Section 4

Planning Criteria

4.1 Federal and State Regulations

The Environmental Protection Agency requires permits for some storm water discharges in the National Pollutant Discharge Elimination System (NPDES) program. The permit process is described in 40 CFR 122.26. The purpose of the program is to prevent storm water runoff from polluting public waters. The Department of Environmental Quality administers the federal codes in Oregon.

With respect to the City of Coos Bay, permits are not required at this time from incorporated municipalities of populations less than 50,000 when discharges are composed entirely of storm water. Local industrial and commercial facilities may require permits for their particular storm water discharge. These facilities should already be regulated by the DEQ according to CFR regulations. With this exception, clean storm water discharge from the city is not regulated at this time by external agencies.

EPA is implementing Phase II storm water rules for small municipalities in urbanized areas. The storm drain system administered by the City is classified as a small municipal separate storm sewer system (MS4). Phase II regulations cover MS4 systems that are in an urbanized area, or that has a residential population of at least 50,000, or a density of 1,000 people per square mile, or that has been designated Phase II by the NPDES permitting authorities. The metropolitan area comprised of the cities of Coos Bay and North Bend and surrounding development fall below the population cutoff and Coos Bay has not been designated a Phase II community. The City is likely to be considered for designation as a Phase II area in the future based on population density or as a part of the effort to improve water quality in the Coos River basin.

The Bay, Isthmus Slough, Coalbank Slough, and lower Pony Creek are all considered bacteria limited under the Clean Water Act, Section 303d water quality listing. In addition Isthmus Slough is considered oxygen limited due to the high quantities of oxygen depleting sediments. Blossom Gulch Creek is not 303d listed at this time, but is a candidate for future listing. All of the above waterways are designated as Essential Fish Habitat due to the current or historical presence of coastal coho salmon, which are listed as a threatened species under the Endangered Species Act.

The Bay is considered bacteria limited and concerns have been raised about levels of petroleum and metals in bay sediments. Deep water dredging of the Bay to maintain the shipping channel removes sediments from the deeper portions of the channel, but the dredge spoils are deposited on other sites without remediation for pollutants. In addition pollutants are present in the mudflats that are not subject to dredging. Possible sources of the pollutants include current and former

industrial operations, wastewater treatment plant outfalls, maritime use of the Bay and sloughs, log storage activities, and urban runoff from storm water. Bacteria levels in the Bay are of particular concern due to the potential effects on oyster farms and natural shellfish populations in the Bay that are harvested for human consumption.

Isthmus Slough is considered both bacteria and oxygen limited. DEQ is scheduled to set a total mass daily load (TMDL) for the slough in 2006. The slough is fairly stagnant in the summer and the velocity of water during most of the year is not high enough to provide a scouring action. An anoxic sediment layer has built up that reduces the oxygen level in the water. The slough has been historically and is currently used for log storage, which is a suspected major source of the anoxic sediments. Potential bacteria sources include septic systems, agricultural runoff, pets, urban storm water runoff, and wildlife.

Coalbank Slough is also scheduled for a TMDL in 2006 for bacteria. Potential bacteria sources include septic systems, industrial runoff, pets, agricultural runoff, urban storm water runoff, and wildlife.

A portion of the lower Pony Creek drainage area is located in the study area. Although the outlets and lower drainage basin are located outside of the study area, activities in the study area have a major impact on downstream water quality and flooding.

At this time, no data is available on the characteristics of storm water discharged into local streams and rivers. It is recommended that the City develop a self-monitoring program of sampling and testing storm water discharges from highly developed areas in order to build a baseline database that may be used to guide future storm water treatment decisions.

4.2 Local Ordinances

Internally, the City of Coos Bay has no direct ordinances pertaining to storm water, but follows DEQ requirements. Although the city requires developers to deal with storm water by providing adequate facilities for runoff from the proposed site, the review practice may not adequately address all effected portions of the storm drainage basin.

Consequently, a new development could discharge to an existing storm system regardless of whether the system can handle the flows, even if flooding would likely occur. Similarly, a new development could construct undersized drainage elements, which cause flooding when new, upstream developments increase flows.

The local code officials rely on restrictions in state building codes, specifically Section R327 of the 2000 Oregon Dwelling Specialty Code based on the International Residential Code (IRC) to prevent damage to structures in the floodplain for residential construction. The IRC allows construction in floodplains, but requires occupied spaces and construction materials subject to water damage to be elevated at least one foot above the 100-year flood level. The City implements this provision by requiring residential construction to be above the 10-foot elevation. The new 2003 version of IRC will be adopted by Oregon in October 2004, but an amendment changes the requirements in Section R327 from statewide, to requiring adoption of this section

by each municipality. It is recommended that Coos Bay adopt section R327 by passage of a local ordinance.

The Uniform Building Code (UBC) governs nonresidential construction with provisions for construction in areas prone to flooding as delineated in the approved flood hazard maps used by the jurisdiction. Chapter 31 details the requirements for flood resistant construction for structures built in areas prone to flooding, which are generally directed at preventing damage to the structure.

4.3 Storm Drain Ordinances for Development

Storm drain ordinances ask that developers examine larger drainage issues related to their site. The goal of the ordinances is to provide responsible drainage that deals with upstream and downstream concerns for the present and the future. Large portions of the drainage basins with outlets in the City are located in the County. Coordination of ordinances is recommended between the City and County to provide the best protection for property owners along major drainage ways.

