

CITY OF AUBURN

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Public Works

# Surface Water Management Manual November 2009

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City of Auburn  
Department of Public Works  
25 West Main  
Auburn, WA 98001-4998

**Notice**

This manual was developed and written by the City of Tacoma Environmental Services Maintenance Division and Science and Engineering Division staff. It has been modified for use within the City of Auburn with written permission from the City of Tacoma.

## **Acknowledgement**

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# Preface

This manual provides guidance on the measures necessary to control the quantity and quality of stormwater produced by new development and redevelopment. This guidance contributes to the protection of receiving waters and is in compliance with the Washington State Department of Ecology (Ecology) water quality standards. These water quality standards include:

- Chapter 173-200 WAC, Water Quality Standards for Groundwaters of the State of Washington
- Chapter 173-201A, Water Quality Standards for Surface Waters of the State of Washington
- Chapter 173-204, Sediment Management Standards

## Objective

The objective of this manual is to establish minimum requirements for development and redevelopment projects of all sizes in the City of Auburn. It does this by providing guidance concerning how to prepare and implement stormwater site plans. The minimum requirements are satisfied by the application of Best Management Practices (BMPs). This manual is applicable to all types of land development – including residential, commercial, industrial, and roads.

This manual can also be helpful in identifying options for retrofitting BMPs at existing development sites where appropriate. In such situations, application of BMPs from this manual is encouraged. The City recognizes, however, that there can be site constraints that make the strict application of these BMPs difficult.

This manual is designed to be equivalent to Ecology's 2005 Stormwater Management Manual for Western Washington. Ecology considers its manual to include all known, available and reasonable methods of prevention, control, and treatment (AKART). Ecology's manual has no independent regulatory authority. However, Ecology has required as a condition of the City's General Permit for Discharges from Municipal Separate Storm Sewers, the adoption of stormwater program components that are the substantial equivalent to the minimum requirements found in Ecology's 2005 manual.

The primary reason for using BMPs is to protect beneficial uses of water resources through the reduction of pollutant loads and concentrations, and through reduction of discharges (volumetric flow rates) causing stream channel erosion. If it is found that, after the implementation of BMPs advocated in this manual, beneficial uses are still threatened or impaired, additional controls may be appropriate.

To accomplish these objectives the manual includes the following:

- **Minimum Requirements** that cover a range of issues, such as preparation of Stormwater Site Plans, pollution prevention during the construction phase of a project, control of potential pollutant sources, treatment of runoff, control of

stormwater flow volumes, protection of wetlands, and long-term operation and maintenance. The Minimum Requirements applicable to a project vary depending on the type and size of the proposed project.

- **Best Management Practices (BMPs)** that can be used to meet the minimum requirements. BMPs are defined as schedules of activities, prohibitions of practices, maintenance procedures, managerial practices, or structural features that prevent or reduce adverse impacts to waters of Washington State. BMPs are divided into those for short-term control of stormwater from construction sites, and those addressing long-term management of stormwater at developed sites. Long-term BMPs are further subdivided into those covering management of the volume and timing of stormwater flows, prevention of pollution from potential sources, and treatment of runoff to remove sediment and other pollutants.
- **Guidance on how to prepare and implement Stormwater Site Plans.** The Stormwater Site Plan is a comprehensive report that describes existing site conditions, explains development plans, examines potential offsite effects, identifies applicable Minimum Requirements, and proposes stormwater controls for both the construction phase and long-term stormwater management. The project proponent submits the Stormwater Site Plan to the City of Auburn for review, and the City uses the plan to evaluate a proposed project for compliance with stormwater requirements.

It is not the intent of this manual to make the City of Auburn a guarantor or protector of public or private property with regard to land development activities.

## **Organization of this Manual**

The Surface Water Management Manual is divided into six volumes:

- **Volume I** defines the geographic scope of the manual, provides the information on stormwater flow and quality control, and describes how to prepare and implement a Stormwater Site Plan.
- **Volume II** describes BMPs for short-term stormwater management at construction sites.
- **Volume III** covers hydrologic analysis and BMPs to control flow volumes from developed sites.
- **Volume IV** describes BMPs to minimize pollution generated by potential pollution sources at developed sites.
- **Volume V** presents BMPs to treat runoff that contains sediment or other pollutants from developed sites.
- **Volume VI** presents BMPs for low impact development.

A **Glossary** at the end of the manual defines terminology used in all six volumes. A list of **References** provides both source documentation and a list of additional information resources.



## How to Use this Manual

This manual is designed for a variety of users.

