

*DRAFT*

**CONSTRUCTION ACTIVITY ASSESSMENT  
AND EVALUATION PLAN**

for the  
McKenzie River Watershed, Oregon



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## **Introduction**

The McKenzie River is the sole source of drinking water for more than 200,000 people in Eugene and surrounding communities. In October 2000, EWEB developed a drinking water source protection plan, which included a risk assessment of all potential threats to this valuable source of drinking water. The high threat categories included stormwater outfalls, urban runoff, hazardous materials spills, agricultural activities and forest management activities (EWEB, 2000).

The Construction Activities Assessment in the McKenzie watershed implements a portion of EWEB's drinking water source protection program (EWEB, 2000; EWEB, 2001a). The overall concept of drinking water source protection is to have the ability to measure the balance between watershed health and human use over time and implement actions that maintain a healthy balance for production of exceptional water quality. This requires not only being aware of all the different human activities going on within the watershed, but also requires understanding the limits of what the river can handle and still maintain a healthy watershed with good water quality. EWEB's source protection program consists of the following eight subprograms:

- ? Comprehensive Monitoring;
- ? Disaster Preparedness and Response;
- ? Education and Research Assistance;
- ? Point Source Evaluation and Mitigation;
- ? Nonpoint Source Evaluation and Mitigation;
- ? Land Acquisition;
- ? Public Outreach and Information Sharing; and,
- ? Watershed Land Use Tracking and Management.

EWEB received Oregon Department of Environmental Quality Section 319 grant funds to implement the nonpoint sources of pollution evaluation and mitigation subprogram. Specifically, implementation of this subprogram includes inventorying, mapping and assessing the risk associated with forestry or silviculture activities, septic systems, agricultural activities, and building or construction activities in the McKenzie River watershed upstream of EWEB's intake at Hayden Bridge. Stormwater and urban runoff is not included in this effort because EWEB is already working with partner agencies to assess the potential impacts from this nonpoint source of pollution (NPS).

All work conducted under this grant will be accomplished using ArcGIS, a geographic information system (GIS) tool that allows for efficient data management and provides powerful data analysis and map production. The purpose of this report is to provide the various agencies, businesses, organizations, landowners, and other interested parties with basic information about the proposed project approach, objectives, scope, tasks, and outcomes as a starting point for discussing the best approach for this baseline assessment.

## **Potential Threat from Construction Activities**

It is well known that construction activities rank as one of the main sources of sediment pollution to stormwater conveyance systems and receiving water bodies. The effects of excessive sediment loading on receiving streams and rivers includes deterioration or destruction of aquatic habitat, destruction of spawning areas, deterioration of aesthetic value, loss of storage capacity in reservoirs, increased wear and tear on hydroelectric and water intake equipment, increased water treatment costs, and transport of pollutants such as metals, nutrients, organochlorine pesticides, PCBs and other organic compounds (Schueler and Holland, 2000; Novotny and Olem, 1994).

Construction activities were considered seventh among Oregon's statewide nonpoint pollutants, contributing only 3% of the total estimated amount of pollutants from nonpoint sources in 1994 (DEQ, 1994). Yet, without proper controls, construction activities can contribute to the sediment loads on streams and rivers at a rate of 35-45 tons per disturbed acre (GOA, 1998). It also takes an entire year after the completion of the development for an area to fully recover and become established to minimize construction related pollution runoff (Novotny and Olem, 1994). The population in the Willamette basin grew 47% between 1970 and 1995 and is projected to double from 2.2 million to 4.4 million by the year 2025 (GOA 1998). Growth in population generally leads to development.

The McKenzie River typically has low levels of suspended sediment even during storm events. However, recent events in the Santiam watershed (1996 floods) and McKenzie watershed (2002 Cougar Dam release) show how increased sediment in drinking watersheds can lead to extensive problems with downstream water treatment plants (Hulse, et. al. 2002; PNW, 2003). For EWEB, increased sediment and nutrient loads in the raw water results in higher treatment costs and increased potential of producing disinfection by-products. Also, for drinking water systems, an increase in turbidity may cause interference with chlorination (NRC, 2000). Due to these factors and the increased levels of new development in the McKenzie watershed and City of Springfield, there is a need to assess and evaluate potential impacts from construction related activities to the McKenzie River and its tributaries.

EWEB has conducted storm event and monthly baseline monitoring of the lower McKenzie River watershed (between Hayden and Hendricks bridges) since October 2001 (EWEB, 2001b) (Figure 1). Preliminary results of this effort show that:

- 1) Runoff from storm events are responsible for the majority of pollution that reaches the river;
- 2) Camp and Cedar Creeks tend to have high turbidity levels that increase in October and continue to increase through the winter months.
- 3) The turbidity levels tend to be highest down stream of storm sewer outfalls.

