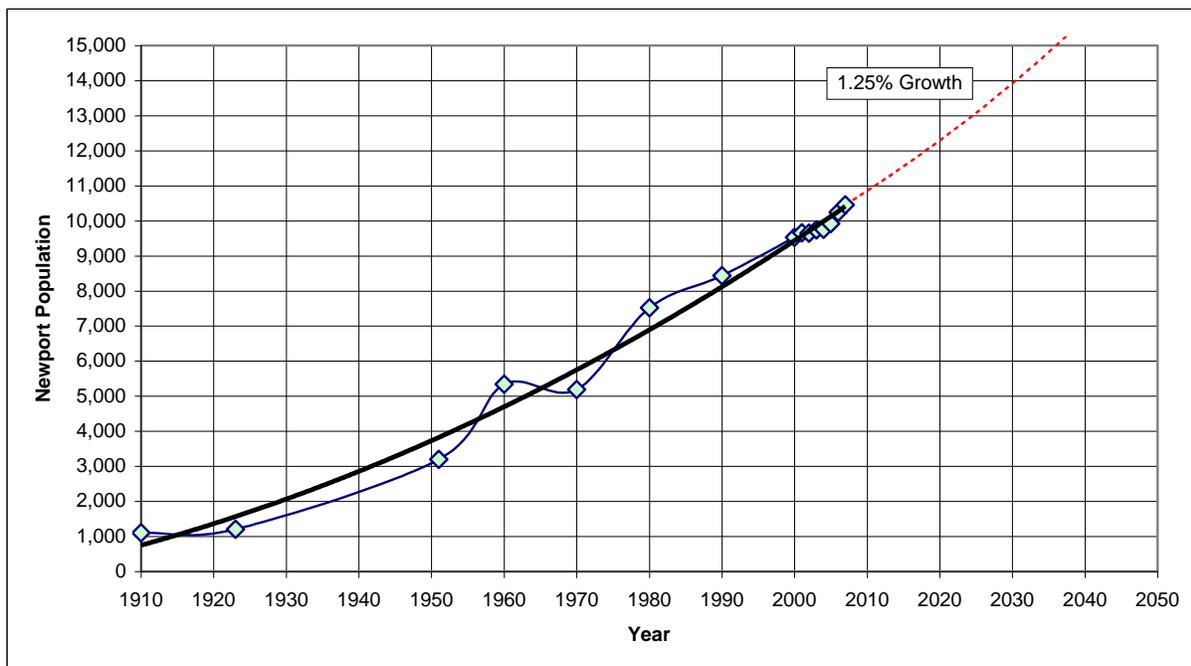
Through tracking the number of building permits issued each year for residential construction in Newport, the City Community Development Director identified that an average of 66.7 new housing units per year were added between 2000 and 2006. Starting with the Census count in 2000 of 5,034 housing units and adding the number of new units added each year, the current number of housing units is estimated at 5,501 as shown in Table 2.2.1-2.

Combining the PSU population estimates for 2001 to 2007 with the housing unit counts provided by the City results in values of 1.88 to 1.90 persons per housing unit with an average of 1.89. This matches the 1.89 persons per housing unit identified in the 2000 Census data.

**Table 2.2.1-2 – Population and Housing Units, 2000-2007**

Year	Population	Residential		People per Unit
		Housing Units	Units Added	
2000	9,532	5,034	94	1.89
2001	9,660	5,128	26	1.88
2002	9,650	5,154	12	1.87
2003	9,740	5,166	22	1.89
2004	9,760	5,188	93	1.88
2005	9,925	5,281	95	1.88
2006	10,240	5,376	125	1.90
2007	10,455	5,501		1.90
		<i>average</i>	<i>66.7</i>	<i>1.89</i>

2000 population per Census. 2001-2007 population per PSU Estimates  
Residential units added per City records



**Figure 2.2.1-1 – Newport Historic Population, 1910-2007**

### 2.2.2 Projected Population

The City of Newport experienced an average annual growth rate of 1.22% between 1980 and 1990 based on Census counts. Annual growth from 1990 to 2000 averaged 1.30%. Based on PSU population estimates for 2000 to 2007, the average annual growth rate for this period was 1.33%. Based on the historic growth patterns in Newport, an average growth rate of 1.2 to 1.3% is expected over the 20-year planning period. A best-fit polynomial trend line from 1910 to 2007 is shown in Figure 2.2.2-1 indicating a good fit to a projected average growth of approximately 1.25% per year. A value of 1.89 persons per dwelling unit will be used for future projections within the City. Growth projections will be taken to the year 2030 based on the assumption that improvements needed for the 20-year planning period will not be initiated until 2010. An annual growth rate of 1.25% will be used.

