

# BEAR CREEK WATERSHED TMDL CHAPTER II WATER QUALITY MANAGEMENT PLAN (WQMP) HUC # 1710030801



Local students led by AmeriCorps plant wetland species as part of a stormwater wetlands project



Students get their hands wet at the living stream exhibit as part of the annual Bear Creek Watershed Symposium



Secretary of the interior, Bruce Babbitt speaks during the removal ceremony for the Jackson Street dam in 1998



In 2005 ODOT undertakes a project to improve fish passage under Interstate 5 on Griffin Creek

December 2006

Prepared by Oregon Department of Environmental Quality With Submissions by: Oregon Department of Forestry, Oregon Department of Agriculture, Oregon Department of Transportation, USDA Forest Service



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**Statement of Purpose**

This Water Quality Management (WQMP) document has been prepared as part of Oregon's commitment to meet the requirements of Section 303(d) of the 1972 Federal Clean Water Act.

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## **CHAPTER II: BEAR CREEK WATERSHED WATER QUALITY MANAGEMENT PLAN**

### **INTRODUCTION**

This document describes strategies for implementing and achieving the Bear Creek Watershed Total Maximum Daily Load (TMDL). The main body of this text has been compiled by the Oregon Department of Environmental Quality (DEQ) with assistance from the Designated Management Agencies (DMAs) in the watershed and includes a description of activities, programs, legal authorities, and other measures for which DEQ and the other DMAs have regulatory authority. This WQMP provides the overall framework describing the management efforts which will be implemented to attain the Bear Creek Watershed TMDL. Appended to this document are specific guidance and Implementation Plans which describe each management agencies existing or planned efforts to implement their portion of the TMDL. This relationship is presented schematically in Figure 1, below.

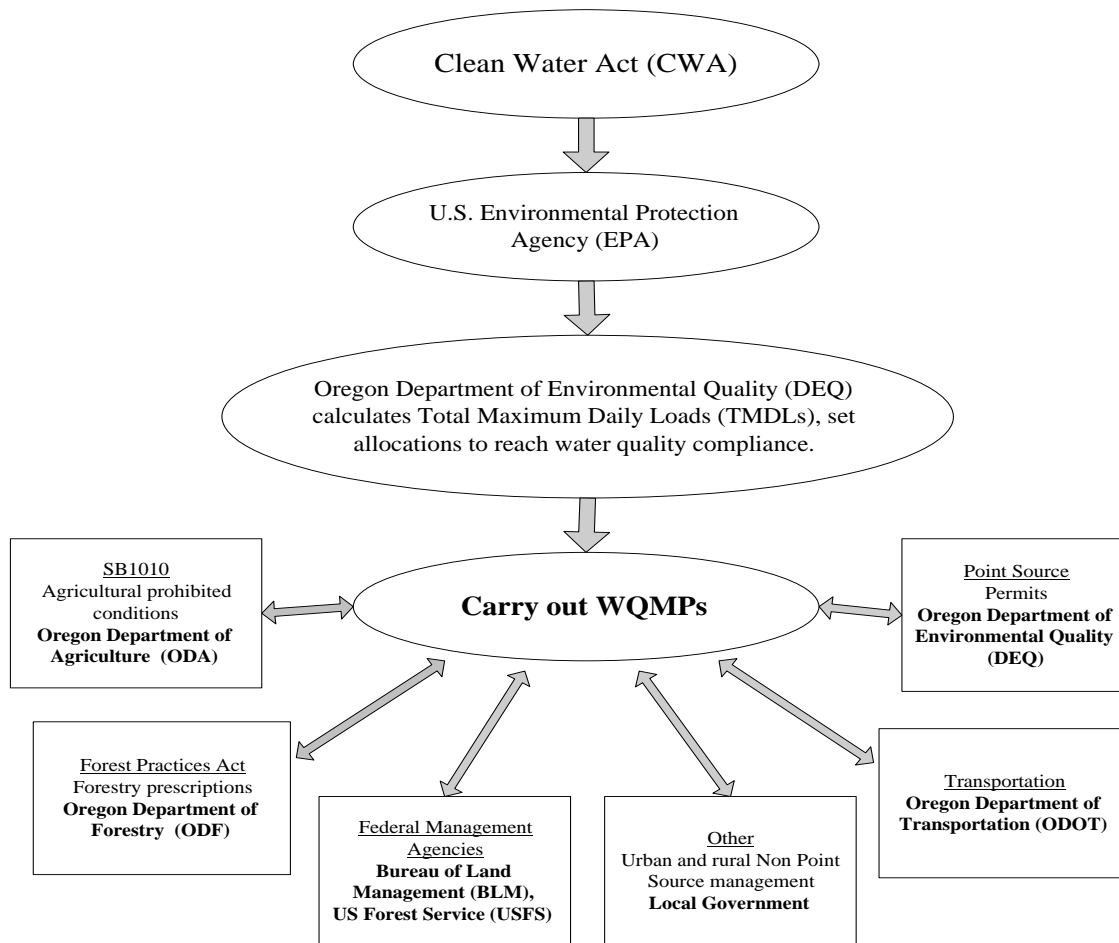
The focus of this WQMP is to demonstrate how TMDLs will be implemented in the Bear Creek Watershed. It builds upon existing point and nonpoint source Implementation Plans to outline a management approach for all land uses in the subbasin. Its organization incorporates the 10 plan elements described in a Memorandum of Agreement (MOA) between DEQ and the US Environmental Protection Agency (EPA).

### **BEAR CREEK DESIGNATED MANAGEMENT AGENCIES**

Designated Management Agencies (DMAs) are recognized by the State of Oregon as being those entities with the legal authority to ensure that the targets set forth in the TMDL are met (Oregon Administrative Rule OAR 340-042-0030 (2)). What follows is a listing of the DMAs in Bear Creek Watershed by land use and their responsibilities under the TMDL. Also included are contacts for more information.

***NOTE:** The term “zoning” may be used synonymously with “land use” in this document. However, in many cases it is the land use itself which determines which DMA has the authority and, therefore, which Implementation Plan is applicable.*

**Figure 1. TMDL/WQMP/Implementation Plan Schematic**



**DMA:** Jackson County, Cities of Ashland, Talent, Phoenix, Medford, Central Point, Jacksonville.

**Land Use:** Urban/Nonresource land uses in the Bear Creek Watershed

- Urban/Nonresource land uses will be covered in the Implementation Plans for Jackson County, Cities of Ashland, Talent, Phoenix, Medford, Central Point, Jacksonville to the extent of their authority.
- All urban, nonagricultural, nonforestry-related land uses including transportation uses (road, bridge, and ditch maintenance and construction practices)
- Sewer and septic systems as related to human habitation
- Designing and siting of housing/home, commercial, and industrial sites in urban and rural areas
- Golf Courses
- Other land uses as applicable to the TMDL

**DMA:** Oregon Department of Agriculture

**Land Use:** Agriculture

Agricultural land uses are addressed in the *Bear Creek Agricultural Water Quality Management Area Plan* as required by Senate Bill 1010. Contact Eric Nusbaum, Oregon Department of Agriculture, (541) 302-3043 for more information. The land uses falling under this category include:

- ~~Agricultural or farm-related activities, both commercial and noncommercial including livestock stable and~~

- pastures, both inside and outside of municipal boundaries
- Confined animal feeding operations (CAFO) and container nursery operations

**DMA:** Oregon Department of Forestry

**Land Use: Forestry on Private Lands**

Private lands' forestry uses are addressed in the Forest Practices Act. Contact Dan Thorpe, Oregon Department of Forestry, (541) 664-3328 for more information. The forest management activities covered under the Forest Practices Act are included in the following general categories:

- Harvesting or Salvaging Trees
- Site Preparation and Reforestation
- Chemical Application
- Clearing Forest Land for Nonforest Uses
- Road Construction and Improvements
- Precommercial Thinning Slash Disposal

**DMA:** USDI-Bureau of Land Management, USDA-Forest Service

**Land Use: Federal Lands – USFS and BLM**

Land uses on Federal Lands are addressed in the Northwest Forest Plan, associated Aquatic Conservation Strategy, and Water Quality Management Plan for the Bear Creek Watershed. Contact Chris Park, USFS, (541) 858-2200 or Laurie Lindell, BLM, (541) 618-2200 for more information.

**DMA:** Oregon Department of Transportation

**Land Use: Roads, Highways and Bridges**

State road issues are addressed in "Routine Road Maintenance, Water Quality and Habitat Guide Best Management Practices, July 1999." Contact ODOT District Manager, John Vial, (541) 774-6355 for more information.

**DMA:** US Bureau of Reclamation

**Land Use: Emigrant Dam**

The US Bureau of Reclamation in partnership with the Talent Irrigation District controls operations related to Emigrant Dam. Contact Leo Busch, USBOR (503) 389-6541 or Jim Pendelton District Manager TID 541-535-1529

**DMA:** Talent, Medford, Rogue River Valley Irrigation Districts

**Land Use: Irrigation water transport and delivery.**

The Talent, Medford, and Rogue River Valley Irrigation Districts control operations related to irrigation water transport and delivery in the Bear Creek Watershed. Jim Pendelton District Manager TID 541-535-1529, Carol Bradford District Manager MID 541-779-1462, Jeff Eicher District Manager RRVID 541-773-6127 for more information.

**DMA:** NPDES Permitted Operations

**Land Use: Variable Permitted Sources**

Point sources are addressed through the National Pollution Discharge Elimination System (NPDES). Permits are issued by Department of Environmental Quality (DEQ). Contact Jon Gasik, DEQ, (541) 776-6010 for more information.

## ADAPTIVE MANAGEMENT

The goal of the Clean Water Act and associated Oregon Administrative Rules (OARs) is that water quality standards shall be met or that all feasible steps will be taken toward achieving the highest quality water attainable. This is a long-term goal in many watersheds, particularly where nonpoint sources are the main concern. To achieve this goal implementation must commence as soon as possible.

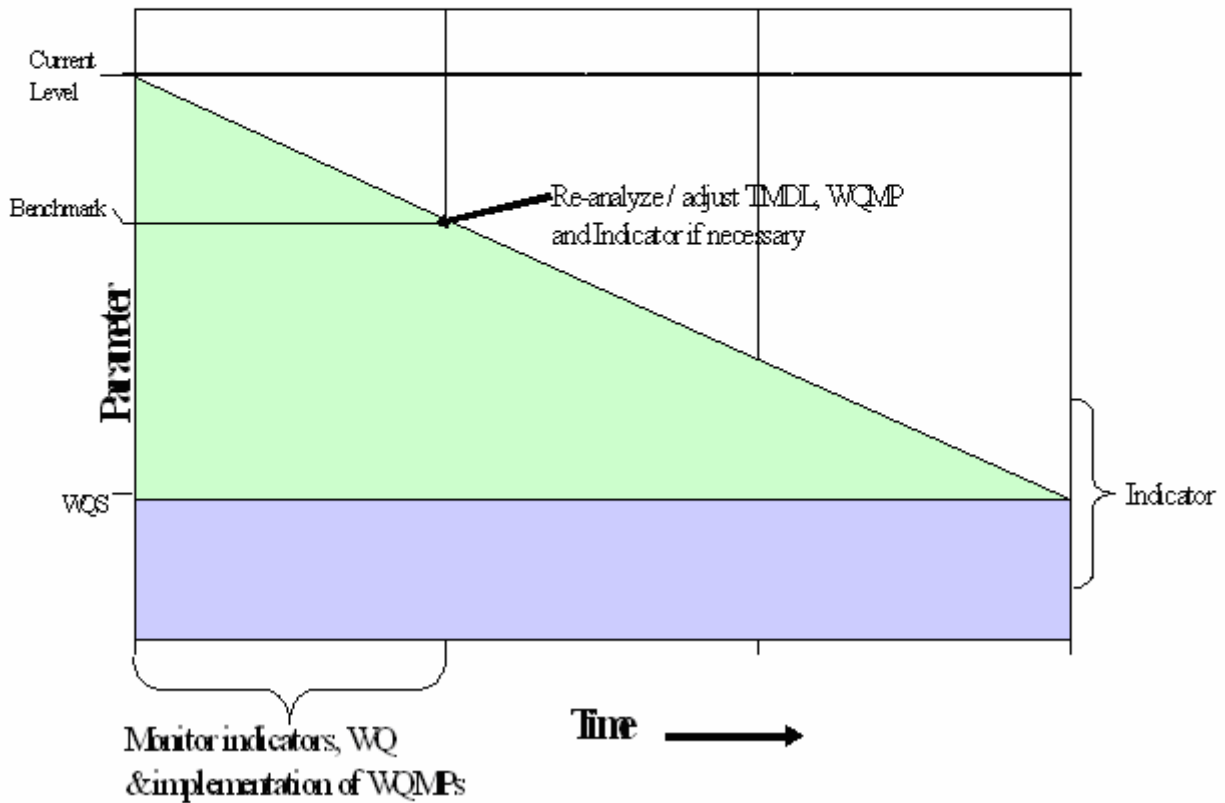
TMDLs are numerical loadings that are set to limit pollutant levels such that in-stream water quality standards are met. DEQ recognizes that TMDLs are values calculated from mathematical models and other analytical techniques designed to simulate and/or predict very complex physical, chemical and biological processes. Models and

techniques are simplifications of these complex processes and, as such, are unlikely to produce an exact prediction of how streams and other waterbodies will respond to the application of various management measures. It is for this reason that the TMDL has been established with a margin of safety.

WQMPs are plans designed to reduce pollutant loads to meet TMDLs. DEQ recognizes that it may take some period of time - from several years to several decades - after full implementation before management practices identified in a WQMP become fully effective in reducing and controlling pollution. In addition, DEQ recognizes that technology for controlling nonpoint source pollution is, in many cases, in the development stages and will likely take one or more iterations to develop effective techniques. It is possible that after application of all reasonable best management practices, some TMDLs or their associated surrogates cannot be achieved as originally established. Figure 2 is a graphical representation of this adaptive management concept.

# ADAPTIVE MANAGEMENT

( Involves all parties )



**Figure 2. Adaptive Management**

DEQ also recognizes that, despite the best and most sincere efforts, natural events beyond the control of humans may interfere with or delay attainment of the TMDL and/or its associated surrogates. Such events could be, but are not limited to, floods, fire, insect infestations, and drought.

In the Bear Creek Watershed TMDLs, pollutant surrogates have been defined as alternative targets for meeting the TMDLs. The purpose of the surrogates is not to bar or eliminate human access or activity in the basin or its riparian areas. It is the expectation, however, that this WQMP and the associated DMA-specific Implementation Plans will address how human activities will be managed to achieve the surrogates. It is also recognized that full attainment of pollutant surrogates (system potential vegetation, for example) at all locations may not be feasible due to physical, legal or other regulatory constraints. To the extent possible, the Implementation Plans should identify potential constraints, but should also provide the ability to mitigate those constraints should the opportunity arise. For instance, at this time, the existing location of a road or highway may preclude attainment of system potential vegetation due to safety considerations. In the future, however, should the road be expanded or upgraded, consideration should be given to designs that support TMDL load allocations and pollutant surrogates such as system potential vegetation.

If a source is not given a load allocation, it does not necessarily mean that the source is prohibited from discharging any wastes. A source may be permitted to discharge by DEQ if the holder can adequately demonstrate that the discharge will not have a significant impact on water quality over that achieved by a zero allocation. For instance, a permit applicant may be able to demonstrate that a proposed thermal discharge would not have a measurable detrimental impact on projected stream temperatures when site temperature is achieved. Alternatively, in the case where a TMDL is set based upon attainment of a specific pollutant concentration, a source may be permitted to discharge at that concentration and still be considered as meeting a zero allocation.

If a nonpoint source that is covered by the TMDLs complies with its finalized Implementation Plan it will be considered in compliance with the TMDL. In employing an adaptive management approach to the TMDLs and the WQMP, DEQ has the following expectations and intentions:

- Subject to available resources, on a five-year basis, DEQ intends to review the progress of the TMDLs and the WQMP.
- In conducting this review, DEQ will evaluate the progress towards achieving the TMDLs (and water quality standards) and the success of implementing the WQMP.
- DEQ expects that each DMA will also monitor and document its progress in implementing the provisions of its Implementation Plan. This information will be provided to DEQ for its use in reviewing the TMDL.
- As implementation of the WQMP and the associated Implementation Plans proceeds, DEQ expects that DMAs will develop benchmarks for attainment of TMDL surrogates, which can then be used to measure progress.
- Where implementation of the Implementation Plans or effectiveness of management techniques is found to be inadequate, DEQ expects management agencies to revise the components of their Implementation Plan to address these deficiencies.

If DEQ determines that all appropriate measures are being taken by the DMAs and that water quality standards will still not be met, DEQ may reopen the TMDL and revise as needed. Revisions may include recalculating the TMDL loading capacity and allocations or the possible alternatives to TMDLs including use attainability analysis (UAA), and site specific criteria. DEQ would also consider reopening the TMDL, subject to available resources, should new information become available indicating that the TMDL or its associated surrogates should be modified.

The implementation of TMDLs and the associated plans is generally enforceable by DEQ, other state agencies and local government. However, it is envisioned that sufficient initiative exists to achieve water quality goals with minimal enforcement. Should the need for additional effort emerge, it is expected that the responsible agency will work with land managers to overcome impediments to progress through education, technical support or

enforcement. Enforcement may be necessary in instances of insufficient action towards progress. This could occur first through direct intervention from land management agencies (e.g. ODF, ODA, counties and cities), and secondarily through DEQ. The latter may be based on departmental orders to implement management goals leading to water quality standards.