- Project proponents should start by reviewing the minimum requirements described in Volume I. Volume I also describes a Stormwater Site Plan and provides guidance on how to develop this plan.
- City staff will use this manual to review Stormwater Site Plans, check BMP designs and provide technical advice to project proponents. City staff will also use this manual as a reference when designing public works projects. All development and redevelopment projects within the City of Auburn shall meet the requirements of this manual unless specifically exempted by this manual or the City Engineer.
- The City Engineer shall have authority to modify requirements to protect the health, safety or welfare of the public on the basis of information regarding threatened water quality, erosion problems or potential habitat destruction, flooding, protection of uninterruptible services, or endangerment to property. The City Engineer shall also have the authority to modify requirements based upon increases in requirements imposed by state or federal agencies, where existing requirements are not applicable to the particular site, or other pertinent factors.
- Permits may refer to this manual or the BMPs contained in this manual. In those cases, affected permit-holders or applicants should use this manual for specific guidance on how to comply with those permit conditions.

Where requirements in this manual are also mandated by any other law, ordinance, resolution, rule or regulation, the more restrictive requirement shall apply.

**Note:** Drawing and detail figures included throughout these volumes are intended for illustrative purposes only. Where any discrepancy exists between figure elements and specific design criteria, the design criteria shall take precedence.

## Development of Best Management Practices (BMPs) for Stormwater Management

The method by which this manual controls the adverse impacts of development and redevelopment is through the application of Best Management Practices.

### Best Management Practices (BMPs)

Best Management Practices are defined as schedules of activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices, that when used singly or in combination, prevent or reduce the release of pollutants and other adverse impacts to waters of Washington State. The types of BMPs are source control, treatment, and flow control. BMPs that involve construction of engineered structures are often referred to as facilities in this manual. For instance, the BMPs referenced in the menus of Chapter 2 in Volume 5 are called Treatment Facilities.

### Source Control BMPs

Source control BMPs **prevent or reduce** pollution, or other adverse effects of stormwater, from occurring. In this manual, source control BMPs are classified as operational or structural. Examples of source control BMPs include methods as various as using mulches and covers on disturbed soil, putting roofs over outside storage areas, and berming areas to prevent stormwater run-on and pollutant runoff.

It is generally more cost-effective to use source controls to prevent pollutants from entering runoff than to treat runoff to remove pollutants.

### Treatment BMPs

Treatment BMPs include facilities that **remove** pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, and soil adsorption. Treatment BMPs can accomplish significant levels of pollutant load reductions if properly designed and maintained.

### Flow Control BMPs

Flow control BMPs typically control the rate, frequency, and flow duration of stormwater surface runoff. The need to provide flow control BMPs depends on whether a development site discharges to a stream system or wetland, either directly or indirectly. Stream channel erosion control can be accomplished by BMPs that detain runoff flows and also by those which physically stabilize eroding stream banks. Both types of measures may be necessary. Only the former is covered in this manual. The size of such a facility can be reduced by changing the extent to which a site is disturbed.

In regard to wetlands, it is necessary to not alter the natural hydroperiod. This means control of flows from a development such that the wetland is within certain elevations at different times of the year and short-term elevation changes are within the prescribed limits. If, however, the wetland was fed by local groundwater elevations during the dry season, the impervious surface additions and the bypassing practice may cause variations from the dry season elevations which might need mitigation.

The city has additional requirements that are related to surface water management, including wetlands, critical areas, and flood protection. Refer to the City of Auburn Code.

## **Related Documentation**

### **Department of Ecology's Stormwater Management Manual**

This manual was modeled after the Stormwater Management Manual for Western Washington, published by the Department of Ecology in February, 2005. Ecology's stormwater manual was originally developed in response to a directive of the Puget Sound Water Quality Management Plan (PSWQA 1987 et seq.). The Puget Sound Water Quality Authority (since replaced by the Puget Sound Partnership) recognized the need for overall guidance for stormwater quality improvement. It incorporated requirements in its plan to implement a cohesive, integrated stormwater management approach through the development and implementation of programs by local jurisdictions, and the development of rules, permits and guidance by Ecology.

The Puget Sound Water Quality Management Plan included a stormwater element (SW-2.1) requiring Ecology to develop a stormwater technical manual for use by local jurisdictions. Ecology's original stormwater manual (the Stormwater Management Manual for the Puget Sound Basin, published in 1992) was developed to meet this requirement. In the years hence Ecology updated its stormwater management guidance and requirements applicable to all of western Washington. Refer to Volume I, Appendix A for the regulatory requirements which support the relationship between the Auburn manual and Ecology's manual.

### **Applicable Federal, State and Local Regulatory Requirements**

Refer to Volume I, Appendix A for all applicable federal, state, and local regulatory requirements for this manual.

- Endangered Species Act
- Section 401 Water Quality Certifications
- Puget Sound Water Quality Management Plan
- Ecology NPDES Program
- Hydraulic Project Approvals
- Aquatic Lands Use Authorizations
- Watershed/Basin Planning
- Total Maximum Daily Loads
- Underground Injection Control Authorization

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