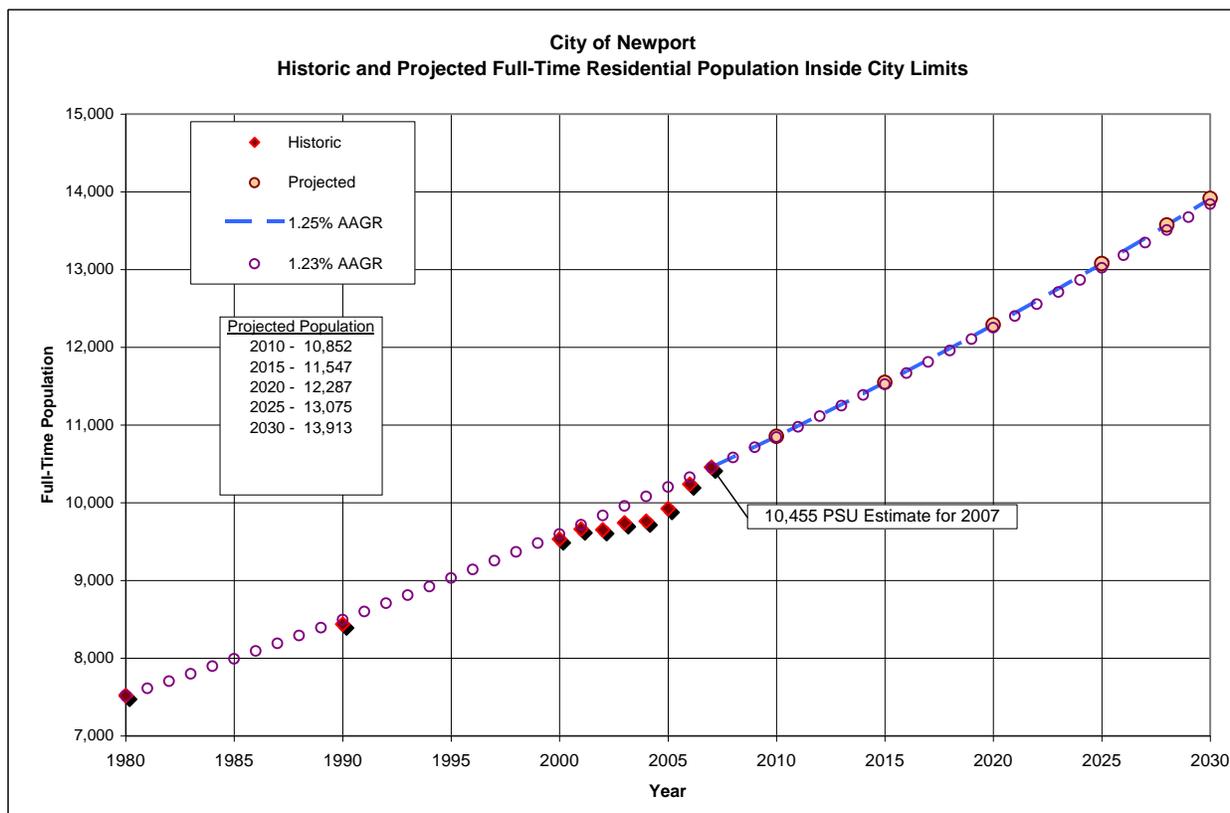


Figure 2.2.2-1 – Newport Population Growth, 1980-2030

The current service population of 10,455 persons is equivalent to 11,270 Equivalent Dwelling Units (EDU) as calculated in Section 6. For current conditions an average of 1.078 EDU per person occurs in Newport.

In addition to the projected residential growth inside the city, plans for future water needs must include any additional major non-residential additions as well as any future plans for water service outside the current service area. Current per capita water demands include the needs of existing commercial, industrial, and other users. However, any future non-residential development anticipated which may be beyond the demands wrapped into current per capita water demand values must be accounted for. Such development may increase the number of equivalent dwelling units (EDUs) the water system must serve without increasing the actual population of the city.