## **TMDL WATER QUALITY MANAGEMENT PLAN GUIDANCE**

In February 2000, DEQ entered into a Memorandum of Agreement (MOA) with the U.S. Environmental Protection Agency (EPA) that describes the basic elements needed in a TMDL Water Quality Management Plan (WQMP). That MOA was endorsed by the Courts in a Consent Order signed by United States District Judge Michael R. Hogan in July 2000. These elements, as outlined below, will serve as the framework for this WQMP.

### **WQMP Elements**

1. Condition assessment and problem description
2. Goals and objectives
3. Identification of responsible participants
4. Proposed management measures
5. Timeline for implementation
6. Reasonable assurance
7. Monitoring and evaluation
8. Public involvement
9. Costs and funding
10. Citation to legal authorities

### **GOALS AND OBJECTIVES**

The overall goal of the TMDL Water Quality Management Plan (WQMP) is to achieve compliance with water quality standards for each of the 303(d) listed parameters and streams in the Bear Creek Watershed. Specifically, the WQMP combines a description of all Designated Management Agencies' (DMA) plans that are in place or will be developed to address the load and wasteload allocations in the TMDL. The specific goal of this WQMP is to describe a strategy for reducing discharges from nonpoint sources to the level of the load allocations and for reducing discharges from point sources to the level of the waste load allocations described in the TMDL. This WQMP is preliminary in nature and is designed to be adaptive as more information and knowledge is gained regarding the pollutants, allocations, management measures, and other related areas. As part of the goals of this WQMP it is expected that all DMAs will undertake the following:

- Develop Best Management Practices (BMPs) to achieve Load Allocations and Waste Load allocations
- Give reasonable assurance that management measures will meet load allocations, through both quantitative and qualitative analysis of management measures
- Adhere to measurable milestones for progress
- Develop a timeline for implementation, with reference to costs and funding

- Develop a monitoring plan to determine if: BMPs are being implemented, Individual BMPs are effective, Load and wasteload allocations are being met, Water quality standards are being met

## **IDENTIFICATION OF RESPONSIBLE PARTICIPANTS**

The purpose of this element is to identify the DMAs responsible with the authority to meet the Bear Creek Watershed TMDL and to list the major responsibilities of each. What follows is a simple list of those organizations and responsibilities. This is not intended to be an exhaustive list of every participant that bears some responsibility for improving water quality in the Bear Creek Watershed. Because this is a community-wide effort, a complete listing would have to include every business, every industry, every farm, and ultimately every citizen living or working within the subbasin. We are all contributors to the existing quality of the waters in the Bear Creek Watershed and we all must be participants in the efforts to improve water quality. Table 2, below, shows Bear Creek Watershed 303(d)-listed stream segments along with the Designated Management Agencies responsible for that stream segment.

### **Oregon Department of Environmental Quality**

- NPDES Permitting and Enforcement
- WPCF Permitting and Enforcement
- Technical Assistance
- Financial Assistance

### **Oregon Department of Agriculture**

- Agricultural Water Quality Management Plan Development, Implementation & Enforcement
- CAFO Permitting and Enforcement
- Technical Assistance
- Revise Agricultural WQMAP
- Rules under Senate Bill (SB) 1010 to clearly address TMDL and Load Allocations as necessary
- Riparian area management

### **Oregon Department of Forestry**

- Forest Practices Act (FPA) Implementation
- Conservation Reserved Enhancement Program
- Revise statewide FPA rules and/or adopt subbasin specific rules as necessary
- Riparian area management

### **Oregon Department of Transportation**

- Routine Road Maintenance, Water Quality and Habitat Guide Best Management Practices
- Pollution Control Plan and Erosion Control Plan
- Design and Construction

**Federal Land Management Agencies (Forest Service and BLM)**

- Implementation of Northwest Forest Plan
- Following standards and guidance listed in PACFISH

**US Bureau of Reclamation (USBOR)**

- Emigrant Dam and associated lands and structures

**Irrigation Districts (Talent, Medford, and Rogue River Valley Irrigation Districts)**

- Irrigation districts and dam operations are considered nonpoint sources that influence the quantity and timing of heat delivery to down stream river reaches.

**Jackson County, Cities of Ashland, Talent, Phoenix, Medford, Central Point, Jacksonville.**

- All urban, nonagricultural, nonforestry-related land uses including transportation uses (road, bridge, and ditch maintenance and construction practices)
- Sewer and septic systems as related to human habitation
- Designing and siting of housing/home, commercial, and industrial sites in urban and rural areas
- Golf Courses
- Other land uses as applicable to the TMDL
- Construction, operation and maintenance of County roads and county storm sewer system
- Land use planning/permitting
- Maintenance, construction and operation of parks and other county-owned facilities and infrastructure
- Inspection and permitting of septic systems
- Riparian area management

**TIMELINE FOR IMPLEMENTATION**

The purpose of this element of the WQMP is to demonstrate a strategy for implementing and maintaining the plan and the resulting water quality improvements over the long term. Included in this section are timelines for the implementation of DEQ activities. Each DMA-specific Implementation Plan will also include timelines for the implementation of the milestones described earlier. Timelines should be as specific as possible and should include a schedule for BMP installation and/or evaluation, monitoring schedules, reporting dates and milestones for evaluating progress.

The DMA-specific Implementation Plans are designed to reduce pollutant loads from sources to meet TMDLs' associated loads and water quality standards. The Department recognizes that where implementation involves significant habitat restoration or reforestation, water quality standards may not be met for decades. In addition, the Department recognizes that technology for controlling nonpoint-source pollution is, in some cases, in the development stages and will likely take one or more iterations to develop effective techniques.

For the Bear Creek Watershed TMDL, pollutant surrogates have been defined as alternative targets for meeting the TMDL for some parameters. The purpose of the surrogates is not to bar or eliminate human access or activity in the subbasin or its riparian areas. It is the expectation, however, that the Implementation Plans will address how human activities will be managed to achieve the surrogates. It is also recognized that full attainment of pollutant surrogates ~~(system potential vegetation, for example) at all locations may not be feasible due to physical, legal or other~~

regulatory constraints. To the extent possible, the Implementation Plans should identify potential constraints, but should also provide the ability to mitigate those constraints should the opportunity arise. For instance, at this time, the existing location of a road or highway may preclude attainment of system-potential vegetation due to safety considerations. In the future, however, should the road be expanded or upgraded, consideration should be given to designs that support TMDL load allocations and pollutant surrogates such as *site-potential* vegetation.

DEQ intends to regularly review the progress of the Implementation Plans. Individual Implementation Plans, this WQMP, and the TMDLs are part of an adaptive management process. Modifications to the WQMP and the Implementation Plans are expected to occur on an annual or more frequent basis. Review of the TMDLs are expected to occur approximately five years after the final approval of the TMDLs, or whenever deemed necessary by DEQ. Figure 3, below, gives the timeline for activities related to the WQMP and associated DMA Implementation Plans.

**Figure 3. Water Quality Management Plan Timeline**

Activity and DMA	Year Activity is to Be Undertaken									
	2007		2008		2009		2010		2011	
DEQ Modification of MS4 Permits		X								
DEQ Review/Modification of WWTP Permits			X							
DEQ Modification of General and Minor Permits	5 Year Cycle									
DMA Development and Submittal of Implementation and Monitoring Plans – includes: Jackson County, Cities of Ashland, Talent, Phoenix, Medford, Central Point, Jacksonville, TID, MID , RRVID (Plans required 18 months after TMDL order).			X							
DMA Implementation of Plans					X	X	X	X	X	X
DEQ/DMA/Public Review of TMDL and WQMP (five years after approval)										X
DMA Submittal of Annual Reports	September 30 of Each Year									

### REASONABLE ASSURANCE OF IMPLEMENTATION

This section of the WQMP is intended to provide reasonable assurance that the WQMP (along with the associated DMA-specific Implementation Plans) will be implemented and that the TMDL and associated allocations will be met.

Programs are already in place or will be put in place to help assure that this WQMP will be implemented and the Bear Creek Watershed TMDL will be met. Some of these are traditional regulatory programs such as specific requirements under NPDES discharge permits. Other programs address nonpoint sources under the auspices of state law (for forested and agricultural lands) or as voluntary efforts.

### Point Sources

Reasonable assurance that point-source wasteload allocations will be met is addressed through the revision, issuance, or revision of NPDES and WPCF permits. Provisions to address the appropriate wasteload allocations (WLAs) will be incorporated into NPDES permits when permits are renewed by DEQ, typically within one year after the EPA approves the TMDL. It is likely each point source will be given a reasonable time to upgrade, if

necessary, to meet its new permit limits. A schedule for meeting the requirements will be incorporated into the permit. Adherence to permit conditions is required by State and Federal Law, and DEQ has the responsibility to ensure compliance.

**Nonpoint Sources**

Land Use: All private commercial timber operations

Plan Title: Oregon Forest Practices Act

DMA: Oregon Department of Forestry (ODF)

Status: Completed (See Appendix A for plan Summary)

Land Use: All agricultural operations

Plan Title: Bear Creek Agricultural Water Quality Management Area Plan

DMA: Oregon Department of Agriculture

Status: Completed 2004. 2-year revision cycle. (See Appendix B for plan Summary)

Land Use: Roads, highways and bridges under the jurisdiction of ODOT

Plan Title: Routine Road Maintenance. Water Quality and Habitat Guide Best Management Practices, July 1999

DMA: Oregon Department of Transportation

Status: Completed (See Appendix C for summary of the plan. Entire plan can be viewed online on the ODOT website at:

<http://www.odot.state.or.us/eshtm/images/4dman.pdf>

Land Use: All land uses on Federal Lands

Plan Title: Bear Creek Watershed Water Quality Restoration Plan (WQRP)

DMA: USFS and BLM

Status: Currently under development

Land Use: All urban and rural residential land uses within the Bear Creek Watershed

Plan Title: No Implementation Plan at this time

DMA: Jackson County, Jackson County, Cities of Ashland, Talent, Phoenix, Medford, Central Point, Jacksonville.

Status: NPDES Phase II stormwater plans are in development or have been submitted to DEQ. Plans to address dry-weather TMDL related need are required. See Appendix D for Implementation Plan Guidance document.

Land Use: Irrigation Water Transport and Delivery

Plan Title: No Implementation Plan at this time

DMA: MID, TID, RRVID

Status: Plan needs to be developed.

Land Use: Management of Emigrant Dam  
Plan Title: No Implementation Plan at this time  
DMA: US Bureau of Reclamation and Talent Irrigation District  
Status: Plan needs to be developed.

### **Voluntary Measures**

Land Use: All privately-owned lands in the Bear Creek Watershed  
Plan Title: Bear Creek Watershed Assessment – Phase I & II.  
Author: Bear Creek Watershed Council – December 2001  
Status: Completed

### **MONITORING AND EVALUATION**

Monitoring and evaluation has two basic components: 1) monitoring the implementation of DMA-specific water quality Implementation Plans identified in this document and 2) monitoring the physical, chemical and biological parameters for water quality. Monitoring information will provide a check on progress being made toward achieving the TMDL allocations, meeting water quality standards, and will be used as part of the Adaptive Management process.

The objectives of this monitoring effort are to demonstrate long-term recovery, better understand natural variability, track implementation of projects and BMPs, and track effectiveness of TMDL implementation. This monitoring and feedback mechanism is a major component of the “reasonable assurance of implementation” for the Bear Creek Watershed TMDL WQMP.

This WQMP and the associated DMA-specific Implementation Plans will be tracked by accounting for the numbers, types, locations of projects, BMPs, educational activities, or other actions taken to improve or protect water quality. The mechanism for tracking DMA implementation efforts will be annual reports to be submitted to DEQ.

The information generated by each of the agencies/entities gathering data in the Bear Creek Watershed will be pooled and used to determine whether management actions are having the desired effects or if changes in management actions and/or TMDLs are needed. This detailed evaluation will typically occur on a 5-year cycle. If progress is not occurring then the appropriate management agency will be contacted with a request for action.

### **PUBLIC INVOLVEMENT**

To be successful at improving water quality, a TMDL WQMP must include a process to involve interested and affected stakeholders in both the development and the implementation of the plan. In addition to the DEQ public notice policy and public comment periods associated with TMDLs and permit applications, future Bear Creek Watershed TMDL public involvement efforts will focus specifically on urban, agricultural and forestry activities. DMA-specific public involvement efforts will be detailed within the Implementation Plans included in the appendices.

### **COSTS AND FUNDING**

The purpose of this element is to describe estimated costs and demonstrate there is sufficient funding available to begin implementation of the WQMP. Another purpose is to identify potential future funding sources for project implementation. There are many natural resource enhancement efforts and projects occurring in the subbasin which are relevant to the goals of the plan. These efforts, in addition to proposed future actions, are described in the Management Measures element of this Plan.

Designated Management Agencies will be expected to provide a fiscal analysis of the resources needed to develop, execute and maintain the programs described in their Implementation Plans.

### Potential Sources of Project Funding

Funding is essential to implementing projects associated with this WQMP. There are currently several sources of local, state, and federal funds. The following is a partial list of assistance programs available to aid in water quality protection in the Bear Creek Watershed.

<u>Program</u>	<u>Agency/Source</u>
Oregon Plan for Salmon and Watersheds	OWEB
Environmental Quality Incentives Program	USDA-NRCS
Wetland Reserve Program	USDA-NRCS
Conservation Reserve Enhancement Program	USDA-NRCS
Stewardship Incentive Program	ODF
Access and Habitat Program	ODFW
Partners for Wildlife Program	USDI-FSA
Conservation Implementation Grants	ODA
Water Projects	WRD
Nonpoint-Source Water Quality Control (EPA 319)	DEQ-EPA
Riparian Protection/Enhancement	COE
Oregon Community Foundation	OCF

Grant funds are available for improvement projects on a competitive basis. Field agency personnel assist landowners in identifying, designing, and submitting eligible projects for these grant funds. For private landowners, the recipient and administrator of these grants is generally the local Soil and Water Conservation District. Grant fund sources include:

**Oregon Watershed Enhancement Board (OWEB)** which funds watershed-improvement projects with state money. This is an important piece in the implementation of Oregon's Salmon Plan. Current and past projects have included road relocation/closure/improvement projects, in-stream structure work, riparian fencing and revegetation, off-stream water developments, and other management practices.

**Bonneville Power Administration** funds are federal funds for fish habitat and water quality improvement projects. These have also included projects addressing road conditions, grazing management, in-stream structure, and other tools.

**Individual grant sources** for special projects have included Forest Health money available through the State and Private arm of the USDA Forest Service.

### CITATION TO LEGAL AUTHORITIES

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#### Clean Water Act Section 303(d)

Section 303(d) of the 1972 Federal Clean Water Act as amended requires states to develop a list of rivers, streams and lakes that cannot meet water quality standards without application of additional pollution controls beyond the existing requirements on industrial sources and sewage treatment plants. Waters that need this additional help are referred to as “water quality limited” (WQL). Water quality-limited waterbodies must be identified by the Environmental Protection Agency (EPA) or by a state agency which has been delegated this responsibility by EPA. In Oregon, this responsibility rests with the DEQ. The DEQ updates the list of water quality limited waters every two years. The list is referred to as the 303(d) list. Section 303 of the Clean Water Act further requires that Total Maximum Daily Loads (TMDLs) be developed for all waters on the 303(d) list. A TMDL defines the amount of pollution that can be present in the waterbody without causing water quality standards to be violated. A WQMP is developed to describe a strategy for reducing water pollution to the level of the load allocations and waste load allocations prescribed in the TMDL, which is designed to restore the water quality and result in compliance with the water quality standards. In this way the designated beneficial uses of the water will be protected for all citizens.

The Oregon Department of Environmental Quality is authorized by law to prevent and abate water pollution within the State of Oregon pursuant to the following statute:

ORS 468B.020 Prevention of pollution

Pollution of any of the waters of the state is declared to be not a reasonable or natural use of such waters and to be contrary to the public policy of the State or Oregon, as set forth in ORS 468B.015.

In order to carry out the public policy set forth in ORS 468B.015, the Department shall take such action as is necessary for the prevention of new pollution and the abatement of existing pollution by:

Fostering and encouraging the cooperation of the people, industry, cities and counties, in order to prevent, control and reduce pollution of the waters of the state; and

Requiring the use of all available and reasonable methods necessary to achieve the purposes of ORS 468B.015 and to conform to the standards of water quality and purity established under ORS 468B.048.

**APPENDIX A – DEPARTMENT OF FORESTRY**

Implementation Plan for  
Non-Federal Forest Lands

## Forest Practices Act

There are extensive statutes and administrative rules under the FPA that regulate forest management activities statewide that apply to the Bear Creek Watershed.

The purpose and goals of the FPA include protecting, maintaining, and improving the functions and values of streams, lakes, wetlands, and riparian management areas, addressing the key water quality issues of stream temperatures, riparian aquatic functions, and sediment dynamics. The FPA provides a broad array of water quality benefits and contributes to meeting water quality standards for parameters such as temperature, sediment, dissolved oxygen, nutrients, and aquatic habitat. A substantial body of scientific research and monitoring supports an underlying assumption of the FPA that maintaining riparian processes and functions is critical for water quality and fish and wildlife habitat. These riparian processes and functions include: Shade for stream temperature and for riparian species; large wood delivery to streams and riparian areas; bank and slope stability, leaf and other organic matter inputs; riparian microclimate regulation; sediment trapping; soil moisture and temperature maintenance; providing aquatic and riparian species dependent habitat; and nutrient and mineral cycling.