Below is an example of a set of drainage ordinances.

General Provisions

1. *The review body shall approve a development request only when adequate provisions for storm and floodwater runoff have been made as determined by the City Engineer.*
2. *The storm water drainage system shall be separate and independent of any sanitary sewerage system.*
3. *Where possible, inlets shall be provided; ensuring surface water is not carried across intersections or allowed to flood streets.*
4. *Surface water drainage patterns and proposed storm drainage shall be shown on every development proposal plan.*
5. *All proposed storm sewer plans and systems shall be approved by the City Engineer as part of the tentative plat or site plan review process.*
6. *Ditches will not be allowed without specific approval of the City Engineer. Open natural drainage ways of sufficient width and capacity to provide for flow and maintenance may be permitted. By definition, an open natural drainage way is a natural path, which has the specific function of transmitting natural stream water or storm water run-off from a point of higher elevation to a point of lower elevation.*

Easements

Where a subdivision or development property is traversed by a water course, drainage way, channel or stream, there shall be provided a public storm water easement or drainage right-of-way conforming substantially with the lines of such water course and such further width as the City Engineer determines will be

adequate for conveyance and maintenance. Improvements to the drainage way, or streets or parkways parallel to the watercourse may be required.

Accommodation of Upstream Drainage

1. *A culvert or other drainage facility shall be large enough to accommodate potential runoff from its entire upstream drainage area, whether inside or outside of the development.*
2. *The City Engineer shall review and approve the size required of the facility, based on provisions of the Storm Drain Master Plan, and sound engineering principles, assuming conditions of maximum potential watershed development permitted by the Plan.*

Effect on Downstream Drainage

Where it is anticipated by the City Engineer that additional runoff resulting from the development will overload an existing drainage facility, the review body shall withhold approval of the development until provisions have been made for improvement of said potential condition.

In many communities, ordinances require developments to ensure that downstream drainage is not impacted by upstream projects. This can either be imposed by requiring the development to ensure adequate drainage throughout the system (including lower areas) or requiring that storm water generated from the post-development conditions be retained and discharged at rates controlled to predevelopment conditions.

Drainage Management Practices

Development must employ drainage management practices approved by the City Engineer, which minimize the amount and rate of surface water run-off into receiving streams or drainage facilities, or onto adjoining properties. Drainage management practices must include, but are not limited to, one or more of the following:

1. *Temporary ponding or detention of water;*
2. *Permanent storage basins;*
3. *Minimization of impervious surfaces;*
4. *Emphasis on natural drainage ways;*
5. *Prevention of water flowing from the development in an uncontrolled fashion;*
6. *Stabilization of natural drainage ways as necessary below drainage and culvert discharge points for a distance sufficient to convey the discharge without channel erosion;*
7. *Run-off from impervious surfaces must be collected and transported to a natural drainage facility with sufficient capacity to accept the discharge; and*

8. Other practices and facilities designed to transport storm water and improve water quality.

Design Requirements for New Development.

All new development within the City must, where appropriate, make provisions for the continuation or appropriate projection of existing storm sewer lines or drainage ways serving surrounding areas. Extensions may be required through the interior of a property to be developed where the City Engineer determines that the extension is needed to provide service to upstream properties.

NPDES Permit Requirements.

A National Pollutant Discharge Elimination System (NPDES) permit must be obtained from the Department of Environmental Quality (DEQ) for construction activities including clearing, grading, and excavation that disturb one or more acres of land and for industrial users that discharge other than clean storm water.

4.4 Civil Laws

While storm drainage for small cities is not regulated by state or federal agencies, the State of Oregon has civil laws about drainage. The drainage laws, in part, compensate for the lack of ordinances protecting city drainage facilities. A discussion of drainage laws is provided below.

The Oregon Department of Transportation Hydraulics Manual provides a summary of Oregon's drainage law. Below are three basic elements of drainage that must be followed according to civil law as interpreted by ODOT:

1. A landowner may not divert water to adjoining land that would not otherwise flow there. Diverted water is further described by ODOT as water routed from one drainage area to another and water collected and discharged that would normally infiltrate, pond, or evaporate.
2. A landowner may not divert or change the place where water flows onto a lower property. ODOT interprets this element to limit diversion of water from grading and paving work and/or improvements to storm water collection systems.
3. An upper landowner may not accumulate large quantities of water, and then release it, greatly accelerating the flow onto a lower property. The ODOT interpretation notes that noncompliance with this element occurs when the flow of water has been substantially increased.

Some violations of Oregon's drainage law are subjective. Where questions arise, ODOT recommends that its engineering staff acquire easements to avoid the potential for litigation.

Historic or natural drainage ways, which are impacted by development, may no longer be apparent. In such cases, drainage projects should be particularly sensitive to routing drainage across properties that cannot be proven to be the original drainage way. Future developments or

improvements to the existing drainage system should be consistent with the city's legal interpretation of the Oregon drainage law. Generally, the city should acquire easements.

4.5 Future Development

Information provided by City staff was used to project future development. The current zoning maps from the City's Comprehensive Plan were used to project development density and type. For the purposes of this plan and sizing storm drains, areas of future development were considered for both current conditions and at full build out.