Section 2

Study Area

2.1 Location and Definition

The study area is located within the city limits of the city of Coos Bay, Oregon. The project location and boundary for the storm water drainage area of this study is illustrated in Appendix A and includes the central portion of the city bordering the Bay and Isthmus and Coalbank Sloughs. The predominant geographic feature is the tidally influenced portion of Coos River. To avoid confusion with the name of the City, the bay formed by Coos River will be referred to as the "Bay". Elevations used in this plan are based on the NAVG 1988 datum.

2.2 Climate

Regional weather patterns of Coos Bay are affected by the presence of the Coast Range Mountains to the east and the Pacific Ocean to the west. The area has a moderate climate with marked seasonal characteristics.

Coos Bay has a mild marine climate with few temperature extremes. The monthly average low temperature is 38° F and the average monthly high is 67° F. Record lows in the teens have occurred during the months of December and January; and, record highs in the 90's have occurred during the months of August, September, and October. Prevailing winds in the summer are from the northwest with winter storms predominantly from the southwest.

Area precipitation is directly related to ocean formed storms and the prevailing weather patterns that bring these storms ashore. Annual average rainfall is about 64 inches with July being the driest month and December the wettest. Record annual precipitation was 94 inches in 1983 and record daily precipitation was in November 1996 with 6.25 inches falling on one day. Snowfall during the year is minimal--the mean yearly total being nine tenths (0.9) of an inch--and generally occurs during the months of December and January.

The presence of the Pacific Ocean to the west directly affects prevailing wind patterns in the region. Daytime heating produces warm temperatures inland and establishes a convective heating pattern that leads to the development of onshore winds. During the nighttime hours, as land surfaces cool, the reverse occurs and offshore winds develop.

Fog is often present in the area, particularly during the morning hours. Again, the presence of the Pacific Ocean influences the development of this weather phenomenon. The fog may develop as warm moist air meets cooler land surfaces or it may form at sea and move inland.

2.3 Natural Drainage Courses

Coos Bay is situated on the Bay of Coos River and much of the existing study area is built on fill in the river estuary. The Bay is tidally influenced by the Pacific Ocean, and a portion of the study area is at an elevation below the higher high tide line. Principal drainage courses that flow into the Bay through the study area are Blossom Gulch Creek, Isthmus Slough, and Coalbank Slough. Unnamed minor streams drain into Coalbank Slough in the Englewood neighborhood and Mingus Pond. Tributaries of Pony Creek are within the study area, but the creek flows north, through the City of North Bend before discharging into the Bay.

2.4 Major Drainage Basins

Basin boundaries and runoff patterns were defined from available aerial photography, USGS mapping, City topographic maps, existing survey data, and points surveyed for this plan. For the purposes of this plan, the study area was divided into 27 major drainage Basins. Portions of some drainage basins may extend out of the study area. The basins are described in Section 6. A basin map is included in Appendix A.

2.5 Topography and Soils

The majority of land bordering the Bay and west to 5th Street is fill that was placed prior to 1930 in native salt marshes. The downtown and commercial districts are located in this area with an elevation of about 10 feet. The surface elevation rises west of 4th Street, with most of the developed property located below an elevation of 120 feet on a series of hillsides with slopes of less than 30%. The highest elevation in the vicinity is at about 560 feet. The Pacific Ocean is located approximately four miles west of the study area.

Soils in the study area are mainly silt loams, with sandy loams in the basins west of 14th Street and north of Myrtle Avenue. Most of these soils have moderate permeability, with isolated areas of slow moderate permeability. Clay loam soils are found in the south section of the Englewood neighborhood, along Coalbank Slough. Erosion potential is moderate in most areas, although there have been slides along the steep road cut for Highway 101 at the north end of the study area.

Areas that are currently not developed are forested in second or third growth Douglas fir and alder. A soils map is included in Appendix A.

2.6 Flooding Hazards

A large portion of the land along the Bay and Coalbank Slough is reclaimed estuary. The elevations of the original downtown area east of 4th Street, the pastureland along Coalbank Slough, and the residential neighborhood along Blossom Gulch Creek are below the highest recorded high tide level of 11 feet.

Dikes along the bay front have reduced the occasions of flooding in the downtown area. Stormdrains serving most of the study area penetrate the dikes. Most stormdrains, but not all, are equipped with tidegates to prevent backflow at high tide. During periods of high rain when the tidegates are closed due to high tide, the stormwater backs up and floods localized areas. Several of the tidegates are in poor condition, allowing tidewater to flow upstream through the stormdrains creating localized flooding.

Construction of dikes along Coalbank Slough allowed the year round use of the reclaimed land as pasturelands and several homes were built just above the pastures in what was then a rural unincorporated area. Portions of the dikes are now in disrepair and are breaching at higher tides, allowing flooding of the pastures and potentially threatening homes in the area. As the dikes were built prior to incorporation into the City and many of the dikes are outside of the city limits, no clear-cut jurisdiction for repair of the dikes exists. Repairs are underway for the collapse of a drainage culvert for a small stream discharging into Coalbank Slough near Dakota Street that has caused flooding west of Southwest Boulevard.