***OAR 629-635-100 DESCRIBES THE PURPOSE AND GOALS OF THE FPA TOWARDS THE ACHIEVEMENT AND MAINTENANCE OF WATER QUALITY STANDARDS. FURTHER, OAR 629-640-000 LISTS VEGETATION RETENTION GOALS FOR STREAMS AND DESIRED FUTURE CONDITIONS.***

### Implementation and Enforcement

FPA rules are implemented and enforced by ODF and monitored to assure their effectiveness. The operator, landowner, or timber owner is required to provide notification of commercial harvest at least 15 days prior to operation. In addition, operators are required to submit written plans containing the following specific information applicable to the operation regarding (but not limited to) before conducting operations within 100 feet of a large lake or a stream with known fish use or domestic use. For an operation within 300 feet of significant wetlands, written plans are also required.

- the location of roads and landings, roads and landing design,
- construction techniques,
- drainage systems,
- disposal of waste materials,
- felling and bucking,
- buffer strips,
- yarding systems and layout,
- riparian management area protection measures,
- resource site protection measures, and
- post operation stabilization measures

For each administrative rule, written guidance is provided to field administrators to insure proper, uniform and consistent application of the FPA Statutes and Rules. Stewardship Foresters work with operators and landowners by providing technical assistance and going on field visits as time allows. In case of Forest Land conversion from forestry to other uses, the Stewardship Foresters may go on joint field visits with

agency staff from ODA, ODFW DSL, and/or DEQ.

The FPA requires penalties, both civil and criminal, for violation of rules and statutes. By statute, forest operators conducting operations in accordance with FPA BMPs are not subject to enforcement of a water quality standards violation by DEQ. Additionally, whenever a violation occurs, the responsible party is obligated to mitigate the damage.

### Management Measures

The Water Protection Rules (Divisions 635, 640, 645, 650, 655, and 660)

***THE WATER PROTECTION RULES ARE AN IMPORTANT COMPONENT OF THE FPA THAT ARE DESIGNED TO ACHIEVE AND MAINTAIN WATER QUALITY STANDARDS. THE RULES IDENTIFY SEVEN GEOGRAPHIC REGIONS AND DISTINGUISH BETWEEN STREAMS, LAKES, AND WETLANDS. THE RULES FURTHER DISTINGUISH EACH STREAM BY SIZE AND TYPE. STREAM SIZE IS DISTINGUISHED AS SMALL, MEDIUM, OR LARGE, BASED ON AVERAGE ANNUAL FLOW. STREAM TYPE IS DISTINGUISHED AS FISH USE, DOMESTIC USE, OR NEITHER.***

#### Type F – Fish-bearing Stream Protection

The goal for managing riparian forests along fish-use streams is to grow and retain vegetation so that, over time, average conditions across the riparian landscape become similar to those of mature unmanaged riparian stands. Generally, no tree harvesting is allowed within 20 feet of all fish bearing, all domestic-use, and all other medium and large streams unless stand restoration is needed. In addition, all snags and downed wood must be retained in every riparian management area as specified in Table 1. Provisions governing vegetation retention are designed to encourage conifer restoration on riparian forestland that is not currently in the desired conifer condition. In addition, the rules provide incentives for landowners to place large wood in streams to immediately enhance fish habitat. Other alternatives are provided to address site-specific conditions and large-scale catastrophic events.

#### ***TYPE N AND D – NON-FISH BEARING AND DOMESTIC USE STREAM PROTECTION***

***THE OVERALL GOALS OF THE RIPARIAN VEGETATION RETENTION RULES ALONG TYPE N (NON-FISH BEARING) AND TYPE D (DOMESTIC USE) STREAMS ARE TO:***

- (1) HAVE SUFFICIENT STREAMSIDE VEGETATION TO SUPPORT THE FUNCTIONS AND PROCESSES THAT ARE IMPORTANT TO DOWNSTREAM FISH USE,***
- (2) HAVE SUFFICIENT STREAMSIDE VEGETATION TO SUPPORT THE FUNCTIONS AND PROCESSES THAT ARE IMPORTANT TO DOWNSTREAM DOMESTIC WATER USE, AND***
- (3) SUPPLEMENT WILDLIFE HABITAT ACROSS THE LANDSCAPE.***

***FUNCTIONS AND PROCESSES INCLUDE: MAINTENANCE OF COOL WATER TEMPERATURE AND OTHER WATER QUALITY PARAMETERS, INFLUENCES ON SEDIMENT PRODUCTION AND BANK STABILITY, ADDITIONS OF NUTRIENTS AND LARGE CONIFER ORGANIC DEBRIS, AND PROVISIONS OF SNAGS, COVER, AND TREES FOR WILDLIFE.***

***THESE STREAMS HAVE REDUCED RIPARIAN MANAGEMENT AREA (RMA) WIDTHS AND REDUCED BASAL AREA RETENTION REQUIREMENTS AS COMPARED TO SIMILAR SIZED TYPE F STREAMS (TABLES 1 - 3). THE EFFECTIVENESS OF THESE REQUIREMENTS IN MEETING ABOVE GOALS WILL BE EVALUATED OVER TIME THROUGH MONITORING.***

**RIPARIAN MANAGEMENT AREAS AND BASAL AREAS**

**TABLE 1. RIPARIAN MANAGEMENT AREA (RMA) WIDTHS FOR STREAMS OF VARIOUS SIZES AND BENEFICIAL USES (OAR 629-635-310).**

	Type F	Type D	TYPE N
LARGE	100 feet	70 feet	70 feet
MEDIUM	70 feet	50 feet	50 feet
SMALL	50 feet	20 feet	Apply specified water quality protection measures, and see OAR 629-640-200

Table 2. Basal Area Requirements for Type F RMA.

Geographic Region		Square Feet of Basal Area per acre, each side of stream					
		Large Type F RMA=100ft		Medium Type F RMA=70ft		Small Type F RMA=50ft	
		Std	Active	Std	Active	Std	Active
Coast Range and S. Coast	Type 1 – Thinning	130	117	100	87	43	26
	Type 2 and 3	100	74	75	56	37	17

Table 3. Basal Area Requirements for Type D and N RMA.

Geographic Region		Square Feet of Basal Area per acre, each side of stream		
		Large Type D and N RMA=70ft	Medium Type D and N RMA=50ft	Small Type D RMA=20ft
		Std	Std	Std
Coast Range and S. Coast	Type 1 – Thinning	87	37	0
	Type 2 and 3	56	31	0

For all streams that require an RMA, basal area targets are established that are used for any type of management within the RMA (Table 2 and 3). There is also a minimum tree number requirement of 40 trees per 1000 feet along large streams (11-inch minimum diameter at breast height), and 30 trees per

1000 feet along medium streams (8-inch minimum diameter at breast height). The specific levels of large wood inputs that the rules are designed to achieve are based on the stream size and type. The biological and physical characteristics specific to a given stream are taken into account in determining the quantity and quality of large wood that is functional for that stream. Given the potential large wood that is functional for a given stream, a combination of basal area targets, minimum tree retention, buffer widths, and future regenerated stands and ingrowths are used to achieve the appropriate large wood inputs and effective shade for a given stream.

In the design of the Water Protection Rules shade data was gathered for 40 small non-fish-bearing streams to determine the shade recovery rates after harvesting. One to two years after harvest, 55 percent of these streams were at or above pre-harvest shade levels due to under story vegetation regret. Most of these streams had a bank full width averaging less than six feet, and most shade was provided by shrubs and grasses within 10 feet of the bank. Since 1991 there has also been a 120-acre limit on a single clear-cut size, which is likely to result in a scattering of harvested area across a watershed over time. In the development of the 1994 rules it was assumed that this combined with the relative rapid shade recovery along smaller non-fish-bearing streams would be adequate in protecting stream temperatures and reduce possible cumulative effects. For fish bearing streams it was assumed that a 20-foot no-harvest buffer, combined with the tree retention requirements for the rest of the RMA, would be adequate to maintain shade levels necessary to achieve stream temperature standards. Due to recommendations and concerns raised during review, a set of rule revisions are being considered by BOF (See Adaptive Management and Current Status of FPA Adequacy to meet WQS). In addition, the ODF monitoring program is currently collecting data to test these assumptions, evaluate the effectiveness of the proposed rules, and evaluate whether or not water quality standards for temperature will be achieved by the proposed rules.

### **The Road Construction and Maintenance Rules (Division 625)**

In terms of sediment issues specific to forest roads, there are BMPs within the FPA specifically designed to regulate road use, design, construction and maintenance. The bulk of the BMPs are directed at minimizing sediment delivery to channels. The primary goals of the road rules are to

- (1) protect the water quality of streams, lakes, and wetlands;
- (2) protect fish and wildlife habitat; and
- (3) protect forest productivity.

The BOF revised several BMPs related to road design when the new Water Protection Rules were adopted in the fall of 1994, and again in 2002 to address study findings and various recommendations (see Adaptive Management section),

Past findings –

Turbidity: ODF monitoring data showed that about one-third (29 to 39 percent) of active and inactive roads on state and private lands can deliver sediment to streams by ditch delivery (ODF, 1996).

There is the potential for significant amounts of turbidity to be created from these sources, especially during hauling operations in the wet season. For the portions of the road network where sediment delivery is occurring, a number of issues have been identified that are contributing to the problem:

- Minimizing turbidity caused by wet-weather hauling. Rules were adopted in 2003 and field staff are conducting monitoring, problem identification, and implementing management and drainage improvements as necessary.
- Monitoring has shown a general lack of filtering of drainage waters near streams.

- Cross drainage structures (water bars, relief culverts) are often not in place to filter road runoff before reaching stream crossings.
- Steep-gradient roads tend to have cross drainage structures at wider spacing than lower gradient roads. Under the current rules, road design and maintenance practices should result in steep-gradient roads having cross drainage structures with narrower spacing relative to lower-gradient roads.
- There are inconsistencies in drainage practices between Georgians, with special concerns in the Siskiyou Georgian.
- In some areas, road maintenance and repair is inadequate, according to the rules.

Forest Road-Related Landslides: The findings Robison et al. (1999) include the most current information addressing the adequacy of the forest practice rules related to landslides and forest roads:

- Landslides associated with forest roads made up a smaller percentage of the total landslides in the ODF study than in most previous studies.
- Road-associated landslides identified during the ODF study were smaller, on average, than road-associated landslides in past studies. However, these road-associated landslides were four-times larger, on average, than those landslides not associated with roads.
- Landslides that delivered sediment to stream channels rarely occurred on roads crossing slopes of less than 50 percent, especially when those roads had well spaced drainage systems and fills of minimal depth.
- Road fill placed on steep slopes created an increased landslide hazard, even where no drainage water is directed to those fills.
- Road-drainage waters directed onto very steep slopes created an increased landslide hazard, even when there was no road fill placed on those very steep slopes.
- In the ODF study, washouts were a significant problem in Tillamook and, to a lesser extent, in Vida study areas. Washouts were often related to undersized culverts (installed prior to current rule requirements).
- Based on the lower numbers of road-associated landslides surveyed in the ODF study and on the smaller sizes of these landslides (as compared with previous studies), current road management practices are likely reducing the size of road-associated landslides and the number of landslides.

Harvesting-Related Landslides and Forest Stand Condition: The following are conclusions from Robison et al. (1999). These findings include current information addressing the adequacy of the forest practice rules related to landslides and debris flows.

- Timber harvesting can initiate landslides in areas with moderate to high landslide risk. In three out of four ODF storm monitoring study areas, higher landslide densities and erosion volumes were found in stands that had been harvested in the previous nine years, as compared to forests older than one hundred years. Forested areas between the ages of 10 and 100 years typically had lower landslide densities and erosion volumes than those found in mature forest stands (Robison et al., 1999).
- There is significant landslide risk on very steep slope regardless of the age of vegetation, especially in certain geologic formations, where major storms and landslide processes are the dominant means by which the landscape is shaped.
- Landslides from recently harvested and older forests can have similar dimensions, including depth, initial volume and debris flow volume (Robison et al., 1999).
- Variability in both storm and site characteristics can be a dominant influence on landslide occurrence.
- Any disturbance that removes vegetation on steep, landslide-prone locations results in increased landslide occurrence. Both the length of time these locations experience periods of reduced forest

cover and the extent of lands with reduced vegetative cover can affect landslide density and erosion rate.

- Landscape-level disturbances can result in large, contiguous areas in a condition susceptible to landslides.
- Alternative management strategies for high-risk sites should be carefully monitored. This will take considerable time, since landslides are a geologic process (variable in both time and space). The effectiveness of specific practices, therefore, will be difficult to evaluate until the landscape has experienced major storms and/or prolonged exposure to geologic processes.

Landslide-Related Stream Channel Impacts: The following are conclusions from Robison et al. (1999). These findings include the most current information addressing landslide-related stream channel impacts on forestlands in Oregon.

- In the ODF study, stream channel impacts varied greatly by study area and were not directly related to the number of landslides. Large, up-slope landslides originating above small channel junction angles (<70°) and steep channel gradient slopes resulted in the greatest stream channel impacts.
- Debris torrents reduce stream shading, especially when they travel through younger stands.
- Debris torrents have only a minor effect on active channel width.
- The Benda-Cundy model provides a reliable tool for determining maximum potential travel distances of “typical” debris flows and torrents from forested slopes. Less than 10 percent of the total landslides in the ODF study traveled farther than predicted by the Benda-Cundy model (Benda and Cundy, 1990). The debris torrents that traveled farther than predicted were, on average, larger and had younger riparian vegetation near their terminus. Thus, when determining landslide run-out distance, channel junction angles and channel gradient are the primary factors, while landslide volume and composition of the riparian area along debris torrent-prone channels may also be important secondary factors.
- In the ODF study, slash in the channel was different by stand age class for the Elk Creek and Scottsburg areas. However, whether these differences in slash resulted in increased travel distances by debris torrents could not be determined.

In order to address above concerns, significant changes were made to the road construction rules including the following, and are expected to provide added assurance of meeting water quality standards.

- The requirement for operators not to locate roads in riparian management areas, flood plains, or wetlands unless all alternative locations would result in greater resource damage.
- The requirement for operators to design stream crossings (culverts, bridges, and fords) to both minimize fill size and minimize excavation of slopes near the channel. A mandatory written plan is required for stream crossing fills over 15 feet deep.
- The requirement to design stream crossing structures for the 50-year flow with no ponding, rather than the 25-year storm with no specification of allowable ponding.
- The requirement that stream crossing structures be passable by juvenile fish as well as adult fish.
- The requirement that fish must be able to access side channels.
- The requirement that stream structures constructed under these rules must be maintained for fish passage.

- The requirement to stop road use during wet weather if runoff from the road segment is causing a visible increase in the turbidity of Type F or Type D streams as measured above and below the effects of the road.

In determining the location of a new road, operators are required to avoid steep slopes, slides and areas next to channels or in wetlands to the extent possible. Existing roads should be used when possible, and stream crossings should be used only when essential. The design of the road grade must vary to fit the local terrain and the road width must be minimized. The operator must also follow specific guidelines for stream-crossing structures (listed above). Cross-drainage structures must be designed to divert water away from channels so that runoff intercepted by the road is dispersed onto the hillslope before reaching a channel. The specific method used is up to the operator, but the end result should be the dispersal of water running off of the road and the filtering of fine sediment before the water reaches waters of the state.

*Construction and maintenance activities should be done during low water periods and when soils are relatively dry. Excavated materials must be placed where there is minimal risk of those materials entering waters of the state, and erodible surfaces must be stabilized. Landings must be built away from streams, wetlands and steep slopes.*

Road maintenance is required on all active and inactive roads. Regardless of when a road was constructed, if the road has been used as part of an active operation after 1972, it is subject to all maintenance requirements within the current rules. Culverts must be kept open, and surface road drainage and adequate filtering of fine sediment must be maintained. (OAR 629-625-0320) If the road surface becomes unstable or if there is a significant risk of sediment running off of the road surface and entering the stream, road activity must be halted and the erodible area must be stabilized. Abandoned roads constructed prior to 1972 and not used for forest management since that time are not subject to Forest Practices regulatory authority.

*All roads in use since 1972 must either be maintained or vacated by the operator. Vacated roads must be effectively barricaded and self-maintaining, in terms of diverting water away from streams and off of the former road surface, where erosion will remain unlikely. Methods for vacating roads include pulling stream-crossing fills, pulling steep side cast fills, and cross ditching. It is up to the landowner to choose between vacating a road and maintaining a road. If a road is not vacated, the operator is required to maintain the road under the current rules whether it is active or inactive, however they are not required to bring the design up to current standards outside of the normal maintenance and repair schedule.*

*The Oregon Plan also has voluntary measures addressing sediment issues related to forest roads. Forest roads built prior to 1971 that have not been in use since may pose some increased risk to water quality and fish habitat, and forest roads built prior to 1994 may have undersized culvert which may also pose increased risk. Industrial forest landowners and state forest lands are currently implementing the Road Hazard Identification and Risk Reduction Project on the voluntary basis to identify risks to salmon from roads and address those risks. See Oregon Plan section for details.*

### **Other Management Measures**

The FPA covers the following general areas of forestry operation and provides BMPs in order to protect water quality

- Harvesting or salvaging trees (Division 630)
- Site preparation, stabilization, and reforestation (Divisions 610 and 611)
- Chemical application (Division 620)
- Clearing forest land for nonforest uses (Division 610-0090)

- Precommercial thinning slash disposal (Division 615)
- Habitat protection (Division 665)

### **Basin Specific Rules (Division 635-0120)**

In addition to the statewide effort to ensure FPA adequacy to meet WQS, FPA rule allows for development of watershed specific protection rules for watersheds that have been designated as water quality limited or containing threatened or endangered aquatic species. Coordination between ODF and DEQ for establishing such rules is guided by a Memorandum of Understanding signed in April of 1998. For basins where ODF and DEQ agree that there are water quality impairments due to forest management activities even with FPA rules and BMPs, the DEQ and the BOF will use OAR 629-635-120 to create watershed specific protection rules or use other existing authority to ensure that forest management activities do not impair water quality.

