4. Model Ordinances

4.1 Introduction

Chapter 4 is composed of four main sections:

- Introduction
- Zoning
- Design Standards
- Procedures

The introduction includes a description of best management practices (BMPs) and the range of water quality parameters used to measure the effectiveness of BMPs. The remaining three sections are organized by the structure found in most local development codes. The zoning section includes the regulations that apply to the site, including overlay zones. The design standards section includes model regulations that apply to the design of the development, and the procedures section includes model language on the administration of the development code.

The model ordinances contained in this chapter are based on structural and non-structural best management practices. BMPs are methods for improving water quality through development. Non-structural BMPs refer to methods of altering development patterns through the development code, such as stream buffers and retention of the tree canopy. On the other hand, structural BMPs, refer to the actual construction of swales, wet ponds and other such devices to protect and enhance water quality.

4.2 The BMP Matrix

The actual effectiveness of any BMP, whether structural or non-structural, is important when considering what ordinances to implement, and what to specifically require of new development. Unfortunately, the science of determining the effectiveness of BMPs is still new and complicated by the complex nature of water quality. There is a growing body of research that exists on this topic. The BMP matrix provides a synopsis of that research for BMPs that are included in the model ordinances within this chapter.

The matrix outlines a variety of structural and non-structural best management practices. It describes how each of these BMPs may help to address specific water quality parameters. The water quality parameters include:

- sedimentation and erosion
- runoff volumes
- nitrogen, phosphorous metals and other pollutants
- water temperature

These parameters were selected because they are measurable, and there are some quantitative data existing on the topics. These parameters also are commonly encountered in water quality management plans prepared by DEQ to reduce pollutants in a particular stream (see Chapter 2 for more information).

Although it is best to evaluate the effectiveness of any given BMP by looking at studies conducted in areas with a similar climate and landscape, data are not available for all BMPs from areas comparable to the Pacific Northwest. For this reason some of the research used to compile the matrix comes from other parts of the country. It also is important to note that pollutant removal efficiencies, which appear in this matrix, provide only one technique for describing the effectiveness of BMPs. This method of measurement has been chosen because the majority of accessible data on BMPs are expressed in these terms, and because it allows for consistency and comparability of numbers. It should be noted that ten or more years may be necessary to monitor, observe and analyze conditions to relate the changes in water quality to non-point source control efforts. For this reason, estimates of BMP load reduction capabilities will become more accurate with ongoing studies.

At-a-Glance Guide to BMP Effectiveness

The BMP matrix on the following pages includes ratings for each combination of BMP and water quality parameter. The ratings include:

<Effective> - Research indicates improved water quality through implementation of the BMP.

<Inconclusive> - Research does not conclusively indicate that implementation of the BMP improves water quality.

For example, the implementation of a stream buffer, a non-structural BMP, is an “effective” way to reduce sedimentation in a stream. On the other hand, it is “inconclusive” whether a vegetated filter strip has any effect on runoff volumes.