An unnamed stream discharges into Coalbank Slough through a culvert at 5th Street. Properties along the stream course are below the record high tide level. During periods of higher tides and rainfall the stream overflows its banks, flooding neighborhood streets and properties. The portion of this neighborhood south of Johnson Avenue, between 10th and 4th Streets is at an elevation below 10-feet and floods regularly.

Blossom Gulch Creek bisects the study area from east to west. The creek is confined in a box culvert from 10th Street at Curtis Avenue to its discharge into the Bay through a tidegate. The creek has a drainage basin of about 650 acres and is considered a fish-bearing stream. During extremely high tides combined with periods of heavy rain (above one inch in 24 hours) the creek actually flows backward from the culvert as storm water from other areas, particularly from Mingus Park, discharges into the box culvert when the tidegate is closed. Residences along the creek with elevations below the record high tide level have experienced flood damage and portions of Blossom Gulch Road are submerged when these conditions occur.

All bay front properties along Highway 101 are located in the 100-year floodplain for the Bay. In addition, the 100-year floodplain follows the current and historical streambed of Blossom Gulch Creek, including the commercial district bounded on the north by Market Avenue, on the south by Curtis Avenue, on the east by the Bay, and on the west by 7th Street. A map illustrating flood hazard areas is included in Appendix A.

2.7 Land Use

Land use planning and zoning maps from the 2000 Comprehensive Plan as revised in January 2004 were used to determine existing and future development conditions. Digitized data from aerial photos were used to confirm development density, approximate impervious areas, and vegetation for each basin.

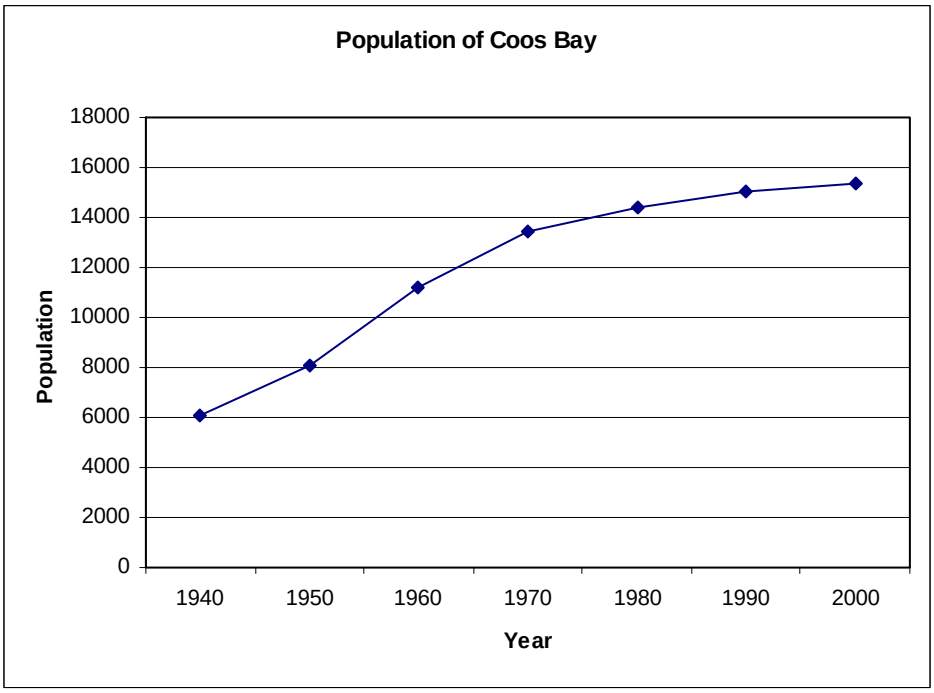
Land use designations for the City include high and low density residential, commercial, industrial, medical park, and quasi-public. Most existing residential neighborhoods are zoned

low density residential, with newer neighborhoods and land reserved for residential expansion zoned for high-density development. The main commercial zones include land on both sides of Highway 101, the area south of Highland and east of 4th Street, land bordering Southwest Boulevard and Lockhart Street, and a small section north of Thompson road bordering Woodland Drive. The industrial area is the waterfront north of Ivy Avenue and south of Commercial. Land surrounding Bay Area Hospital has been designated medical park and roughly includes the land between Woodland Drive and 16th Street north of Myrtle Avenue to the City limits. Quasi-public zones include schools and parks. A map illustrating projected land use is included in Appendix A.

2.8 Population

The current population estimate from the Portland State University Center for Population Studies for the City of Coos Bay is 15,620. Coos Bay experienced a moderate growth rate of about 3% prior to 1970. Job losses in the timber and fishing industries caused a general outward migration of population in Coos County in the 1980s, but the population in Coos Bay held fairly steady in the 1980s and 1990s and is now experiencing a small upward swing of just under 1% per year. The population data for Coos Bay is graphed in Figure 2.4.1.

FIGURE 2.4.1
COOS BAY POPULATION



Population is used indirectly for planning storm water systems. While the rate of population growth is indicative of the amount of land that would be developed for residential and commercial use, land use and zoning is employed for forecasting hydraulic loads in storm drain analysis.