## **Purpose, Objectives and Scope**

The purpose of this assessment is to collect data on existing and future construction activities in the McKenzie watershed and through GIS mapping and water quality

monitoring, evaluate the impacts that current construction practices are having on the water quality of the McKenzie River. This baseline data will be used to evaluate trends over time to identify impacts before they become a drinking water problem. The McKenzie River has excellent drinking water quality. The goal of EWEB's drinking water source protection program is to maintain this level of quality for future generations of customers.

The idea is to focus on monitoring specific areas in the watershed where there are large amounts of land under development. If potential problems exist, EWEB and partner organizations would work with construction companies, local regulatory agencies, and other partners to implement actions that would reduce run off to nearby water ways while helping developers comply with construction erosion control requirements.

The objectives of the construction activities assessment project are to:

- ? Begin communication with stakeholders such as Lane County Land Management, City of Springfield, the Board of Construction Contractors, McKenzie Watershed Council, and others to share information and engage in a meaningful discussion about the current construction practices and ways to help contractors and developers mitigate sediment run-off from construction sites;
- ? Develop a schedule and process for entering the newly permitted construction site information into GIS;
- ? Periodically identify and target stream and/or storm water basins where clusters of construction activities are occurring for water quality monitoring;
- ? Determine from the monitoring results if targeted areas are impacting the water quality of the receiving stream and/or the McKenzie River;
- ? With the help of the City of Springfield and Lane County, work with willing contractors and construction companies to implement on-site strategies for erosion control; and,
- ? Initiate and strengthen long-term relationships and cooperation among EWEB, contractors, and regulatory agencies.

To achieve these objectives the following general tasks will be conducted:

1. Collect information from Lane County and City of Springfield on building permits from 2003-04 and enter data into GIS;
2. Map construction activities above EWEB's intake and select basins that have a cluster of construction activities for conducting water quality monitoring during storm events;

3. If high sediment levels are discovered that can be linked to construction activities in that basin, EWEB will work with contractors and regulatory agencies mitigate the problem through erosion control techniques; and,
4. Setup a process to update construction activities in the watershed and continue to evaluate areas with new construction on a regular basis.

**Existing Construction Activity Data**

Lane County Land Management provided all building permit data for the last five years. EWEB contracted with Lane Council of Governments (LCOG) to bring into GIS only those construction related activities that may involve site disturbances (Figure 2). City of Springfield building permit data has not been obtained yet.

**Existing Construction Practices and Laws**

In 2002 the Oregon Department of Environmental Quality (DEQ) implemented Phase II of the NPDES, which requires all disturbance which are on a parcel of land one acre or larger to go through a permitting process. Also if a parcel is smaller than one acre but is part of a larger development, the developer is required to have a permit that covers the development and/or verification of an overall plan that contains specific procedures and controls to minimize erosion and impacts to nearby water bodies for the entire development area , before that smaller parcel may be disturbed. Within the permitting process there is the requirement to: “develop, submit, and fully implement an erosion and sediment control plan that is approved by the DEQ or a DEQ agency prior to initiating any on site activities” (DEQ 2002).

The City of Springfield and Lane County building codes require approval of grading plans, soil & geology reports, and erosion and control plans prior to issuing a grading permit. Application forms provide applicants with resources to better understand and learn about the various erosion and control methods available and how they are implemented on a job site.

**Project Timeline**

Distribute Plan and Contact Stakeholders	March 2005
Collect Data on Construction Activities	January 2005 to September 2005
Conduct Initial GIS Analysis	February to March 2005
Make Initial Analysis Results Available	April 2005
Revise GIS Analysis Based on Feedback	April to May 2005
Share GIS Analysis Result	May 2005

Select Monitoring Sites	May 2005
Conduct Storm Monitoring	May to June 2005
Meet to Share Analytical Results	September 2005
Hold Brainstorm Sessions	September to October 2005
Draft & Final Project Reports	September to November 2005
Meet to Discuss New Approaches/Projects	November 2005

### **Summary of Potential Stakeholders and Partners**

The following list of potential stakeholders and partners that may have an interest in participating in this project are summarized in Table 1. It is anticipated that this table will change after initial discussions with the various agencies, organizations, landowners, growers, and businesses listed in Table 1.

**TABLE 1**  
**Summary of Construction Activities Stakeholders**

<b>Organization Name</b>	<b>Contact Information</b>	<b>Potential Role</b>
McKenzie Watershed Council	Megan Finnessy	Data sharing, coordinate w/council partners, monitoring, assistance w/landowners
Lane Council of Governments	Bob Denouden	Data sharing, GIS analysis support
City of Springfield	Sunny Washburn	Data sharing, monitoring, regulatory
Lane County Land Management	Jim Marks	Data sharing, monitoring, regulatory
Oregon Department of Environmental Quality	Rachel Burr	319 grant administrator, project coordination

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