Section 1

Introduction

1.1 Background and Need

The City of Coos Bay is a growing community in Coos County, Oregon located along U.S. Highway 101, approximately 30 miles south of Reedsport, and 21 miles north of Bandon. The city is situated on the bay of the Coos River, also named Coos Bay. The current and historical commercial center for the southern coast, Coos Bay and neighboring North Bend form the largest urban area on the Oregon Coast.

Coos Bay is the largest deep-draft coastal harbor between San Francisco Bay and the Puget Sound, and is Oregon's second busiest maritime commerce center. The economy of the area has shifted from the natural resource base of logging and fishing, at its height in the 1970s when Coos Bay was the largest timber shipping port in the world, to manufacturing, tourism, and services.

Visitors attracted to the area enjoy the bay views and access to local beaches, dunes, and outdoor sports. In recent years, the qualities that have made the City a tourist attraction have also drawn new residents and commercial enterprises. While development has provided many benefits to the City and its economy, it has also placed an increased burden on the existing infrastructure. In order to protect the quality of life that has attracted people and commerce, the City has placed a greater emphasis on infrastructure maintenance and improvements. Subsequently, several engineering investigations, road, and sewer improvements have been implemented. Of particular interest to this study is the existing storm drainage system.

Recent growth trends within the City have placed increased demand on the existing storm drain system. In anticipation of continued growth in the near future, the City needs a plan to ensure that new development does not create hydraulic overloads in the older (lower) sections of the storm system. A prioritized list of storm drainage improvement projects that accommodate growth within each section of the City, as well as correct existing system deficiencies, is incorporated into this plan.

1.2 Scope of Engineering Services

The Dyer Partnership has been authorized by the City of Coos Bay to provide master planning and engineering services as further described below. These services will develop a comprehensive Storm Water Master Plan for the downtown/central portion of the City that the City of Coos Bay can use to systematically upgrade its storm water system. The following scope describes the comprehensive approach to planning and addressing storm drainage facilities.

Task 1 – Prepare a watershed map of the subject drainage basins.

A map of the watershed basin will be developed based on current topographic maps, aerial photos, field investigations, city staff information, and site surveys as required. The existing drainage system will be incorporated based on as-built drawings, surface investigation, and city staff knowledge. The map will include the boundaries of sub-basins, direction of drainage, improved streets, existing storm drain facilities, and waterways. The map will be developed in AutoCad 2002 format with 11" x 17" copies bound in the report and one foam board mounted 24" x 36" display copy.

Task 2 – Conduct a hydrology study of the storm runoff in the drainage sheds. Hydrology will consider existing and projected future land uses.

A hydrology study of the area will be performed including an assessment of local soils based on current Coos County soils maps, estimated existing development and impervious area, projected development based on current city planning documents, local topography, city staff input, site investigations, and hyetograph data. A survey crew will be used to site verify elevations as required. The drainage area will be broken into appropriate sub-basins and the information for each basin presented in tabular format. A workshop will be held with city staff to review the hydrology information.

Task 3 – Prepare a hydraulic model of the existing drainage system to determine capacity and inefficiencies within these systems and to identify all current and future flooding problems. Calibrate model based on historic information on flooding.

The information from Task 1 and Task 2 will be used to build a hydraulic model of the drainage system using XP-SWMM 2000 computer software. The model will be calibrated for the existing system using historic data provided by the City, direct field flow measurement for select locations with pipe diameters less than 14-inches during at least one high rainfall period, and with flows calculated from field measurements for select locations for pipes larger than 14-inches. The model will include data sets for 25-year and 50-year storms for both existing and projected conditions based on a 20-year study period. The model input and output data will be tabulated and presented in the Master Plan. Areas of current and future projected deficiencies will be identified and discussed. A drainage basin map will be developed illustrating the location of each deficiency. The results from Task 3 will be presented to the city public works staff prior to developing alternatives for correcting deficiencies.

Task 4 – Identify alternative solutions to drainage and flooding problems, including localized flooding. Prepare cost estimates adequate for comparing alternatives.

Alternatives for each deficiency will be developed, including construction method, cost estimates, present value costs, and pros and cons for each solution.

Task 5 – Evaluate alternative solutions and drainage facilities and make recommendations. Discuss alternatives and recommended facilities with the City and provide supporting data.

The information developed in Task 4 will be presented to the City for discussion and selection of the recommended alternatives. Anticipated future regulations and the general impact of EPA Phase II requirements for MS4 will be presented for guidance. Information on Best Management Practices and current technology will be presented and incorporated into the Master Plan.

Task 6 – Recommend drainage facilities and programs and set priorities for the capital improvement plan.

The alternatives selected in Task 5 will be prioritized and described. A map delineating the existing system with recommended remediation and expansion projects will be prepared for inclusion in the Master Plan. A tabular presentation of the projects in priority order will be prepared. Final cost estimates will include a breakout between anticipated City costs, Developer costs, and costs eligible for SDC funding. An implementation schedule will be provided.

Task 7 – Prepare draft and final master plan reports.

Six copies of the draft plan will be prepared and submitted to the City for review. One copy will be unbound to allow for reproduction by the City. The draft information will be presented at a staff workshop and a public meeting. The draft plan will be revised to incorporate the review comments by the City and address concerns from the public. Ten copies of the final Master Plan will be presented to the City. A presentation will be made at a City Council meeting summarizing the findings. A 24” x 36” map of the drainage system with recommended projects highlighted will be provided as part of the presentation.

Task 8 – Review existing storm water ordinances and funding methods.

The existing storm water ordinances will be reviewed and suggestions made for incorporating clauses to address issues that are discovered during the process of compiling the Master Plan. The effects, based on current funding methods, of recommended improvements will be calculated, and alternative-funding options will be presented.

1.3 Authorization

The firm of THE DYER PARTNERSHIP ENGINEERS & PLANNERS, INC. was retained by The City of Coos Bay to prepare a “Storm Water Master Plan”. The Consultant was authorized to proceed with services on November 18, 2003.

1.4 Funding Agency Acknowledgment

This project was funded, in whole, by the City of Coos Bay and the Urban Renewal Agency for the City of Coos Bay.

1.5 Acknowledgments

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The Dyer Partnership staff that contributed to this report includes: Michael Erickson, Aaron Speakman, Janette Kerbo, and Rachel Arbuckle.