CURRENTLY, THE BEAR CREEK WATERSHED SIGNIFICANTLY EXCEED THE WQS FOR TEMPERATURE, SEDIMENTATION AND BACTERIA. ALTHOUGH DEQ HAS IDENTIFIED WATER QUALITY IMPAIRMENT DUE TO IN PART TO FOREST PRACTICES, ADEQUATE BASIN SPECIFIC MONITORING TO DETERMINE THE ADEQUACY OF THE CURRENT FPA IS NEEDED BEFORE DOF COULD AUTHORIZE A RULE CHANGE.

DEQ ENCOURAGES ODF TO DEVELOP AND CONDUCT BMP EFFECTIVENESS MONITORING AS FUNDS ALLOWS TO BETTER REFINE LOADING ESTIMATES FROM THE FORESTED LANDSCAPE. THE TMDL SECTION ON WATER QUALITY MONITORING NEEDS IDENTIFIES SUGGESTED WATER QUALITY PARAMETERS TO FURTHER DEVELOP DATA SETS TO QUANTIFY THERMAL LOADING IN THE BEAR CREEK WATERSHED.

### **Adaptive Management and Current status of FPA adequacy to meet WQS**

***THERE ARE SEVERAL PROVISIONS WITHIN THE FPA AND RULES THAT REQUIRE ADAPTIVE MANAGEMENT. SEVERAL EFFORTS HAVE BEEN MADE TO EVALUATE THE SUFFICIENCY OF THE FPA TO PROTECT WATER QUALITY. SUCH EFFORTS ARE AS FOLLOWS:***

*EO 99-01 (FOREST PRACTICES ADVISORY COMMITTEE - FPAC)*

***IN JANUARY OF 1999 THE GOVERNOR OF OREGON SIGNED EXECUTIVE ORDER NO. EO 99-01 THAT DIRECTED THE OREGON BOARD OF FORESTRY TO DETERMINE WHAT CHANGES TO FOREST PRACTICES ARE NEEDED TO MEET STATE WATER QUALITY STANDARDS AND PROTECT AND RESTORE SALMONIDS WITH THE ASSISTANCE OF AN ADVISORY COMMITTEE. THE COMMITTEE WAS DIRECTED TO CONSIDER BOTH REGULATORY AND NON-REGULATORY APPROACHES TO WATER QUALITY PROTECTION, AND DEVELOPED FOUR SEPARATE ISSUE PAPERS ON THE FOLLOWING TOPICS:***

- *Fish passage restoration and water classification*
- *Forest roads*
- *Riparian functions*
- *Landslides*

***THE COMMITTEE REPRESENTED DIVERSE INTERESTS, INCLUDING ENVIRONMENTAL, INDUSTRIAL, NON-INDUSTRIAL, COUNTY, AND PUBLIC ADVOCATES. IN ADDITION, ODF, THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) AND OREGON DEPARTMENT OF FISH AND WILDLIFE (ODFW) TECHNICAL STAFF PARTICIPATED IN***

***THE PROCESS. THE COMMITTEE MADE ITS RECOMMENDATIONS TO THE BOARD OF FORESTRY IN SEPTEMBER 2000.***

***THE FOLLOWING LINKS TO THE REPORT OF THE FPAC ON SALMON AND WATERSHEDS: [HTTP://WWW.ODF.STATE.OR.US/DIVISIONS/PROTECTION/FOREST\\_PRACTICES/REFLIBRARY/DEFAULT.ASP?ID=403010606#FPAC](http://www.odef.state.or.us/divisions/protection/forest_practices/reflibrary/default.asp?id=403010606#fpac)***

***THE INDEPENDENT MULTIDISCIPLINARY SCIENCE TEAM (IMST)***

***THE IMST, IN ITS REPORT FPA AND OREGON FOR ITS SUFFICIENCY IN RECOVERY OF WILD SALMONIDS IN WESTERN OREGON FORESTS: OREGON FOREST PRACTICES ACT RULES AND THE MEASURES IN THE OREGON PLAN FOR SALMON AND WATERSHEDS TECHNICAL REPORT 1999-1, PROVIDED RECOMMENDATIONS TO THE RULES AND MEASURES AS THEY CONTRIBUTE TO ACCOMPLISHING THE GOALS AND OBJECTIVES OF THE OREGON PLAN.***

***THE FOLLOWING LINKS TO THE EXECUTIVE SUMMARY OF THE IMST REPORT AND THE RECOMMENDATIONS: [HTTP://WWW.FSL.ORST.EDU/IMST/REPORTS/SUMMARIES/1999-IES.PDF](http://www.fsl.orst.edu/imst/reports/summaries/1999-ies.pdf)***

***THE SUFFICIENCY ANALYSIS***

***A STATEWIDE ANALYSIS TO DETERMINE THE SUFFICIENCY OF THE FPA TO MEET WQS WAS JOINTLY CONDUCTED BY ODF AND DEQ, AND THE REPORT WAS FINALIZED IN 2002. THE REPORT OFFERS RECOMMENDATIONS TO HIGHLIGHT GENERAL AREAS WHERE CURRENT PRACTICES COULD BE IMPROVED IN ORDER TO BETTER MEET THE FPA GOALS AND OBJECTIVES AND IN TURN PROVIDE ADDED ASSURANCE OF MEETING WATER QUALITY STANDARDS (WQS).***

THE SUFFICIENCY ANALYSIS FINAL REPORT HAS BEEN EXTERNALLY REVIEWED BY PEERS AND OTHER INTERESTED PARTIES. THE REPORT WAS DESIGNED, IN PART, TO PROVIDE BACKGROUND INFORMATION AND ASSESSMENTS OF BMP EFFECTIVENESS IN MEETING WATER QUALITY STANDARDS. THE REPORT DEMONSTRATES OVERALL FPA ADEQUACY AT THE STATEWIDE SCALE WITH DUE CONSIDERATION TO REGIONAL AND LOCAL VARIATION IN EFFECTS. ACHIEVING THE GOALS AND OBJECTIVES OF THE FPA WILL ENSURE THE ACHIEVEMENT AND MAINTENANCE OF WATER QUALITY GOALS.

The following links to the Sufficiency Analysis: A Statewide Evaluation of Forest Practices Act Effectiveness in Protecting Water Quality

[HTTP://WWW.DEQ.STATE.OR.US/WQ/NONPOINT/ODFDEQSUFFANALYSISFPA.PDF](http://www.deq.state.or.us/wq/nonpoint/odfdeqsuffanalysisfpa.pdf)

**The Board of Forestry's response to recommendations**

In 2002, the Board of Forestry adopted revised rules related to the regulation of forest road practices and landslide issues. These revisions are intended to address the Sufficiency Analysis and FPAC recommendations related to these issues, and are expected to provide added assurance of meeting WQS.

Furthermore, since July 2003, the BOF has been considering possible riparian rule revisions to provide greater protection to riparian management areas that take into account recommendations from the Sufficiency Analysis as well as other recommendations to ensure attainment of WQS.

The current practices that could be improved, and are under consideration for rule revisions are:

1. Provide habitat above human caused fish barriers
2. Provide wood for debris flows where appropriate
3. Revise the large wood placement rule and increase active management basal areas
4. Increase basal area for medium and small fish bearing streams in Western Oregon

In addition, the following concepts were approved by the BOF to be implemented under the Oregon Plan.

1. Treat medium and large non-fish bearing streams as same size fish bearing streams
2. Provide protection for channel migration zones
3. Limit harvesting within riparian management areas by retaining 60% of preharvest basal area (must be greater than the standard basal area target)
4. Limit harvesting to the outer half of the riparian management area
5. Retain the largest trees within the riparian management area

#### **ADAPTIVE MANAGEMENT TO MEET TMDL GOALS**

DEQ ADMINISTERS A TMDL IMPLEMENTATION PROGRAM TO OVERSEE THE COMBINED EFFORTS OF DMAS, AND PROVIDES RECOMMENDATIONS TO DMAS AS NECESSARY. THERE MAY BE CIRCUMSTANCES UNIQUE TO A WATERSHED OR INFORMATION GENERATED OUTSIDE OF THE STATEWIDE SUFFICIENCY PROCESS THAT NEED TO BE CONSIDERED TO ADEQUATELY EVALUATE THE EFFECTIVENESS OF THE BMPS IN MEETING WATER QUALITY STANDARDS.

ONCE THE BEAR CREEK WATERSHED TMDL IS APPROVED, EFFORTS SHOULD BE MADE TO REVIEW THE IMPLEMENTATION OF VOLUNTARY MEASURES AND TO ATTAIN MONITORING DATA. ONCE ADDITIONAL DATA IS AVAILABLE, DEQ AND ODF MAY AGREE THAT MANAGEMENT STRATEGIES NEED TO BE REVISED. ANY RULE MAKING THAT OCCURS MUST COMPLY WITH THE STANDARDS ARTICULATED UNDER ORS 527.714(5). THIS STATUTE REQUIRES, AMONG OTHER THINGS, THAT REGULATORY AND NON-REGULATORY ALTERNATIVES HAVE BEEN CONSIDERED AND THAT THE BENEFITS PROVIDED BY A NEW RULE ARE IN PROPORTION TO THE DEGREE THAT EXISTING FOREST PRACTICES CONTRIBUTE TO THE OVERALL RESOURCE CONCERN. SEE ROLES OF EQC AND BOF FOR THE DISCUSSION ON STATUTORY REQUIREMENTS.

#### **Monitoring to ensure rule effectiveness and TMDL implementation**

***THE ODF HAS A MONITORING PROGRAM TO COLLECT DATA AND EVALUATE THE EFFECTIVENESS OF THE FOREST PRACTICE RULES WITH REGARD TO LANDSLIDES, RIPARIAN FUNCTION, STREAM TEMPERATURE, CHEMICAL APPLICATIONS, SEDIMENT FROM ROADS, BMP COMPLIANCE, AND SHADE. THE RESULTS FROM SOME OF THESE PROJECTS HAVE BEEN RELEASED IN THE FORM OF FINAL REPORTS AND OTHER PROJECTS ARE STILL ONGOING.***

The ODF monitoring strategy (ODF 2002) is periodically revised to update priorities to address emerging issues, and focuses on four types of monitoring to address forest practice program and Oregon Plan for Salmon and Watersheds (OPSW) goals and objectives. The monitoring types include implementation, effectiveness, trend, and validation. The monitoring strategy identifies a number of monitoring projects that would help determine the adequacy of FPA, however, funding limits the number of monitoring projects ODF is able to conduct.

#### **Opportunities for Collaboration**

***A MEMORANDUM OF UNDERSTANDING (MOU) WAS SIGNED IN APRIL OF 1998 TO IMPROVE THE COORDINATION BETWEEN THE ODF AND THE ODEQ IN EVALUATING AND PROPOSING POSSIBLE CHANGES TO THE FOREST PRACTICE RULES AS PART OF THE TOTAL MAXIMUM DAILY LOAD PROCESS. THUS, THE PURPOSE OF THE MOU WAS ALSO TO ENCOURAGE ODF TO DESIGN AND IMPLEMENT A SPECIFIC MONITORING PROGRAM TO DOCUMENT THE ADEQUACY OF THE WATER PROTECTION BMPS. IF THE***

***MONITORING RESULTS INDICATE THAT CHANGES IN PRACTICES ARE NEEDED, THE BOF HAS A MECHANISM TO REVISE OR CREATE APPROPRIATE RULES.***

ODF and ODEQ have collaborated in several efforts to analyze the existing FPA measures and to better define the relationship between the TMDL load allocations and the FPA measures designed to protect water quality. How water quality parameters are affected by FPA BMPs as determined through the TMDL process as well as other monitoring data is an important part of the body of information used in determining the adequacy of the FPA.

In general, TMDL modeling focuses on larger streams where fish use is more common. Modeling the first and second order streams has not been done for TMDL. Because of the lack of analysis on smaller high gradient streams, potential monitoring or analysis to determine appropriate protection for smaller streams would be helpful to ensure attainment of TMDL expectations and to provide a better technical connection between BMP implementation and load allocations (LA) in such streams.

Some of the BMPs have been revised in 2003 for roads and land slide prone areas to address safety issues and other ODF study findings. These BMPs should be monitored as funding allows for adequacy to meet TMDL load allocation or meet water quality standards within the Bear Creek watershed. (See Management Measures - Road Construction and Maintenance rules)

ADDITIONAL MONITORING IS RECOMMENDED FOR THE FOLLOWING FPA BMPs THAT CONTROL SEDIMENT LOADING TO BETTER REFINE LOADING ESTIMATES FROM THE FORESTED LANDSCAPE.

- OAR 629-623, Shallow, Rapidly Moving Landslides and Public Safety
- OAR 629-625, Road Construction and Maintenance Rules
- OAR 629-645, Riparian Management Areas and Protection Measures for Significant Wetlands
- OAR 629-650, Riparian Management Areas and Protection Measures for Lakes
- OAR 629-640, Vegetation Retention Goals for Streams; Desired Future Conditions
- Voluntary measures designed to provide wood for debris flows where appropriate

ODF Monitoring strategy (with a list of proposed monitoring studies) is available for viewing at:

[http://oregon.gov/ODF/PRIVATE\\_FORESTS/docs/fp/Strategy2002.pdf](http://oregon.gov/ODF/PRIVATE_FORESTS/docs/fp/Strategy2002.pdf)

***FOR TECHNICAL REPORTS ON FOREST PRACTICES, LINK TO***

***[HTTP://EGOV.OREGON.GOV/ODF/PRIVATE\\_FORESTS/FPMPPROJECTS.SHTML#FOREST\\_R\\_OADS](HTTP://EGOV.OREGON.GOV/ODF/PRIVATE_FORESTS/FPMPPROJECTS.SHTML#FOREST_R_OADS)***

## **Voluntary Measures**

### **Oregon Plan**

Voluntary measures are currently being implemented on private and state forestlands under the Oregon Plan for Salmon and Watersheds (OPSW) to provide further water quality protection. These measures are designed to supplement the conifer stocking within riparian areas, increase large wood inputs to streams, and provide for additional shade. This is accomplished during harvest operations by (1) placing appropriate sized large wood within streams that meet parameters of gradient, width and existing wood in the channel; and (2) relocating in-unit leave trees in priority areas<sup>1</sup> to maximize their benefit to salmonids

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<sup>1</sup> The Executive Order replaced the concept of "core areas" with "priority areas". See (1)(f) of the Executive Order (p.5).

while recognizing operational constraints, other wildlife needs, and specific landowner concerns. In addition, the Oregon Plan has voluntary measures addressing sediment issues related to forest roads. ODF will work with willing land owners and encourage others to implement voluntary measures to further control sediment loading.

Debris torrents in general have positive effects resulting from wood delivery in areas where the material can be "recruited and held in streams. Debris torrents delivered from intermittent streams located adjacent to valley bottoms in the Bear Creek watershed, however, have been documented to fail to deliver wood to receiving streams. Debris torrents instead have delivered wood to adjacent agricultural lands or in some instances to receiving larger meandering streams where wood retention is not likely to occur.

## **BMPs – Riparian Management Area Protection and Enhancement**

### **ODF 8S: Riparian Conifer Restoration**

Forest practice rules have been developed to allow and provide incentives for the restoration of conifer forests along hardwood-dominated RMAs where conifers historically were present. This process enables sites capable of growing conifers to contribute conifer LWD in a timelier manner. This process will be modified to require an additional review process before the implementation of conifer restoration within core areas.

### **ODF 19S: Additional Conifer Retention along Fish-Bearing Streams in Core Areas**

THIS MEASURE RETAINS MORE CONIFERS IN RMAS BY LIMITING HARVEST ACTIVITIES TO 25 PERCENT OF THE CONIFER BASAL AREA ABOVE THE STANDARD TARGET. THIS MEASURE IS ONLY APPLIED TO RMAS CONTAINING A CONIFER BASAL AREA THAT IS GREATER THAN THE STANDARD TARGET.

### **ODF 20S: Limited RMA for Small Type N Streams in Core Areas**

THIS MEASURE PROVIDES LIMITED 20 FOOT RMAS ALONG ALL PERENNIAL OR INTERMITTENT SMALL TYPE N STREAMS FOR THE PURPOSE OF RETAINING SNAGS AND DOWNED WOOD.

### **ODF 21S: Active Placement of large wood during Forest Operations**

*This measure provides a more aggressive and comprehensive program for placing large wood in streams currently deficient of large wood. Placement of large wood is accomplished following existing ODF/ODFW placement guidelines and determining the need for large wood placement is based upon a site-specific stream survey.*

### **ODF 22S: 25 Percent In-unit Leave Tree Placement and Additional Voluntary Retention**

This measure has one non-voluntary component and two voluntary components:

- 1) The State Forester, under statutory authority, will direct operators to place 25 percent of in-unit leave trees in or adjacent to riparian management areas on Type F and D streams.
- 2) The operator voluntarily locates the additional 75 percent in-unit leave trees along Type N, D or F streams, and
- 3) The State Forester requests the conifer component be increased to 75 percent from 50 percent.

