

CHAPTER 3

POPULATION AND LAND USE

3.1 INTRODUCTION

In order to project wastewater collection, treatment, and disposal needs over a given period of time, it is necessary to establish a reasonable estimate of the probable demand on these facilities. This can be accomplished in most proposed service areas by a study of the population trends and land use, which may affect the capacity and placement of system facilities.

This chapter presents historical population data with population forecasts based on current land use (zoning) designations. The purpose of this Comprehensive Sewer Plan is to provide concept-level planning necessary to define wastewater collection, treatment, and disposal methods would provide the level service commensurate with the anticipated development and land use. Options include decentralized approaches as well as the traditional centralized wastewater collection treatment and disposal facilities. Facility sizing and costs are based on the proposed service area under Island County's current land use designations. Forecasts beyond 20 years are not practical with any degree of certainty.

3.2 POPULATION

Population data was obtained from the State of Washington Office of Financial Management (OFM). The provided population data was released by the U.S. Commerce Department's Census Bureau, based upon the 2000 census. The census data was arranged in census tracts and further into census blocks, which did coincide fairly well with the proposed service area.

Based upon the 2000 census data within the proposed service area, which reveals an average of 2.32 persons per household and 506 total residences, the existing population for the proposed service area is estimated at 1,174 people. At the time of the census there were 506 total residences within the proposed service area, only 369 of which were actually occupied. The value of 2.32 persons per household is an average value calculated from the occupied housing units at the time of the census, while our estimated population is calculated by multiplying 2.32 persons per household by the 506 total residences. Assuming that all of the dwelling units within the proposed service area are actually occupied, a built-in factor of safety is realized.

From the facilities plan prepared by R.W. Beck, using an average annual growth rate of 3.0%, the year 2000 population within the proposed service area was estimated at being 1,024 people, which represents a 12.8% difference from our estimate of 1,174

people. It should be noted that the estimated year 2000 population stated in the R.W. Beck report is a forecasted value that is based on 1990 census data.

The Growth Management Act states that OFM shall provide 20-year population forecasts for counties. The available population projections provided by OFM can consist of a low, medium, or high projection series. Island County has chosen to use the high series OFM population projections for their Comprehensive Plan. The County analyzed the OFM countywide projection data in order to determine population projections by region. In 1996 the population of Clinton was estimated at being 900 people. From the regional population projections determined by Island County the year 2020 projected population is 2,000 people, which represents an average annual growth rate of 3.4%. An alternative means of projecting the growth in the Clinton area is presented below in Table 3.1, which shows the historical population changes within the Clinton Water District.

TABLE 3.1

**HISTORICAL TREND OF CUSTOMER ACCOUNTS
CLINTON WATER DISTRICT**

Year	Clinton WD number of customer accts*	Change from previous period	Average Change per Year, %
1977	336	N/A	N/A
1982	463	127	6.6
1987	521	58	2.4
1992	590	69	2.5
1997	659	69	2.2
2002	700	41	1.2

*Source: Number of accounts within the Clinton Water District provided by the Clinton Water District

As demonstrated in Table 3.1 the actual population growth rates within the Clinton Water District are smaller than the 3.4% growth rate presented by Island County. The average yearly growth rate from 1977 to 2002 is 2.98%, where the average yearly growth rate from 1982 to 2002 is 2.09%.

In 1979 there was an increase of 71 water accounts, this value was created by annexation and is considered a statistical outlier, and therefore using the period from 1982 to 2002 is a more accurate representation of the population growth rate within the Clinton area. It should also be noted that portions of the proposed service area are within the Clinton RAID (See Subsection 3.3) which is an area with limitations on development expansion. Additionally many of the lots within the proposed service area are already at the minimum lot size set forth in the Island County Code. Based upon the preceding arguments, an accurate value representing the population growth rate for the proposed service area within Clinton is 2.0%

Table 3.2 indicates the projected population for the twenty-year design period.

TABLE 3.2
POPULATION PROJECTIONS

YEAR	CLINTON PROPOSED SERVICE AREA POPULATION	POPULATION CHANGE
2002	1,221	N/A
2007	1,349	127
2012	1,489	140
2017	1,644	155
2022	1,815	171
2027	2,004	189

3.3 LAND USE, ZONING AND SERVICE AREA

The area served by the proposed Clinton Sewer District is under the sole jurisdiction of Island County and is therefore subject to the comprehensive land use plans and zoning codes set forth in the Island County Code. On September 28, 1998, the Board of Island County Commissioners adopted the Island County Comprehensive Plan and implementing Development Regulations. With the adoption of this plan, the community of Clinton has been designated a mixed-use Rural Area of Intensive Development (RAID) that has both a commercial and a residential component. As a RAID, there are limits to commercial development beyond a certain scale, and limits on residential density. All of these limits are based upon what existed as of July 1, 1990.