In the near future, Newport will provide water service to an additional 74 domestic and 25 commercial connections now served by the Seal Rock Water District. An analysis of water use over a 12 month period shows that the 25 commercial connections are equivalent to 45 EDUs in terms of water use. These 119 additional EDUs must be added to the City projections to properly account for future water demand. Using 1.89 people per housing unit indicates an additional service population from these connections of 140 persons. It is assumed that these customers will be added to the system in 2010 and that additional similar connections will occur at a growth rate of 1.25% per year, matching the projected City growth.

South of Yaquina Bay, specific development including the Oregon Coast Community College Central Campus currently under construction, the proposed Village Commercial Center, and a proposed industrial park – all part of the South Beach Plan – may impact water demand and population beyond what the city growth rate might indicate. Since current per capita water demand numbers for Newport include a mixture of residential, commercial, and industrial uses, the per capita demands are assumed to account for future commercial and industrial growth in the City, including that in South Beach. Water demand for the new college however will be added to that predicted only through population growth.

The OCCC Central Campus plans include two 72,000 s.f. buildings (144,000 s.f.) with the first building to be completed around 2011 and the second completed near the end of the planning period with a total design capacity of 6,000 part-time students. Newport’s SDC methodology estimates 1.4 EDU per 250 s.f. for institutions such as a college campus resulting in 806 EDU. A typical value for school water use is 21 gpd/student for an institution with a cafeteria, gymnasium and showers [Water Quality, Tchobanoglous & Schroeder, 1987] resulting in 820 EDU. To account for the campus, a total of 820 EDU will be assumed with half (410 EDU) anticipated in 2011, and the remaining 410 EDUs assumed to occur around 2020.

**Table 2.2.2-1 – Population, Housing Unit and EDU Growth Projections**

Year	1.25% Growth Inside City Limits			1.25% Growth Outside City Limits, Inside UGB			OCCC Central Campus	Total		
	Housing			Housing			EDU	Housing		
	Population	Units	EDU	Population	Units	EDU		Population	Units	EDU
2007	10,455	5,501	11,270					10,455	5,501	11,270
2008	10,586	5,601	11,411					10,586	5,601	11,411
2009	10,718	5,671	11,554					10,718	5,671	11,554
2010	10,852	5,742	11,698	140	74	119		10,992	5,816	11,817
2011	10,988	5,814	11,845	142	75	120	410	11,129	5,889	12,375
2012	11,125	5,886	11,993	144	76	122	410	11,269	5,962	12,525
2013	11,264	5,960	12,143	145	77	124	410	11,409	6,037	12,676
2014	11,405	6,034	12,294	147	78	125	410	11,552	6,112	12,829
2015	11,547	6,110	12,448	149	79	127	410	11,696	6,189	12,985
2016	11,692	6,186	12,604	151	80	128	410	11,843	6,266	13,142
2017	11,838	6,263	12,761	153	81	130	410	11,991	6,344	13,301
2018	11,986	6,342	12,921	155	82	131	410	12,140	6,424	13,462
2019	12,136	6,421	13,082	157	83	133	410	12,292	6,504	13,625
2020	12,287	6,501	13,246	159	84	135	820	12,446	6,585	14,201
2021	12,441	6,583	13,411	160	85	136	820	12,601	6,667	14,368
2022	12,596	6,665	13,579	163	86	138	820	12,759	6,751	14,537
2023	12,754	6,748	13,749	165	87	140	820	12,918	6,835	14,709
2024	12,913	6,832	13,921	167	88	142	820	13,080	6,921	14,882
2025	13,075	6,918	14,095	169	89	143	820	13,243	7,007	15,058
2026	13,238	7,004	14,271	171	90	145	820	13,409	7,095	15,236
2027	13,404	7,092	14,449	173	91	147	820	13,577	7,183	15,416
2028	13,571	7,181	14,630	175	93	149	820	13,746	7,273	15,599
2029	13,741	7,270	14,813	177	94	151	820	13,918	7,364	15,783
2030	13,913	7,361	14,998	179	95	153	820	14,092	7,456	15,970
Change	3,458	1,860	3,728	39	21	34	820	3,637	1,955	4,700