### **ODF 61S: Analysis of "Rack" Concept for Debris Flows**

OFIC members will conduct surveys to determine the feasibility and value of retaining trees along small type N streams with a high probability of debris flow in a "rack" just above the confluence with a Type F stream. The rack would extend from the RMA along the Type F stream up the Type N stream some distance for the purpose of retaining trees that have a high likelihood of delivery to the Type F stream.

**ODF 62S: Voluntary No-Harvest Riparian Management Areas**

Establishes a system to report and track, on a site-specific basis, when landowners voluntarily take the opportunity to retain no-harvest RMAs.

The voluntary management measures are implemented within priority areas. Several of the measures utilize in-unit leave trees and are applied in a “menu” approach to the extent in-unit leave trees are available to maximize their value to the restoration of salmonid habitat. The choice of menu measures is at the discretion of the landowner, but one or more of the measures are selected.

***GENERAL PRIORITY FOR PLACEMENT OF IN-UNIT LEAVE TREES:***

- 1) Small and medium Type F streams.
- 2) Non-fish bearing streams (Type D or Type N), especially small low-order headwater stream channels, that may affect downstream water temperatures and the supply of large wood in priority area streams.
- 3) Streams identified as having a water temperature problem in the DEQ 303(d) list of water quality limited waterbodies, or as evidenced by other available water temperature data; especially reaches where the additional trees would increase the level of aquatic shade.
- 4) Potentially unstable slopes where slope failure could deliver large wood.
- 5) Large Type F streams, especially where low gradient, wide floodplains exist with multiple, braided meandering channels.
- 6) Significant wetlands and stream-associated wetlands, especially estuaries and beaver pond complexes, associated with a salmon core area stream.

**BMPs - Sediment Issues related to Forest Roads****ODF 1S and 2S: Road Hazard Identification and Risk Reduction Project**

Many forest roads built prior to the development of the FPA or prior to the current BMPs continue to pose increased risk to fish habitat. Industrial forest landowners and state forest lands are currently implementing measures to identify risks to salmon from roads and address those risks. The purposes of this project are:

1. Implement a systematic process to identify road-related risks to salmon and steelhead recovery.
2. Establish priorities for problem solution.
3. Implement actions to reduce road related risks.

The Road Hazard Identification and Risk Reduction Project is a major element of the Oregon Plan. The two major field elements of this project are

- (1) the surveying of roads using the Forest Road Hazard Inventory Protocol, and
- (2) the repairing of problem sites identified through the protocol.

Road repairs conducted as a result of this project include improving fish passage, reducing washout potential, reducing landslide potential, and reducing the delivery of surface erosion to streams.

Roads assessed by this project include all roads on Oregon Forest Industry Council member forestland, plus some other industrial and non-industrial forestland, regardless of when they were constructed. Industrial forest landowners have estimated spending approximately \$13 million per year, or \$130 million over the next 10 years, on this project for the coastal ESUs. However, the effort is not limited to nor bound by this funding estimate. Funding for the implementation for this measure within the other ESUs will be reflective of road problems found.

Under ODF 2S, the State Forest Lands program has spent over \$2.5 million during the last three biennia for the restoration of roads, replacement of culverts and other stream crossing structures damaged by the 1996 storm and to improve roads, including stream crossing structures. This effort has upgraded approximately 500 miles of road.

*In addition to ODF 1S & 2S, there are additional measures under the Oregon Plan that address road management concerns:*

***ODF 16S - Evaluation of the Adequacy of Fish Passage Criteria:***

*Establish that the criteria and guidelines used for the design of stream crossing structures pass fish as intended under the goal.*

***ODF 34S - IMPROVE FISH PASSAGE BMPS ON STREAM CROSSING STRUCTURES:***

***ENSURE THAT ALL NEW STREAM CROSSING STRUCTURES ON FORESTLAND INSTALLED OR REPLACED AFTER THE FALL OF 1994 WILL PASS BOTH ADULT AND JUVENILE FISH UPSTREAM AND DOWN STREAM. (OAR 629-625-0320)***

***CURRENT CONSIDERATIONS***

Furthermore, the BOF has been considering possible riparian rule revisions that take into account recommendations from the Sufficiency Analysis, the advisory committees and the IMST, as well as additional recommendations from Oregon Department of Fish and Wildlife (ODFW), ODEQ, and other stakeholders. Some of the following concepts are being proposed as rules whereas others are being proposed as voluntary measures. Until these concepts are formally adopted into rules or OPSW voluntary measures, Stewardship Foresters will encourage and work with landowners to incorporate these additional measures and ODF will monitor the effectiveness of these BMPs for attaining water quality standards under Forest Practices monitoring program.

- Provide habitat above human caused fish barriers
- Provide wood for debris flows where appropriate (should be applied only where the recruitment and retention of large wood is feasible)
- Revise the large wood placement rule and active management basal areas (size and number of trees)
- Increase basal area for medium and small fish bearing streams in Western Oregon
- Treat medium and large non-fish bearing streams as same size fish bearing streams
- Provide added protection for small non-fish bearing streams
- Provide protection for channel migration zones
- Limit harvesting within riparian management areas by retaining 60% of preharvest basal area (must be greater than the standard basal area target)
- Limit harvesting to the outer half of the riparian management area
- Retain the largest trees within the riparian management area

**In order to meet TMDL goals DEQ will coordinate with ODF to work with willing land owners and encourage others to implement voluntary measures described above to further control sediment loading.**

For more information regarding the OPSW, link to

[HTTP://WWW.OREGON-PLAN.ORG/OPSW/PARTNERS/PARTNER.SHTML](http://www.oregon-plan.org/ops/partners/partner.shtml)

**ROLES OF THE ENVIRONMENTAL QUALITY COMMISSION (EQC) AND BOARD OF FORESTRY (BOF)**

FOREST PRACTICES ON NON-FEDERAL LAND IN OREGON ARE REGULATED UNDER THE FPA AND IMPLEMENTED THROUGH ADMINISTRATIVE RULES THAT ARE ADMINISTERED BY THE OREGON DEPARTMENT OF FORESTRY (ODF). THE OREGON BOARD OF FORESTRY (BOF), IN CONSULTATION WITH THE ENVIRONMENTAL QUALITY COMMISSION (EQC), ESTABLISH BMPs AND OTHER RULES TO ENSURE THAT, TO THE EXTENT PRACTICABLE, NPS POLLUTION RESULTING FROM FOREST OPERATIONS DOES NOT IMPAIR THE ATTAINMENT OF WATER QUALITY STANDARDS.

WITH RESPECT TO THE TEMPERATURE STANDARD, SURFACE WATER TEMPERATURE MANAGEMENT PLANS ARE REQUIRED ACCORDING TO OAR 340-041-0028(12) (H) WHEN TEMPERATURE CRITERIA ARE EXCEEDED AND THE WATERBODY IS DESIGNATED AS WATER-QUALITY LIMITED UNDER SECTION 303(D) OF THE CLEAN WATER ACT. IN THE CASE OF STATE AND PRIVATE FORESTLANDS, OAR 340-041-0028(12)(E) IDENTIFIES THE FPA RULES AS THE IMPLEMENTATION MECHANISM FOR FORESTRY ACTIVITIES.

FOR PARAMETERS OTHER THAN TEMPERATURE, ODF AND DEQ STATUTES AND RULES ALSO INCLUDE PROVISIONS FOR ADAPTIVE MANAGEMENT THAT PROVIDE FOR REVISIONS TO FPA PRACTICES WHERE NECESSARY TO MEET WATER QUALITY STANDARDS. THESE PROVISIONS ARE DESCRIBED IN ORS 527.710, ORS 527.765, ORS 183.310, OAR 340-041-0061(11), OAR 629-635-110, AND OAR 340-041-0061(11). CURRENT ADAPTIVE MANAGEMENT EFFORTS UNDER SEVERAL OF THE ABOVE STATUTES AND RULES ARE DESCRIBED IN MORE DETAIL IN ADAPTIVE MANAGEMENT SECTION OF THIS DOCUMENT.

**FOREST PRACTICES ACT ORS THAT ARE APPLICABLE TO WATER QUALITY PROTECTION**ORS 527.714 TYPES OF RULES; PROCEDURE; FINDINGS NECESSARY; RULE ANALYSIS

BOF MAY ADOPT RULES THAT WOULD PROVIDE NEW OR INCREASED STANDARDS FOR FOREST PRACTICES ONLY AFTER DETERMINING THAT CERTAIN FACTS EXIST AND STANDARDS ARE MET:

ORS 527.714(5)(a)-(c). Evidence must show that existing practices are likely to cause degradation of protected resources, and the proposed rule must reflect available scientific information, relevant monitoring, and, as appropriate, adequate field evaluation at representative locations in Oregon.

ORS 527.714(5)(d). Proposed rules must be drafted with precision to prevent the harm or provide the benefits for the resource requiring protection. Rules must directly relate to, and substantially advance, their underlying objective.

ORS 527.714(5)(e). New rules must undergo an alternatives analysis, non-regulatory approaches must be considered, and the "least burdensome" alternative must be chosen.

ORS 527.714(5)(f). The benefits to the resource achieved by the rule must be proportional to the harm cause by forest practices.

ORS 527.714(7). New rules must also be accompanied by a detailed economic impact analysis.

ORS 527.765 *Best management practices to maintain water quality.*

The State Board of Forestry shall establish best management practices and other rules applying to forest practices as necessary to insure that to the maximum extent practicable nonpoint source discharges of pollutants resulting from forest operations on forestlands do not impair the achievement and maintenance of water quality standards established by the Environmental Quality Commission for the waters of the state. Such best management practices shall consist of forest practices rules adopted to prevent or reduce

pollution of waters of the state. Factors to be considered by the board in establishing best management practices shall include, where applicable, but not be limited to:

- (a) Beneficial uses of waters potentially impacted;
- (b) The effects of past forest practices on beneficial uses of water;
- (c) Appropriate practices employed by other forest managers;
- (d) Technical, economic and institutional feasibility; and
- (e) Natural variations in geomorphology and hydrology.

**ORS 527.770 GOOD FAITH COMPLIANCE WITH BEST MANAGEMENT PRACTICES NOT VIOLATION OF WATER QUALITY STANDARDS; SUBSEQUENT ENFORCEMENT OF STANDARDS.**

***A FOREST OPERATOR CONDUCTING, OR IN GOOD FAITH PROPOSING TO CONDUCT, OPERATIONS IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES CURRENTLY IN EFFECT SHALL NOT BE CONSIDERED IN VIOLATION OF ANY WATER QUALITY STANDARDS. WHEN THE STATE BOARD OF FORESTRY ADOPTS NEW BEST MANAGEMENT PRACTICES AND OTHER RULES APPLYING TO FOREST OPERATIONS, SUCH RULES SHALL APPLY TO ALL CURRENT OR PROPOSED FOREST OPERATIONS UPON THEIR EFFECTIVE DATES.***

FOR ADDITIONAL INFORMATION ON BOF AND EQC RELATIONSHIP AND RELATED RULE REVISION DISCUSSIONS, LINK TO THE FOLLOWING:

[HTTP://WWW.DEQ.STATE.OR.US/ABOUT/EQC/AGENDAS/ATTACHMENTS/OCT2004/10.21.04.EQC-BOFJOINTREPORT.PDF](http://www.deq.state.or.us/about/eqc/agendas/attachments/oct2004/10.21.04.EQC-BOFJOINTREPORT.PDF)

<http://www.deq.state.or.us/about/eqc/agendas/attachments/oct2004/10.21.04.EQC-BOFAtchE.pdf>

The above adaptive management process may result in findings that indicate changes are needed to the current forest practice rules to protect water quality. Any rule making that occurs must comply with the standards articulated under ORS 527.714(5). This statute requires, among other things, that regulatory and non-regulatory alternatives have been considered and that the benefits provided by a new rule are in proportion to the degree that existing forest practices contribute to the overall resource concern..

**APPENDIX B – DEPARTMENT OF AGRICULTURE**

**Bear Creek Agricultural Water Quality  
Management Area Plan**

**2004**

*The following is excerpted from the Bear Creek Agricultural Water Quality Management Area Plan, 2004. The Plan is scheduled for review and revision in 2006. For more information or a complete copy of the document Tim Stevenson, Oregon Department of Agriculture at (541) 471-7838.*

## FOREWORD AND APPLICABILITY

This Agricultural Water Quality Management Area Plan (AgWQMAP) provides guidance for addressing agricultural water quality issues in the Bear Creek Agricultural Water Quality Management Area (Management Area). The purpose of this Area Plan is to identify strategies to reduce water pollution from agricultural lands through a combination of educational programs, suggested land treatments, management activities, and monitoring. The provisions of this Area Plan do not, by themselves, establish legal requirements or prohibitions. The Oregon Department of Agriculture (ODA) will exercise its enforcement authority for the prevention and control of water pollution from agricultural activities under administrative rules for Bear Creek and Oregon Administrative Rules (OAR) 603-090-0120 through 603-090-0180.

The administrative rules for the Bear Creek sub-basin set forth the requirements and/or prohibitions that will be used by ODA in exercising its enforcement authority for the prevention and control of water pollution from agricultural activities. In addition, OARs 603-090-060 through 603-090-0120 describe the enforcement actions that may be triggered upon the finding of a violation by ODA.

Furthermore, the 2001 Oregon legislature adopted Senate Bill 51 that clarifies the enforceability of AgWQMAP rules and not the plan language. This has always been the policy and direction of the ODA but it has been codified in response to public appeal

## I. INTRODUCTION

In July 1989 the Oregon Environmental Quality Commission declared the beneficial uses of the waters of Bear Creek to be limited under the terms of the federal Water Pollution Control Act (33 USC §1313), and set interim total maximum daily loads and instream criteria for several pollutants, including total phosphorus. Senate Bill 1010 (Oregon Revised Statutes 568.900-568.933), initiated by the agriculture industry, passed by the 67th Oregon Legislature and signed by the Governor in July 1993, authorized the ODA to develop and carry out plans to prevent and control water pollution resulting from agricultural activities and soil erosion for water bodies listed under section 303(d) of the federal Clean Water Act, including Bear Creek. Oregon's Department of Environmental Quality (DEQ) updates their "water quality limited" or 303(d) list every two to four years.

In July 1995, Bruce Andrews, the director of ODA, appointed the Bear Creek Local Advisory Committee (LAC), and charged it to work with ODA to prepare a Bear Creek Sub-basin AgWQMAP. The original plan document, the Bear Creek Sub-basin AgWQMAP, was completed in 1997. That original plan addressed only phosphorus since that was the primary pollutant targeted on the 303(d) list. This second revision (dated 2004) is the result of LAC and Technical Committee meetings held in October and December of 2004 in an effort to address the revised listings from the 2002 303(d) list and upcoming Bear Creek TMDL.

## II. MISSION AND OBJECTIVES

The mission statement for the Bear Creek AgWQMAP adopted by the LAC is:

**Seek to achieve the water quality standards current as of March 30, 2004 for the Bear Creek sub-basin by preventing and controlling water pollution resulting from agricultural activities, given the background pollutant levels documented by monitoring data.**

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~~The objectives of the Bear Creek AgWQMAP are to:~~

Bear Creek Watershed TMDL WQMP - ODEQ

- Create a high level of awareness of water quality issues and problems among farmers in the watershed;
- Promote practices that limit the movement of pollutants from agricultural lands into Bear Creek;
- Promote practices that stabilize stream-banks;
- Promote practices that reduce sedimentation of streams due to soil erosion;
- Seek to control water pollution as close to its source as possible; and
- Seek funding necessary to achieve the mission statement.

### **III. GEOGRAPHIC AREA AND SCOPE**

The Bear Creek sub-basin is located near Medford, Oregon, and is entirely within Jackson County. The watershed area covered by this plan is concurrent with the geographic boundaries for which the DEQ has set total maximum daily loads. For clarification, the geographic area covered by the Bear Creek Plan does not include the Whetstone Creek or Upton Creek drainage areas north and east of Central Point and Bear Creek. Those areas are covered under the Inland Rogue Agricultural Water Quality Management Plan and Rules (OAR 603-095-1400 through 603-095-1440).

## **APPENDIX C – ODOT WATER QUALITY MANAGEMENT**

ENTIRE PLAN CAN BE VIEWED ONLINE ON THE ODOT WEBSITE AT:

[HTTP://WWW.ODOT.STATE.OR.US/ESHTM/IMAGES/4DMAN.PDF](http://www.odot.state.or.us/eshtm/images/4dman.pdf)

The Oregon Department of Transportation (ODOT) plan addresses the requirements of a Total Maximum Daily Load (TMDL) allocation for pollutants associated with the ODOT system. This statewide approach for an ODOT TMDL watershed management plan would address specific pollutants, but not specific watersheds. Instead, this plan would demonstrate how ODOT incorporates water quality into project development, construction, and operations and maintenance of the state and federal transportation system, thereby meeting the elements of the National Pollutant Discharge Elimination System (NPDES) program, and the TMDL requirements.

ODOT has partnered with DEQ in the development of several watershed management plans. By presenting a single, statewide, management plan, ODOT:

- Streamlines the evaluation and approval process for the watershed management plans
- Provides consistency to the ODOT highway management practices in all TMDL watersheds.
- Eliminates duplicative paperwork and staff time developing and participating in the numerous TMDL management plans.