Within the Clinton RAID boundaries are three land use designations: Rural Residential (RR), Rural Center (RC), and Park (P). Figure 3.1 shows the Clinton RAID boundary and the boundary of the proposed service area. However there are properties within the proposed service area that are not contained within the Clinton RAID boundary and had a land use designation of "Rural". Table 3.3 lists densities per acre for each of the land use designations while the different land use designations are summarized below:

- The Rural Residential (RR) Zone occupies approximately 191 acres, or 69% of the area within the proposed service area. Per the Island County Code, the purpose of the RR zone is to define the Logical Outer Boundary of a pattern of development and density that is more intensive than the density permitted in the Rural Zone.
- The Rural Center (RC) Zone occupies approximately 64 acres, or 23% of the land within the proposed service area. Per the Island County Code, the RC zone is applied to existing areas of intense non-residential and mixed-use development and encompasses the logical outer boundary of the existing

pattern of development. This zone permits a range of commercial, light manufacturing and multi-family uses that serve a broad geographic area.

- The Rural (R) Zone occupies 20 acres, or 7% of the land within the proposed service area. Per the Island County Code, the R zone is the principal land use classification for Island County. Limitations on density and uses are designed to provide for a variety of residential and nonresidential development and to ensure compatible uses.
- The Park (P) zone occupies 2 acres, or 1% of the land within the proposed service area. This land use classification is used strictly for recreational purposes.

TABLE 3.3

LAND USE POPULATION DENSITY

Land Use Designation	Abbreviation	Maximum Allowable Dwelling Units Per Acre	Dwelling Units Per Acre, For This Study	Equivalent Population Per Acre, For This Study
Rural Residential	RR	3	3	7.0
Rural Center**	RC	24	12**	27.8***
Rural	R	0.2	0.2	0.46
Park*	P	24	12*	27.8***

*12 units per acre for Park designation is used for facilities sizing and costs for this study.

** 12 units per acre is used for facilities sizing and costs for this study although 24 units per acre is the maximum allowed residential density for RC.

*** 27.8 people per acre is used for facilities sizing and costs, although 55.7 people per acre would correspond with maximum allowed development density at 24 units per acre

Using the Island County Land Use Map, the number of acres in each land use category was measured and shown in Table 3.4. This was done by overlaying the proposed service area on the Land Use Map and measuring the different land use zones that were within the service area boundary. Rights-of-way are not included in the surrounding land use classifications. The community library facility exists within the Park designated area which makes the normal assumption of “zero units per acre for Parks” to be unrealistic. To account for the impacts of the Library, the public restrooms and other potential park improvements on the sewer system, a development density of 12 units per acre is used.

Using the acreages for all land use types and the density as set forth in the Island County Code, the number of people living within the area of Clinton can be calculated (“buildout potential” – see Table 3.4). This table assumes that the Clinton area will develop the R and RR lots within the proposed service area to their maximum density

as allowed by their land use. For example, in the RR zone there are 191 acres within the sewer service area. Using the density of 7 persons/acre for the Rural Residential land use, there is a potential future population of 1,329 people in the Rural Residential areas within the proposed service area.

TABLE 3.4

**POPULATION BUILDOUT POTENTIAL
WITHIN PROPOSED SERVICE AREAS**

Land Use	Total Acres Within Proposed Service Area	Density (Persons/Acre)	Population
Rural Residential	191	7.0	1,329
Rural Center	64	27.85	1,782
Rural	20	0.46	9
Park	2	27.85	56
Total	277	N/A	3,176

The value of 3,176 represents the estimated ultimate build-out population within the proposed service area. The maximum possible buildout population is 5,022 and is attainable only if every lot within the proposed service area develops to its maximum residential density as allowed by its specific land use. The assumption made in this plan is that the RC area will develop with a mixture of commercial/business and multi-family residential resulting in an average effective population of 12 dwelling units per acre or 27.85 people per acre. The actual population numbers could vary depending upon several factors; If the proportion of residential to commercial development within the RC zoned area changes, the corresponding wastewater generation rates could vary – medium-to-high density multifamily residential development generally produces significantly more wastewater per acre than most commercial or business uses. Some commercial or business uses can produce significant quantities of high-strength wastewater such as restaurants, motels or carwash whereas other uses such as professional offices or retail stores generate very little wastewater. It also depends upon whether some larger RC lots become sub-divided and developed. Types of development are strongly influenced by market demand which frequently results in land development that is somewhat less intense than the zoning allows. Consequently, the maximum possible population number of 5,022 as stated above is unlikely to be realized.

In addition, the Washington State Ferries (WSF) create a degree of uncertainty regarding future wastewater system capacity. The WSF currently obtains potable water from CWD and represents a significant fraction (10 to 20%) of the total CWD average water demand. If WSF were to request sewer service to dispose of their wastewater at the Clinton terminal and similar quantities of flow were involved, it would represent a large fraction of the total capacity.

The future development buildout land uses and populations presented in this plan makes an assumption that there is adequate water supply available for the community. Water supply and distribution is addressed in the CWD Comprehensive Water Plan which will be produced later this year.