

## Stormwater Management Program – Project Development

Water quality enhancement planning begins early in the project development process. ODOT Project Development Directive [PD-05](#) explicitly states scoping for projects “shall include identifying opportunities to improve the quality of highway runoff”. A conceptual diagram of how water quality planning and design fits into project development per [PD-02](#) is shown in the figure.

Scoping and Baseline reports identify water resources that could be impacted by stormwater discharges from the project, and also opportunities for treatment as well as constraints. During the initial design, roadway designers incorporate linear treatment techniques that do not require hydraulic engineering. The proposed treatment is then analyzed to see if it will meet water quality goals set by ODOT's [Hydraulics Manual](#) and resource and regulatory agencies. If they do not meet the required standards, Hydraulic Engineers investigate additional treatment options. Selection of the treatment techniques for a project is aided by the Best Management Practices ([BMP Selection Tool](#)). This tool was developed under the direction of the multi-agency Stormwater Action Team (SWAT) . By the time the Design Acceptance Package (DAP) is complete, a conceptual Stormwater Management Plan has been developed. The type and location of treatment facilities have been determined and regulatory and resource agencies have reviewed and unofficially approved the plan.

Following the DAP, the detailed design of treatment facilities begins. Design criteria for the standard BMPs are in the ODOT Hydraulics Manual [Chapter 14: Water Quality](#). Innovative techniques or modifications of standard designs are accommodated through the ODOT Design Exception Process (DEP). Through the DEP, the designs are reviewed by engineering staff to ensure that they meet the best standards available, allowing for cost and performance tracking of the facility. Designs that perform well will be included in the updated Hydraulics Manual. Once the stormwater treatment facility design is complete, the project-specific Stormwater Management Plan for regulatory approval is assembled. Depending on the project and resources affected, this plan is submitted to National Marine Fisheries Services (NMFS), United States Fish and Wildlife Service (USFWS) and Oregon Department of Environmental Quality (DEQ).

### When Does ODOT Treat Stormwater?

ODOT and the other agencies on the SWAT jointly define the type of project elements that trigger the need to address stormwater quality. As detailed in the ODOT [Hydraulics Manual](#), they include:

- Increasing impervious surface area
- Changing the Contributing Impervious Area (CIA)
- Changing the stormwater conveyance system (type, location, distance, direction or endpoint)
- Replacing or widening stream crossing structures
- Requiring a Clean Water Act Section 404 permit and actively involve impervious surfaces.

This means that new highways, highway widening, highway realignment, new or expanded bridges and culverts, urbanization features (such as curbs), and changes in drainage systems must all address water quality in their designs.

## How Does ODOT Manage its Stormwater?

ODOT's Water Quality Objectives are explicitly stated in the ODOT [Hydraulics Manual](#). They are:

- Treat all the runoff from a project's Contributing Impervious Area
- Generated by the Water Quality Design Storm
- By using Preferred Best Management Practices.

Treatment techniques used on a project will vary depending on the characteristics of the project and the location. Early treatment techniques focused on the removal of fine sediment, since many highway runoff pollutants tend to bind to small particles. As awareness of the effects of dissolved pollutants on the environment has increased, treatment techniques that involve infiltration into the soil or filtration through media have advanced.

The SWAT has designated certain treatment techniques as "Preferred BMPs". Selection of the most appropriate treatment techniques is supported by the BMP Selection Tool. The tool incorporates both a process for evaluating and choosing BMPs and selection criteria, including effectiveness against the different pollutants, sizing and siting criteria, construction and maintenance costs and other considerations. These are BMPs that were assessed as having a high level of effectiveness against multiple classes of pollutants. Preferred BMPs are the first option evaluated for any project. When project specific constraints make their use infeasible, other BMPs are evaluated. The second option is to combine BMPs to provide equivalent pollutant removal capability. Actual design criteria are presented in the ODOT Hydraulics Manual.

Water quality treatment facilities may be large and obvious, such as the wet detention pond near the north Medford interchange off of I-5. They may also be small, easily overlooked features such as vegetated roadside ditches or may consist of simple techniques such as closing off bridge scuppers and directing stormwater through native vegetation. ODOT divides BMPs into those that require hydraulic analysis and design ("engineered" BMPs) and those that do not. The latter constructed up through 2006 have been cataloged in the Operations and Maintenance Master Inventory. ODOT is developing a comprehensive Water Quality Treatment Facility Asset Management database that will keep the inventory of "engineered" BMPs up to date and will incorporate the "non-engineered" BMPs into the database.