Temperature and sediment are the primary concerns for pollutants associated with ODOT systems that impair the waters of the state. DEQ is still in the process of developing the TMDL water bodies and determining pollutant levels that limit their beneficial uses. As TMDL allocations are established by watershed, rather than by pollutants, ODOT is aware that individual watersheds may have pollutants that may require additional consideration as part of the ODOT watershed management plan. When these circumstances arise, ODOT will work with DEQ to incorporate these concerns into the statewide plan.

### **ODOT Limitations**

The primary mission of ODOT is to provide a safe and effective transportation system, while balancing the requirements of environmental laws. ODOT is a dedicated funding agency, restricted by the Oregon Constitution in its legal authority and use of resources in managing and operating the state and federal highway system. ODOT can only expend gas tax resources within the right of way for the operation, maintenance and construction of the highway system.

ODOT and DEQ recognize that the ODOT system has the potential to negatively impact the beneficial uses of the waters of the state, primarily through surface water runoff. However, removal of vegetative cover to provide for safety, and undermining of the road associated with bank failure may impact temperature and sediment allocations.

As defined in the TMDL program, ODOT is a Designated Management Agency (DMA) because highways have the potential to pollute waterways and negatively impact watershed health. With this definition of a DMA, ODOT is required to participate in developing and implementing watershed management plans that will reduce the daily pollutant loads generated from ODOT highways to acceptable TMDL levels.

ODOT is not a land use or natural resource management agency. ODOT has no legal authority or jurisdiction over lands, waterways, or natural resources that are located outside of its right of way. ODOT's contribution to the TMDL management plan can only be directed at the development, design, construction, operations and maintenance of the ODOT system.

### **Related Clean Water Regulations**

There are various water quality laws and regulations that overlap with the TMDL program. In a TMDL Memorandum of Agreement with the Environmental Protection Agency (EPA) (July 2000), DEQ states that; "DEQ will implement point source TMDLs through the issuance or re-issuance of National Pollutant Discharge Elimination System (NPDES) permits". The DEQ NPDES municipal permit program was established in 1994 and requires owners and operators of public stormwater systems to reduce or eliminate stormwater pollutants to the maximum extent practicable.

On June 9, 2000, ODOT received an NPDES permit from DEQ that covers all new and existing discharges of stormwater from the Municipal Separated Storm Sewer associated with the ODOT owned and maintained facilities and properties located within the highway right of way and maintenance facilities for all basins in Oregon. This

permit required the development of a statewide ODOT stormwater management plan.

Other environmental regulations that overlap with the intent of the TMDL program include the federal and state Endangered Species Act, Corps of Engineers Wetland 404 permit regulations, state cut and fill removal laws, erosion control regulations, ground water protection rules, etc. Many federal, state, and local agencies join DEQ in administering and enforcing these various environmental regulations related to water quality.

### **ODOT Programs**

ODOT established a Clean Water program in 1994 that works to develop tools and processes that will minimize the potential negative impacts of activities associated with ODOT facilities on Oregon's water resources. The ODOT Clean Water program is based on developing and implementing Best Management Practices (BMPs) for construction and maintenance activities. ODOT has developed, or is developing the following documents, best management practices, or reviews, that reduce sediment and temperature impacts:

- **ODOT Routine Road Maintenance Water Quality and Habitat Guide, Best Management Practices, July 1999 (ESA 4(d) Rule)**

ODOT has worked with National Marine Fisheries Service (NMFS) and Oregon Department of Fish and Wildlife (ODFW) to develop Best Management Practices (BMPs) that minimize negative environmental impacts of routine road maintenance activities on fish habitat and water quality. The National Marine Fisheries Service has determined that routine road maintenance, performed under the above mentioned guide, does not constitute a 'take' of anadromous species listed under the federal Endangered Species Act, and therefore additional federal oversight is not required. This determination has been finalized as part of the Federal Register, Volume 65, Number 132, dated Monday, July 10, 2000, pages 42471-42472. In addition, the Oregon Department of Fish and Wildlife has determined that the guide, and BMPs are adequate to protect habitat during routine maintenance activities.

- **NPDES Municipal Separated Storm Sewer System (MS4) Permit**

ODOT worked with DEQ to develop a statewide NPDES MS4 permit and stormwater management program that reduces pollutant loads in the ODOT stormwater system. The permit was issued to ODOT on June 9, 2000.

- **NPDES 1200CA Permit**

ODOT has developed an extensive erosion control program that is implemented on all ODOT construction projects. The program addresses erosion and works to keep sediment loads in surface waters to a minimum. ODOT currently holds 5 regional permits that cover highway construction.

- **Erosion and Sediment Control Manual**

ODOT Geotechnical/Hydraulic staff have developed erosion and sediment control manuals and training for construction and maintenance personnel. Included in the manual are designs for different types of erosion control measures.

- **National Environmental Policy Act (NEPA) Reviews**

ODOT is an agent of the Federal Highway Administration, consequently, ODOT must meet NEPA requirements during project development. Included in the project development process are reviews to avoid, minimize and mitigate project impacts to natural resources, including wetlands and waters of the state.

- **Integrated Vegetation Management (IVM) District Plans**

ODOT works with the Oregon Department of Agriculture and other agencies to develop activities that comply with regulations that pertain to the management of roadside vegetation. Vegetation management BMPs can directly effect watershed health. Each ODOT district develops an integrated vegetation management plan.

- **Forestry Program**

ODOT manages trees located within its right of way in compliance with the Oregon Forest Practices Act and other federal, state, and local regulations. Temperature, erosion, and land stability are watershed issues associated with this program. ODOT is currently working with ODFW on a prototype for managing hazardous trees along riparian corridors.

- **Cut/Fill Slope Failure Programmatic Biologic Assessment**

ODOT has been in formal consultation with the National Marine Fisheries Service, the US Fish and Wildlife Service and the Oregon Department of Fish and Wildlife Service in the development of a programmatic biological assessment for how ODOT will repair cut/fill slope failures in riparian corridors. The draft document outlines best management practices to be used in stabilizing failed stream banks, and bio-engineered design solutions for the failed banks.

- **Disposal Site Research Documentation and Programmatic Biological Assessment**

ODOT has been working with DEQ in researching alternatives and impacts associated with the disposal of materials generated from the construction, operation and maintenance of the ODOT system. ODOT has begun the process of entering into formal consultation with NMFS, USFWS, and ODFW on disposing of clean fill material.

## **ODOT TMDL Pollutants**

ODOT and DEQ have identified temperature and sediment as the primary TMDL pollutants of concern associated with highways. While DEQ may identify other TMDL pollutants within the watershed, many historical pollutants, or pollutants not associated with ODOT activities, are outside the control or responsibility of ODOT. In some circumstances, such as historical pollutants within the right of way, it is expected that ODOT will control these pollutants through the best management practices associated with sediment control. ODOT is expecting that by controlling sediment load these TMDL pollutants will be controlled. Research has indicated that controlling sediment also controls heavy metals, oils and grease, and other pollutants.

Oregon's limited summer rainfall makes it highly unlikely that ODOT stormwater discharges elevate watershed temperatures. Management of roadside vegetation adjacent to waterways can directly effect water temperature. ODOT has begun to incorporate temperature concerns into its vegetation management programs and project development process.

Other TMDL concerns, such as dissolved oxygen, or chlorophyll A, can be associated with increased temperature. These TMDLs are not associated with the operation and maintenance of the transportation system, and are outside the authority of ODOT. Specific TMDL concerns that are directly related to the transportation system will be incorporated into the ODOT management plan.

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ODOT NPDES characterization monitoring indicates ODOT pollutant levels associated with surface water runoff

are below currently developed TMDL standards. This indication is based on ODOT 1993-95 characterization monitoring and current TMDLs.

### **Requirements of a TMDL Implementation Plan**

Designated Management Agencies appointed by DEQ are required to develop a watershed management plan once the TMDL for the watershed is defined. EPA and DEQ have listed the following requirements as essential elements of a watershed TMDL Implementation plan:

Proposed management measures tied to attainment of the TMDL. This will include a list of sources by category or sub-category of activity;  
 Timeline for implementation, including a schedule for revising permits, and a schedule for completion of measurable milestones (including appropriate incremental, measurable water quality targets and milestones for implementing control actions);  
 Timeline for attainment of water quality standards, including an explanation of how implementation is expected to result in the attainment of water quality standards;  
 Identification of responsible participants demonstrating who is responsible for implementing the various measures;  
 Reasonable assurance of implementation;  
 Monitoring and evaluation, including identification of parties responsible for monitoring, and a plan and schedule for revision of the TMDL and/or implementation plan;  
 Public involvement;  
 Maintenance of effort over time;  
 Discussion of cost and funding;  
 Citation to legal authorities under which the implementation will be conducted.

### **1) Proposed Management Measures tied to attainment of TMDLs.**

ODOT has two business lines: project development and construction, and maintenance. There are management measures, processes, requirements and reviews included with each business line that are tied to the TMDL programs. These include:

The ODOT MS4 NPDES permit and permit application- addresses sediment and temperature TMDL, includes project development and construction, and maintenance.

The ODOT NPDES 1200 CA Permit- addresses sediment TMDL for construction.

The ODOT Erosion and Sediment Control Manual-addresses sediment TMDL for construction and maintenance.

The ODOT Routine Road Maintenance Water Quality and Habitat Guide, Best Management Practices, July 1999- addresses sediment and temperature TMDL.

National Environmental Policy Act: addresses sediment and temperature TMDL, and habitat issues.

Endangered Species Act requirements for project development: addresses sediment and temperature TMDL, and habitat issues.

### **2) Timeline for Implementation**

ODOT already implements many water quality management measures as directed by state and federal law. Implementation timelines for currently developing measures are described in ODOT's MS4 NPDES permit. The ODOT MS4 permit was recently issued and is valid until May 31, 2005. ODOT's regional construction permits (1200 CA) are scheduled for renewal in December 2000.

### **3) Timeline for Attainment of Water Quality Standards**

The complete attainment of load allocations applicable to ODOT corridors may not be feasible, certainly in the short term, and likely in the long term due to safety concerns and other important factors. However, ODOT expects to implement every practicable and reasonable effort to achieve the load allocations when considering new or modifications to existing corridors, and changes in operation and maintenance activities.

**4) Identification of Responsible Participants**

Implementing the ODOT best management measures is the responsibility of every ODOT employees. ODOT Managers are held accountable for ensuring employees and actions meet agency policy, and state and federal law, including the Clean Water Act.

**5) Reasonable Assurance of Implementation**

ODOT is required by its state NPDES MS4 permit to implement a stormwater management plan. In addition, as a federally funded agency, ODOT is required to comply with the Endangered Species act and the Clean Water Act as part of project development. Recent agreements with NMFS require ODOT to implement best management practices for routine road maintenance.

**6) Monitoring and Evaluation** (see MS4 Permit Application)

ODOT's monitoring and evaluation program is tied to performing research projects that address best management practices and effectiveness of the practices.

**7) Public Involvement**

DEQ held public hearings on the ODOT MS4 Stormwater Management Plan throughout Oregon. In addition, NMFS held a series of public hearings on the ESA 4(d) rule, which included the ODOT Routine Road Maintenance Best Management Practices. ODOT project development under goes a public involvement process that includes review by regulating agencies, and public hearings and meetings.

**8) Maintenance of Effort Over Time**

The elements of the ODOT water quality and habitat programs are bound in state and federal law, and state and agency directives. Consequently, the ODOT programs are standard operating practice.

**9) Discussion of Cost and Funding**

ODOT revenue comes primarily from dedicated funds collected as state and federal gasoline taxes. The Oregon Constitution dedicates taxes associated with motor vehicle fuel, and the ownership, operation and use of motor vehicles for the construction, reconstruction, improvement, repair, maintenance, operation and use of public highways. Consequently, ODOT is unable to expend resources outside its rights of way, or on activities not directly related to ODOT highways. ODOT construction projects are funded through a variety of Federal Highway Administration funding programs, including the Transportation Equity Act (TEA-21), state gas tax dollars, local and matching funds and bond.

ODOT budgets are identified the preceding year for the following biennium. Each ODOT section or district budgets as necessary to fulfill the requirements of its identified programs. ODOT determines the budget for its MS4 permit as program needs develop and as agency funds allow. ODOT Office of Maintenance, through the Clean Water/Salmon Recovery Program allocates funds to maintenance forces for betterment projects that improve water quality and salmon habitat.

The Oregon Transportation Commission and the Oregon State Legislature approve the ODOT budget.

**10) Citation to Legal Authorities** - See MS4 Permit Application  
ODOT has legal authority only over ODOT right of way.

**Conclusion**

ODOT programs are adaptive and are expected to change as new information becomes available. ODOT will continue to work with the DEQ, NMFS, USFWS, and ODFW in best management practices, research opportunities, training, etc. The ODOT program meets the requirements of the TMDL Implementation Plans, and will be attached as appropriate to individual watershed plans

**APPENDIX D**



**DEVELOPING AND IMPLEMENTING  
TMDL IMPLEMENTATION PLANS  
DEQ INTERNAL MANAGEMENT  
DIRECTIVE**

**REVIEW DRAFT  
MARCH 15, 2006**

An IMD establishes a presumptive approach that should be used in the routine implementation of a program. However, IMDs are not rule and do not create requirements on DEQ personnel or on members of the regulated community. DEQ may deviate from the IMD in unusual situations that present fact patterns that were not contemplated at the time an IMD was adopted. These excursions from the IMD should generally be done with the knowledge and approval of the other members of the management team.


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**Appendix A: Inventory of Existing Water Resource Management Activities**

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**Appendix C: TMDL Implementation Tracking Matrix – A Template for Describing and Tracking Management Strategies**



## **Purpose of this Document**

### **Purpose**

This Internal Management Directive (IMD) describes DEQ's expectations for agency staff relative to the requirements for developing and implementing sector-specific or source-specific Total Maximum Daily Load (TMDL) Implementation Plans as laid out in OAR 340-042-0080(3). "Sector-Specific Implementation Plan" or "Source-Specific Implementation Plan" in the context of a TMDL means a plan for implementing a Water Quality Management Plan for a specific sector or source not subject to permit requirements in ORS 468B.050" (OAR 340-042-0030(11)). As such, this IMD covers plans that address nonpoint sources of pollution not covered under a permit. These plans are required from Designated Management Agencies (DMA). A DMA is a federal, state or local governmental agency that has legal authority over a sector or source contributing pollutants, and is identified as such by the Department of Environmental Quality in a TMDL. The Departments of Forestry and Agriculture are exempted from submitting specific Implementation Plans as activities are regulated under other statutes and rules.

DEQ anticipates revising this document from time to time as our experience with TMDL implementation hones our thinking on the most effective approaches. For questions or comments on this IMD, contact Eugene Foster (503-229-5983).

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## Background

Total Maximum Daily Loads (TMDLs) get us only part of the way to resolving Oregon's water quality problems. TMDLs describe what needs to happen to correct water quality problems, but water quality improvements won't actually happen unless actions are taken to resolve those problems.

Many different entities share responsibility for implementing TMDLs. These entities are identified in the TMDL and are expected to develop and implement TMDL Implementation Plans. For certain sources and sectors, TMDL Implementation Plans are established through a prescribed approach, such as the following:

- Municipal and industrial point sources implement the TMDL through their NPDES wastewater permits. DEQ will revise permits as necessary to incorporate the Waste Load Allocation set in a TMDL. A process for addressing TMDLs has been identified in MS4 storm water permits.
- TMDLs are implemented on agricultural lands through Agricultural Water Quality Management Area Plans (Senate Bill 1010 plans) under the leadership of the Oregon Department of Agriculture.
- TMDLs are implemented on state and private forest lands through the Oregon Forest Practices Act under the leadership of the Oregon Department of Forestry.

Other entities are required to develop and implement a TMDL Implementation Plan following the issuance of a TMDL. TMDL Implementation Plans address sources of pollution that are not otherwise covered by any of the mechanisms described above. This document explains what a TMDL Implementation Plan should contain.

---

## General Considerations

### Building Upon other Water Protection Efforts

TMDL Implementation Plans describe the actions that municipalities, land managers and others will undertake to reduce pollution in order to help restore and protect water quality.

Many of these entities already have plans or strategies in place that help prevent or control water pollution, such as Storm Water Management Plans or road maintenance plans, but these plans may not address all of the TMDL pollutants or cover all relevant sources of pollution. The TMDL Implementation Plan should *build* upon these efforts, not duplicate or repeat them. The Plan should reference those activities and describe any additional strategies that will be undertaken in order to achieve the pollution reductions described in the TMDL.

The questionnaire in Appendix A can be used to identify planning and management activities already underway that might support the TMDL Implementation effort and be incorporated as actions within the TMDL Implementation Plan.

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### **Long Term Vision**

The centerpiece of a TMDL Implementation Plan is a list of ongoing and planned activities that will be undertaken to achieve the TMDL pollutant reductions. This list is accompanied by a timeline for implementing the actions and methods for assessing effectiveness.

The Implementation Plan must also indicate how the entity will continue efforts over the long term to further reduce pollution contributions (if necessary to fully achieve the TMDL requirements) and ensure the desired levels will be maintained. Long term success is largely dependent upon having adequate pollution prevention mechanisms in place (e.g., erosion control BMPs, riparian protection strategies, storm water management strategies, etc.) and a well-defined process for adaptive management. Through adaptive management, DEQ expects that the adequacy of these activities will be monitored and modified over time as needed.

---

**Identifying  
Appropriate  
Strategies**

Depending upon the pollutant source being addressed, the “appropriate” strategy will vary. Some strategies can be implemented immediately (e.g., changing BMPs for maintaining roadside ditches) while others will require more evaluation before an effective strategy can be determined (e.g., determining whether bacteria is coming from urban or agricultural runoff, septic systems or wildlife). Some strategies may require a significant public process (e.g., adopting a new ordinance or including storm water management facilities in a Capital Improvement Plan) while others can be undertaken relatively quickly (e.g., education and outreach efforts).

To the extent possible given staffing levels and the amount of demand, DEQ will provide resource materials and technical assistance to those needing help with identifying management strategies and developing their TMDL Implementation Plan.

---

**Progress, Not  
Perfection**

DEQ does not expect everyone to know all the answers when they submit their TMDL Implementation Plan to DEQ. Many of the water pollution problems being addressed through TMDLs will take several years to several decades to be resolved, and it is not always possible to determine exactly what on-the-ground efforts it will take to get there.

For this reason, DEQ does not expect that TMDL Implementation Plans will describe in great detail how the management strategies will achieve the load allocation for each pollutant. However, DEQ does expect TMDL Implementation Plans to (1) identify known or suspected sources of each pollutant under the entity’s jurisdiction, (2) identify the actions they are taking, or plan to take, to address each of those sources, and (3) describe how they are going to gauge effectiveness over time.

---

## TMDL Implementation Planning Requirements

### **Who is required to develop and submit a Plan?**

The Water Quality Management Plan (WQMP) section of a TMDL identifies the entities that are expected to develop and implement a TMDL Implementation Plan if their TMDL responsibilities are not already addressed through a prescribed approach. This most commonly includes Designated Management Agencies\* such as cities, counties, the U.S. Forest Service and the Bureau of Land Management, but may also apply to other DMAs that manage a significant tract(s) of land within the TMDL boundaries or are otherwise identified as having a significant role in achieving water quality improvements. These could include Irrigation or Drainage Districts, U.S. Fish and Wildlife Service (wildlife refuges), the National Park Service or the Corps of Engineers or Bureau of Reclamation (for federal dams). DEQ may also require TMDL Implementation Plans from non-governmental entities if their actions are found to be a significant contributor to water quality problems.

DEQ recognizes that the level of responsibility for preventing water pollution varies greatly from one entity to the next, as does their capacity to respond to regulatory requirements. As such, DEQ may elect to exempt specific entities from Implementation Plan requirements or delay their due date, or work with smaller entities to develop a customized TMDL Implementation Plan suited to the magnitude of their contribution to the problem. These determinations will be made as part of the TMDL development process and specified in the WQMP. However, an exemption from the plan requirement does not negate the responsibility to take appropriate steps to reduce or prevent pollutants from entering the waterways.

---

### **Plan Submittal**

#### **When is the Plan due?**

The due date for the TMDL Implementation Plans is described in the WQMP section of each TMDL. Typically, the due date for submitting completed Plans is between 12 and 18 months following DEQ's approval of a TMDL.

The beginning of this 12-18 month period coincides with the date DEQ sends a letter to affected parties and others following the issuance of a TMDL (required by rule to be sent within 20 days of issuing a TMDL). EPA's timeline for approving a TMDL does *not* affect the TMDL Implementation Plan timeline.

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**What does DEQ do once it receives a Plan?**

DEQ will acknowledge receipt of the plan and will strive to review it within 60 days. If the plan cannot be reviewed within 60 days, DEQ will let the entity know when the review will be undertaken.

The plan will be reviewed to ensure that it includes all required components and adequately addresses known or suspected sources of pollution under the entity's jurisdiction. If the plan is found to be unsatisfactory, DEQ will identify which portions of the plan are considered inadequate, return the plan and identify a timeframe for resubmitting the plan. To the extent possible, DEQ will provide resource materials and technical assistance to those needing help to complete the plan.

After receiving a satisfactory plan, DEQ will send the entity a letter of approval. The approval letter may also include recommendations for additional actions the entity should consider or undertake, or DEQ's expectations of things to be addressed in a future update of the plan.

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**Components of an Implementation Plan**

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**What must a Plan cover?**

The required components of a TMDL Implementation Plan are described in the TMDL rule. The language from the rules is excerpted below, and DEQ's expectations relative to these requirements follow.

In addition, a sample outline for a TMDL Implementation Plan is provided in Appendix B.

**OAR 340-042-0080(3)**

*(3) Persons, including DMAs other than the Oregon Department of Forestry or the Oregon Department of Agriculture, identified in a WQMP as responsible for developing and revising sector-specific or source-specific implementation plans must:*

*(a) prepare an implementation plan and submit the plan to the Department for review and approval according to the schedule specified in the WQMP. The implementation plan must:*

*(A) Identify the management strategies the DMA or other responsible person will use to achieve load allocations and reduce pollutant loading;*

*(B) Provide a timeline for implementing management strategies and a schedule for completing measurable milestones;*

*(C) Provide for performance monitoring with a plan for periodic review and revision of the implementation plan;*

*(D) To the extent required by ORS 197.180 and OAR chapter 340, division 18, provide evidence of compliance with applicable statewide land use requirements; and*

*(E) Provide any other analyses or information specified in the WQMP.*

*(b) Implement and revise the plan as needed*

**Component #1  
Management  
Strategies  
(OAR 340-042-  
0080(3)(a)(A) &  
(B))**

A TMDL Implementation Plan must indicate how the entity will reduce pollution in order to address load allocations. Entities required to submit a TMDL Implementation Plan are not responsible for pollution arising from land management activities that occur outside of their jurisdictional authority.

The matrix in Appendix C is intended to guide an entity through the process of identifying strategies and establishing timelines (including expected completion dates for major milestones), benchmarks, etc. DEQ encourages the use of this matrix for organizing this element of the Implementation Plan. Additional details on each strategy can be included in a narrative portion of the Plan.

In some instances, it may be helpful (or necessary if resources are limited) to prioritize among the strategies. This might mean addressing some pollution sources before others or focusing implementation efforts in a particular geographic area. To the extent possible, the selection of priorities should be driven by the greatest opportunities for achieving pollutant reductions.

---

**Component #2  
Performance  
Monitoring Plan  
(OAR 340-042-  
0080(3)(a)(C))**

Performance Monitoring is defined in the TMDL rule:

*“Performance Monitoring” means monitoring implementation of management strategies, including sector-specific and source-specific implementation plans, and resulting water quality changes. OAR 340-042-0030 (7)*

Thus, two types of monitoring are expected to be addressed in Implementation Plans – implementation monitoring (*Were specified management actions implemented?*) and effectiveness monitoring (*Are the selected strategies effectively reducing pollutant loading?*).

---

**Implementation  
Monitoring and  
Reporting**

Entities will track implementation activities and report to DEQ annually on progress and accomplishments. The TMDL Implementation Plan should include a statement to this effect to demonstrate the entity’s intent to do so.

If an entity uses the TMDL Implementation tracking matrix shown in Appendix C to describe their TMDL implementation activities, one simple way to satisfy the reporting requirement is to fill in the “status” column for each strategy and submit the spreadsheet to DEQ.

---

**Effectiveness  
Evaluation**

For practical reasons, there is not a one-size-fits-all expectation for evaluating effectiveness.

Many larger jurisdictions are already monitoring water quality and/or taking actions to evaluate the effectiveness of their pollution reduction efforts. These activities may have been undertaken voluntarily or required as part of a NPDES Permit or other regulatory requirement. These jurisdictions will be expected to describe how their monitoring and evaluation strategies will be used to assess the effectiveness of their TMDL implementation efforts.

Entities that are not able to undertake an evaluation of effectiveness on their own will be expected to participate in discussions with DEQ and other entities in the area (e.g., watershed councils, Soil and Water Conservation Districts, other municipalities, etc.) to help identify effectiveness monitoring needs and discuss how resources could be pooled to implement an effectiveness evaluation strategy for their area.

When required as part of a TMDL Implementation Plan, the Effectiveness Evaluation Plan should identify the questions the entity seeks to answer, the methodology for collecting and analyzing data to get to those answers, and who's responsible for collecting, analyzing and reporting monitoring information. If water quality monitoring is a component of the effectiveness assessment, these activities should be conducted in conformance with DEQ's Quality Assurance guidelines and monitoring data should be evaluated relative to Oregon's water quality standards.

All entities are encouraged to consult with DEQ to ensure their monitoring and evaluation strategies do not duplicate other efforts or involve unnecessary data collection.

---

**Component #3  
Adaptive  
Management  
(OAR 340-042-  
0080(3)(a)(C))**

All entities are expected to evaluate their NPS TMDL Implementation Plan every five years (or some other interval acceptable to DEQ) following submittal. The evaluation does not require additional monitoring or measurements. Rather, the evaluation should use existing data and other information to evaluate the effectiveness of the Plan relative to the pollution reduction goals. The report should describe what information was used in the evaluation, the outcome of the evaluation and the basis for this reasoning. If the evaluation indicates that the Plan is not likely to be adequate to meet the pollution reduction goals, the entity must describe how they will modify their Plan or undertake other efforts to achieve these goals, and the timeline for accomplishing this.

Entities are also expected to review and revise their TMDL Implementation Plan as needed following DEQ's reevaluation of the TMDL.

---

**Component #4  
Evidence of  
Compliance with  
Land Use  
Requirements  
(OAR 340-042-  
0080(3)(a)(D))**

In most cases, an TMDL Implementation Plan must identify applicable acknowledged local comprehensive plan provisions and land use regulations and explain how the implementation plan is consistent with these local planning requirements or what steps will be taken to make the local planning requirements consistent with the implementation plan. This will ordinarily require cooperation with the planning officials with jurisdiction over the area if the DMA is not a city or county. In rare cases, the DMA may need to work with DEQ staff to prepare land use planning goal findings.

**Component #5  
Additional  
Requirements  
(OAR 340-042-  
0080(3)(a)(E))**

If DEQ identifies any additional requirements for a certain entity in the WQMP, those must be addressed in the TMDL Implementation Plan.

---

**Implementing the Plan**

**Implementation  
Responsibilities**

All entities required to submit a TMDL Implementation Plan are expected to “implement and revise the plan as needed.” (OAR 340-042-0080(3)(b)). If this does not occur, DEQ has the regulatory authority to take enforcement action to compel the entity to do so. However, DEQ will first make every attempt to work collaboratively with the entity to achieve compliance.

---

**Change Happens**

DEQ expects that each TMDL Implementation Plan, and the commitments and timelines described within it, is believed by its authors to include strategies and timelines that are realistic and implementable, and that the actions will ultimately be successful in meeting the pollution reduction goals. However, pollution prevention is an uncertain science and the pathway to implementing some of these strategies can also be uncertain due to availability of funds, amount of public support, etc.

As such, DEQ expects that the entity will implement the plan to the best of its abilities but acknowledges that reasonable and prudent judgment will make adjustments or revisions necessary from time to time. The entity should keep DEQ apprised of the changes. In most instances, it will be adequate to wait for the next 5 year review of the Plan to revise the Plan to reflect the changes.

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## APPENDIX A: Inventory of Water Resource Management Activities

The following questions are intended to help local governments identify things they are already doing that may help address some of the Implementation Plan requirements.

### PLANNING

Identify which part(s) of your Comprehensive Plan address water quality, non-point source pollution, stormwater, riparian zones, or water pollution control?

What steps has your jurisdiction taken to enact and/or comply with Statewide Land Use Planning Goals 5 and 6?

What zoning ordinances and/or overlays has your jurisdiction enacted that relate to water quality? This may include, but is not limited to, ordinances that do any of the following:

- require erosion and/or sediment control at construction sites?
- require retention of vegetation and/or re-planting at construction sites?
- limit impervious surfaces in new development?
- limit development in floodplains?
- require septic system inspection and maintenance?
- protect riparian areas?

Has your jurisdiction participated in any of the following planning efforts?

- Source Water Assessment
- Drinking Water Protection Plan
- Watershed Management Plan (may be in partnership with a local watershed council)
- Other--Please Specify: \_\_\_\_\_

### STORMWATER

Does your jurisdiction have a NPDES Stormwater Management Permit?

Does your jurisdiction have any Underground Injection Control facilities (i.e., sumps)? If so, are they covered under a UIC General Permit or Individual Permit?

Does your jurisdiction have any stormwater treatment facilities? If yes, what kind and how many?

Has your jurisdiction completed a Stormwater Management Plan?

Has your jurisdiction's public works or parks department constructed any swales, detention ponds/basins, or artificial wetlands for managing storm water? If yes, please specify.

Does your jurisdiction encourage or require private developers to construct swales, detention ponds/basins, or artificial wetlands?

### POLLUTION CONTROL

Does your jurisdiction have any voluntary or mandatory inspection or maintenance program for onsite septic systems?

Does your jurisdiction have a program to detect illegal discharges into waterways?

Has your jurisdiction implemented any projects intended to help control nonpoint source pollution?

### OUTREACH AND EDUCATION

What resources does your jurisdiction provide that encourages pet owners to "pick up" after their pets (waste bags, educational materials, dog parks in environmentally-friendly areas)?

What guidance or training programs exist for municipal employees that address pollution prevention in regards to municipal sources, i.e. maintenance of vehicles, buildings, roads, parks and open space or the storm water system?

--

Does your jurisdiction offer yard waste collection services and/or recycling programs?

**REGIONAL COORDINATION**

Which watershed councils, SWCDs or other groups do you work with to address watershed restoration needs? Describe the types of cooperative efforts undertaken with them.

**MONITORING**

Does your jurisdiction monitor water quality (surface water, groundwater or storm water)? Has the data been analyzed?

## APPENDIX B: SAMPLE OUTLINE FOR A TMDL IMPLEMENTATION PLAN

### 1. BACKGROUND, GOALS AND OBJECTIVES (NOT REQUIRED)

Although not required, it is helpful to provide this context so that the people who read this plan understand what it is for. This information can be drawn directly from the TMDL and/or customized for your specific community or area.

### 2. CONDITION ASSESSMENT (NOT REQUIRED)

This information can be drawn from the TMDL and/or other assessments of water quality resources for your area.

### 3. MANAGEMENT STRATEGIES (REQUIRED, OAR 340-042-0080(3)(a)(A)&(B))

*Note: DEQ recommends using the matrix in Appendix C as a framework for fulfilling the requirements of this section.*

A TMDL Implementation Plan must describe how the entity will manage the known or suspected sources of pollution resulting from human activities that are contributing or have the potential to contribute to the water quality impairment. Entities are not responsible for pollution arising from activities that occur outside of their jurisdictional authority.

All entities should refer to the Water Quality Management Plan (WQMP) section of the TMDL when developing their list of management strategies.

- The WQMP will list the specific pollutants that need to be addressed and potential sources of those pollutants. However, the list of sources may not cover all source categories that fall within an entity's jurisdiction so it is important to assess whether other sources are likely to exist.
- The WQMP may also include a listing of management strategies that could be used to control sources of pollution. The list of strategies is not meant to be prescriptive or comprehensive, but to provide some ideas to stimulate thinking about potential management strategies. DEQ will also be available to provide assistance in identifying sources as well as potential management strategies.
- In some instances, the WQMP will direct certain entities to address specific measures (e.g., the Willamette TMDL requires certain entities to include specific storm water control measures in the Implementation Plans to address bacteria and other pollutants).

The Implementation Plan should clearly identify all sources of each pollutant addressed by the TMDL and the management strategies used to address each source. Where appropriate, a strategy should include a break-out of major milestones (e.g., for adoption of an ordinance, this may include convening an advisory committee, public review of the proposed ordinance, and ordinance adoption).

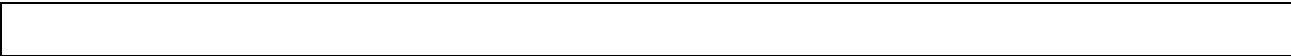
In some instances, it may be helpful (or necessary if resources are limited) to prioritize among the strategies. This might mean addressing some sources of pollution before others or focusing implementation efforts in a particular geographic area. To the extent possible, the selection of priorities should be driven by the greatest opportunities for achieving pollutant reductions.

The TMDL Implementation Plan must also describe the “*timeline for implementing strategies and a schedule for completing measurable milestones*” (OAR 340-042-0080(3)(B)). It should be understood that these timelines are targets based upon best professional judgment, and not intended to be enforceable compliance points.

The matrix in Appendix C is a tool designed to guide an entity through the process of identifying strategies and establishing timelines, benchmarks, etc. DEQ encourages the use of this matrix as a framework for organizing and summarizing management strategies. Additional detail on management strategies can be included in a narrative portion of this section.

### 4. PERFORMANCE MONITORING (REQUIRED, OAR 340-042-0080(3)(a)(C))

Performance monitoring should identify the questions the entity seeks to answer, the methodology for collecting and interpreting data to get to those answers, and who's responsible for collecting, analyzing and reporting



monitoring information.

Some entities may already be conducting related activities. It may be appropriate to include these activities in the evaluation plan, but the entity needs to describe how this information will be used to answer questions relating to the effectiveness of TMDL implementation efforts.

Entities are encouraged to consult with DEQ to ensure the effectiveness evaluation plan does not duplicate other monitoring efforts or involve data collection that is unnecessary for this purpose.

**5. REPORTING AND ADAPTIVE MANAGEMENT (REQUIRED, OAR 340-042-0080(3)(a)(C))**

This section needs to indicate that you agree to the reporting and adaptive management requirements. This could be accomplished by including the following language, which captures DEQ’s expectations relative to these elements:

*[Name of entity] will track TMDL implementation activities and report to DEQ annually on progress and accomplishments.*

Note: If an entity uses the matrix in Appendix C to describe their TMDL implementation activities, one simple way to satisfy the reporting requirement is to fill in the “status” column for each strategy and submit the spreadsheet to DEQ.

*[Name of entity] will evaluate this Implementation Plan every five years following submittal. The evaluation will include a review of existing water quality data and other information to evaluate the effectiveness of the Plan relative to the pollution reduction goals. The report will describe what information was used in the evaluation, the findings of the evaluation and the basis for this reasoning. If the evaluation indicates that the Plan is not likely to be adequate to meet the pollution reduction goals, we will describe how we will modify the Plan or undertake other efforts to achieve these goals, and the timeline for accomplishing this.*

*In addition, [name of entity] will review and revise their Implementation Plan as needed following DEQ’s reevaluation of the TMDL.*

**6. EVIDENCE OF COMPLIANCE WITH LAND USE REQUIREMENTS (REQUIRED, OAR 340-042-0080(3)(a)(D))**

In most cases, an implementation plan must identify applicable acknowledged local comprehensive plan provisions and land use regulations and explain how the implementation plan is consistent with these local planning requirements or what steps will be taken to make the local planning requirements consistent with the implementation plan. This will ordinarily require cooperation with the planning officials with jurisdiction over the area if the DMA is not a city or county. In rare cases, the DMA may need to work with DEQ staff to prepare goal findings.

**7. ADDITIONAL REQUIREMENTS AS INDICATED IN THE WQMP (ONLY IF REQUIRED IN WQMP, OAR 340-042-0080(3)(a)(E))**

If DEQ identifies any additional requirements for a certain entity in the WQMP, those must be addressed in the TMDL Implementation Plan.

*	*	*	*
	*	*	*
	*	*	*
	*	*	*
	*		

## **APPENDIX C: TMDL IMPLEMENTATION TRACKING MATRIX: A Template for Describing and Tracking Management Strategies**

The Matrix is a tool for describing, tracking and reporting on TMDL implementation efforts. Some entities may want to include more detailed information about how each strategy will be implemented elsewhere in their Plan.

Use of the Matrix has a number of advantages. The matrix can:

- 1) guide entities through development of the Management Strategies section of their Implementation Plan by providing a simple framework for organizing the required information
- 2) serve as a framework for reporting on implementation activities; i.e., an entity can fill in a “Status” column for each management strategy and submit that to DEQ to fulfill the annual reporting requirements.
- 3) make it easier for DEQ to review TMDL Implementation Plans and reports by having the information organized in a comprehensive yet concise manner.
- 4) if it becomes common practice for entities to use this matrix, it will enable DEQ to “roll up” the information in order to produce a report on TMDL implementation activities throughout a basin or across the state.

The basic Matrix, including explanations of what each element means, is shown below.

To provide a better idea of how it could be used, the matrix has been filled in with an example of how a municipality might address bacteria.

**TMDL Implementation Tracking Matrix (with an example filled in)**

<b>POLLUTANT</b> <i>What pollutants does the TMDL address? (Refer to TMDL)</i>	<b>SOURCE</b> <i>What sources of this pollutant are under your jurisdiction?</i>	<b>STRATEGY</b> <i>What is being done, or what will you do, to reduce and/or control pollution emanating from this source?</i>	<b>HOW</b> <i>Specifically, how will this be done?</i>	<b>MEASURE</b> <i>How will you quantitatively or qualitatively demonstrate successful implementation or completion of this strategy?</i>	<b>TIM</b> <i>When expected completion?</i>
Bacteria	1. Failing septic systems	a. Repair failing systems	i. Respond to reports of failing systems; work with homeowner to set a timeline for repair	Track # of reports, outcome of inspection (failing or not) and date of follow-up that confirmed repairs were made	Ongoing
		b. Educate homeowners about system maintenance and how to detect failures	i. Distribute info to homeowners	Number of brochures distributed	Summer
			ii. Provide info at city's booth at Community Festival	Number of contacts	July year
	2. Bacteria carried to waterways in storm runoff	a. Address runoff problems from farms via SB 1010 plans (ODA)	i. Contact ODA when problems are identified	Track # of referrals	Ongoing
		b. Prevent pet waste from reaching waterways	i. Erect signage and provide poop bags in parks	Check bag supply weekly; track rate of use	Ongoing end of evaluation effectiveness based on of use
			ii. Get article in local paper to raise awareness	Article in paper	Summer
			iii. Adopt ordinance requiring owners to clean up after their pets.	Adopted ordinance.	2008

## APPENDIX E

### USFS CWA SECTION 303(D) LISTING (WATER QUALITY LIMITED WATERS) WATER QUALITY MANAGEMENT PLAN (WQMP) FOR REEDER RESERVOIR.

--DRAFT -April 27, 1999

## **USFS CWA Section 303(d) Listing (Water Quality Limited Waters) Water Quality Management Plan (WQMP) for Reeder Reservoir.**

### **Purpose**

This plan emphasizes the outcomes required by Section 303(d) of the 1972 federal Clean Water Act (CWA), as amended, regarding the development of a Water Quality Management Plan (WQMP) to serve as a TMDL (abbreviation for a program of "Total Maximum Daily Loads") to address nonpoint sediment pollution above Reeder Reservoir on Ashland Creek.

This plan will be incorporated into the more encompassing Bear Creek WQMP. The Bear Creek WQMP is projected to be completed by December of 1999.

### **Bear Creek and Ashland Creek below Reeder Reservoir**

Ashland Creek has been identified by the Oregon Department of Environmental Quality (DEQ) as a 303(d) listed stream from its mouth to Ashland City limits (i.e. below Reeder Reservoir) as Water Quality Limited (WQL) for high bacterial levels. Ashland Creek is tributary to Bear Creek. Bear Creek has been listed as WQL (from its mouth to Neil Creek) for flow modification, habitat modification, temperature, and bacteria. As discussed in both the Draft Supplemental Environmental Impact Statement (Draft SEIS) for the Expansion of the Mt. Ashland Ski Area and the Draft Environmental Impact Statement (DEIS) for the Ashland Watershed Protection Project (AWPP), none of the parameters for which lower Ashland Creek and Bear Creek are listed will either benefit or be adversely affected by the implementation of the proposed management activities above Reeder Reservoir .

### **Ashland Creek above Reeder Reservoir**

Ashland Creek is listed as WQL for sediment at Reeder Reservoir, which is the source of municipal water for the City of Ashland. Proposed management activities above Hosler Dam (which creates Reeder Reservoir) have the potential to affect the sediment listing. This includes the East and West Forks of Ashland Creek and some small facing streams to the reservoir. The remainder of this discussion thus focuses on how proposed management activities may affect the Section 303(d) listing of Reeder Reservoir for sediment.

### **WQMP Required Elements**

This plan incorporates the 10-element procedure for development of a WQMP as described in the November 1, 1997, DEQ *"Guidance for Developing Water Quality Management Plans That Will Function as TMDLs for Nonpoint Sources."* To prevent repetition of discussions elsewhere in either the Draft SEIS for the Expansion of the Mt. Ashland Ski Area, the DEIS for the AWPP , the Bear Watershed Analysis and other documents, some discussions under each element here will be briefly summarized and/or are incorporated by reference for further clarification.

*Element 1: Condition Assessment and Problem Description* -The water quality standards and criteria, water quality conditions, problem sources, etc. for sediment are described in the 1995 *Bear Watershed Analysis (W A) Report*, the 1987 RRNF "*Origins and Characteristics of Sedimentation in Reeder Reservoir*" Report, the *Affected Environment Chapters of the DEIS for the AWPP and the Draft SEIS for the Expansion of the Mt. Ashland Ski Area*, and DEQ's 1994/1996/1998 303(d) List of Water Quality Limited Waterbodies & Oregon's Criteria Used for Listing Waterbodies, Oregon Department of Environmental Quality .

*Element 2: Goals and Objectives* -The overall goal is to maintain the level of sedimentation to Reeder Reservoir at levels within the range of natural variability through minimizing human caused soil compaction, erosion, and mass movement. Although the Ski Area Expansion proposal has incorporated design features and mitigation measures to minimize potential short-term increases in sediment production, a Cumulative Watershed Effects (CWE) analysis showed no anticipated long- term increase in sediment input (above the natural range of variability) to the headwaters of the East Fork of Ashland Creek. While the AWPP is intended to maintain short-term sediment levels, it is also intended to reduce the long-term risk of accelerated erosion resulting from catastrophic wildfire that would inevitably exceed the natural range of variability. At the same time, concurrent restoration work will continue in the Ashland Creek Watershed for the next several years, with the focus on reduction of road-related sediment production and the stabilization of unstable (landslides) lands.

The specific objective is to have less than twenty percent of the East and West Forks of Ashland Creek's active channel composed of sand-size and smaller particles (e.g., surface fines). This is roughly analogous to the concept of embeddedness.

*Element 3: Proposed Management Measures* -The Rogue River National Forest Land and Resource Management Plan (RRNF LRMP) provides overall direction for managing the Ashland Creek Watershed as a restricted watershed for the protection of water quality and quantity. The recent adoption of the Northwest Forest Plan (NWFP) includes a new emphasis on watershed restoration and the establishment and protection of Riparian Reserves adjacent to water bodies, wetlands, and unstable areas. Riparian Reserves insure that riparian-dependent values will receive emphasis for protection and/or restoration.

The report, "*Origins and Characteristics of Sedimentation in Reeder Reservoir*" list detailed specifications for road maintenance within the Ashland watershed for the purpose of reducing erosion (p. 14). These specifications continue to be used routinely for road maintenance.

The Bear WA, completed in compliance of the NWFP, contains recommendations for reducing sediment including guidelines for road restoration, landslide stabilization, protection of Riparian Reserves, fire hazard reduction, and project implementation (Chapter 3, Summary of Findings, Desired Future Conditions, and Recommendations). Restoration work is on-going within the Ashland Creek watershed, with special attention on flood-damaged areas resulting from the January, 1997 Flood.

A fire hazard and risk assessment completed with the Bear Watershed Analysis and Mt. Ashland

Late-Successional Reserve Assessment, identified the need for a fire hazard reduction project to reduce the potential for large-scale fire in the Ashland Creek watershed. If a large-scale fire occurred, accelerated erosion in a burned landscape would increase the volume of sediment in Reeder Reservoir over natural levels, particularly if it closely coincided with a large storm/runoff event.

Both the DEIS for the AWPP and the Draft SEIS for the Expansion of the Mt. Ashland Ski Area details Best Management Practices (BMPs ), which are measures for the protection of soil, " geological unstable areas, aquatic habitat and water quality values associated with Ashland Creek Watershed and adjacent drainages (Roca, Hamilton, and Tolman Creeks). These measures, which include protection of Riparian Reserves as defined in the NWFP, are intended to control sediment from entering stream courses, to develop and/or maintain long-term continuous sources of Coarse Woody Material (and thus improve aquatic habitat conditions), to maintain stream side shade adequate to achieve and/or maintain stream temperatures that meet or exceed DEQ standards, and to maintain or restore biological diversity (macroinvertebrates). Implementation of these measures is consistent with Aquatic Conservation Strategy (ACS) Objectives contained in the NWFP, and with Standards and Guidelines for Restricted Watershed (MS-22) of the RRNF LRMP.

*Element 4: Timeline for Implementation* -The timeline for implementation of the proposed A WPP is approximately 10 years, between 1999 and 2010. The proposed ski area expansion project is -- anticipated to begin in the Summer of 2000 and will take approximately two years to complete. Mitigation measures (BMPs) will be implemented concurrent with and/or immediately following both projects. Neither of these proposed projects will preclude concurrent restoration work which will continue in the Ashland Creek Watershed for the next several years. Restoration work focuses on the reduction of road-related sediment production and the stabilization of unstable (landslides) lands.

*Element 5: Responsible Participant* -The RRNF Supervisor is responsible for the implementation of the Ski Area Expansion Project. The Ashland District Ranger has ultimate responsibility for implementation of the A WPP project including the mitigation measures to reduce the potential for sediment to enter Reeder Reservoir. The Ranger's staff will perform specific on-the-ground implementation of these actions, including monitoring. Also, a Cooperative Agreement between the City of Ashland and the Forest Service for the management of the Ashland Municipal Watershed was originally approved in 1929. A Memorandum of Understanding was drafted in 1985 and updated in 1996. This memorandum of understanding defines the roles and responsibilities of both the City of Ashland and the Forest Service in the management and protection of the watershed.

*Element 6: Reasonable Assurance of Implementation* -In addition to the Cooperative Agreement and MOU discussed above, the RRNF LRMP provides direction for the management of the Ashland Creek Watershed as a Restricted Watershed to provide water for domestic supply. The NWFP provides direction for implementing activities consistent with Aquatic Conservation Strategy Objectives.

The implementation of mitigation measures designed for the commercial tree removal portion of both the A WPP and Ski Area Expansion Project will be included as contract provisions. A Forest Service contract administrator will be responsible for the enforcement of these provisions. Contracted commercial tree removal will be completed within two years (rarely beyond that), depending on complexity of the sale. The BMP mitigations are implemented concurrently with project activities and must be fully implemented prior to completion of the contract.

The noncommercial portion of the AWPP (underbuming and mechanical work) would be implemented through service contracts or Forest Service work crews. The noncommercial portion of the Ski Area Expansion Project would be implemented through service and/or construction contracts hired by the Mt. Ashland Ski Area Association or by ski area employees. Both the DEIS for the A WPP and the Draft SEIS for the Expansion of the Mt. Ashland Ski Area identifies mitigation measures for the implementation of noncommercial work. Appropriate mitigation measures would be included as contract provisions of contracted work.

See Element 10 {Discussion of Costs and Funding} for a discussion of the reasonable assurance of funding of these proposals, including mitigations.

*Element 7: Monitoring and Evaluation* -Monitoring of BMP implementation during project activities is a routine responsibility of the sale administrator ( commercial timber sales), burn boss (Forest Service in-house fuels treatment activities), and contract officer representative (contracted activities).

The following measures are recommended to monitor the post-project sediment regime within Ashland Creek tributary to Reeder Reservoir:

1. Install three recording rain gages within the Ashland Creek Watershed; one on the East Fork, one on the West Fork, and one near Hosler Dam.
2. Re-install the East and West Fork Ashland Creek gauging stations (monitors flow).
3. Continue monitoring the four permanent "Rosgen" stream sites for Wolman Pebble Count data (measures percent surface fines), gradient, and cross-section information. Two sites are located on both the East and West Forks.
4. Continue monitoring stream temperatures: In addition to the existing East Fork Station, add one above the 2060 Road crossing and one below the wetland crossing in the ski area expansion project area; Establish two temperature monitoring stations on the West Fork, one above the 2060 Road crossing and the other above its entry into Reeder Reservoir; Establish one temperature monitoring station in Ashland Creek just above the first bridge crossing below Hosler dam.
5. Establish a permanent photo point within the lower wetland within the ski area expansion project site.

*Element 8: Public Involvement*: -The Ashland Ranger District conducted extensive public involvement for these projects. Public involvement included invitations for participation in the

NEP A process (letters and published legal notices), public information meetings, and field trips. Coordination with adjacent landowners, the Mt. Ashland Ski Area Association, and the City of Ashland also occurred. The public will receive 45 days to review and comment on both the DEIS for the A WPP and the Draft SEIS for the Expansion of the Mt. Ashland Ski Area. After completion of the Final (S)EIS and signing of the Record of Decision (ROD) for each project, the public has an additional 45 days to appeal any part of the decision, including those relating to the CW A Section 303(d) listing of Reeder Reservoir on Ashland Creek for sediment. A detailed account of the public involvement process for these projects is contained in the D(S)EIS Chapter I, Scoping Section.

*Element 9: Maintenance of Effort Over Time* - The Ashland Creek Watershed will continue to be managed under the guidance of the RRNF LRMP and the NWFP, both providing legally binding direction for the management of lands in this project area. In addition, the Cooperative Agreement between the City of Ashland and the Forest Service for the management of the Ashland Creek Watershed for domestic supply will be continued.

*Element 10: Discussion of Costs and Funding* - The contractor costs of implementing commercial tree removal activities, including implementation of BMPs such as protecting Riparian Reserves, are incorporated into project bids. Funding of USFS administration for contractor compliance with project mitigation constraints are determined in the Forest's normal budgeting process; sale administration funds are distributed to the district to cover this routine ongoing activity. Funding for Forest Service specialist oversight is dependent on adequate funding in the Forest budget. However, Forest Geologist assistance with layout and marking has already occurred for the A WPP. Due to the designation of this area as a Municipal Watershed and Late-Successional Reserve (LSR), activities located within it generally receive a high priority for funding.

Specific (brush disposal or BD) funds are collected from timber sale receipts to complete disposal of slash generated from the commercial tree removal. Knutson Vandenburg (KV) funds can be collected against receipts from the commercial tree removal to treat natural fuels or pre-existing slash. In a separate process, budget requests will be prepared annually to receive natural fuels, timber stand improvement, watershed improvement, insect and disease prevention, and ecosystem management funding to multi-fund project work. Another source of funding includes the partnership with the City of Ashland for the protection of the Ashland Municipal Watershed, as per the Memorandum of Understanding between the USDA Forest Service and the City of Ashland.

Funding for the monitoring of permanent stream cross sections, macroinvertebrate assemblages and abundance would be requested through the annual forest budget process and is dependent on adequate funding in the Forest Budget. The monitoring of sediment volumes in the catchment basins and stream gages would likely occur through a cooperative agreement between the City of Ashland and the Forest Service and is also dependent on adequate funding in the annual Forest budget.

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