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 Babbit 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

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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

DEQ
State of Oregon
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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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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.

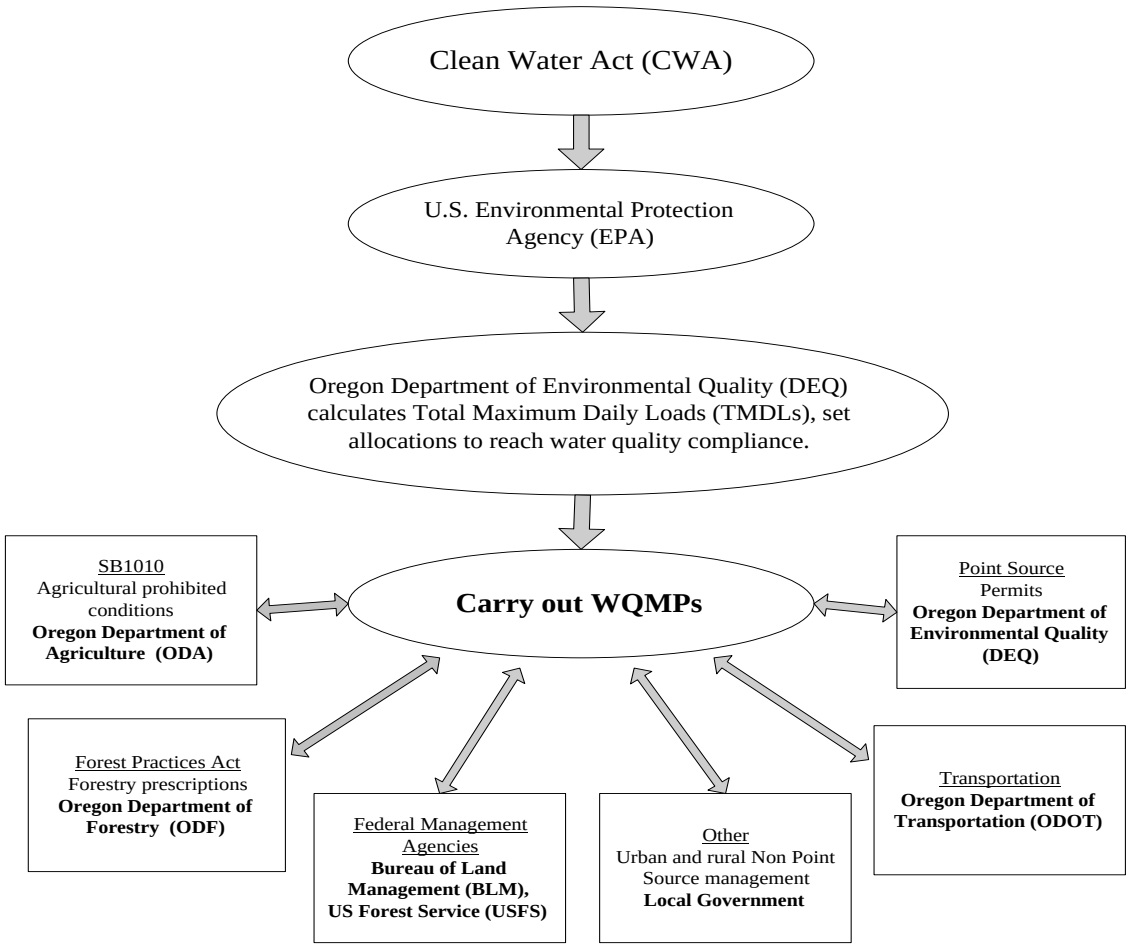
The focus of this WQMP is to demonstrate how TMDLs will be implemented in the Bear Creek Watershed. It builds upon existing point and nonpoint source Implementation Plans to outline a management approach for all land uses in the subbasin. Its organization incorporates the 10 plan elements described in 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, Medford District Resource Management Plan, Rogue River National Forest Land and Resource Management Plan and Water Quality Restoration Plan for the Bear Creek Watershed. Contact Chris Park, District Hydrologist USFS, (541) 858-2200 or Laurie Lindell, Medford District Hydrologist, 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, Bend Field Office Manager, USBOR (503) 389-6541 or Jim Pendelton District Manager at 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 Manger 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 (NDPES). Permits are issued by Department of Environmental Quality (DEQ). Contact Jon Gasik, Senior Engineer, 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. 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. Figure 2 is a graphical representation of this adaptive management concept.

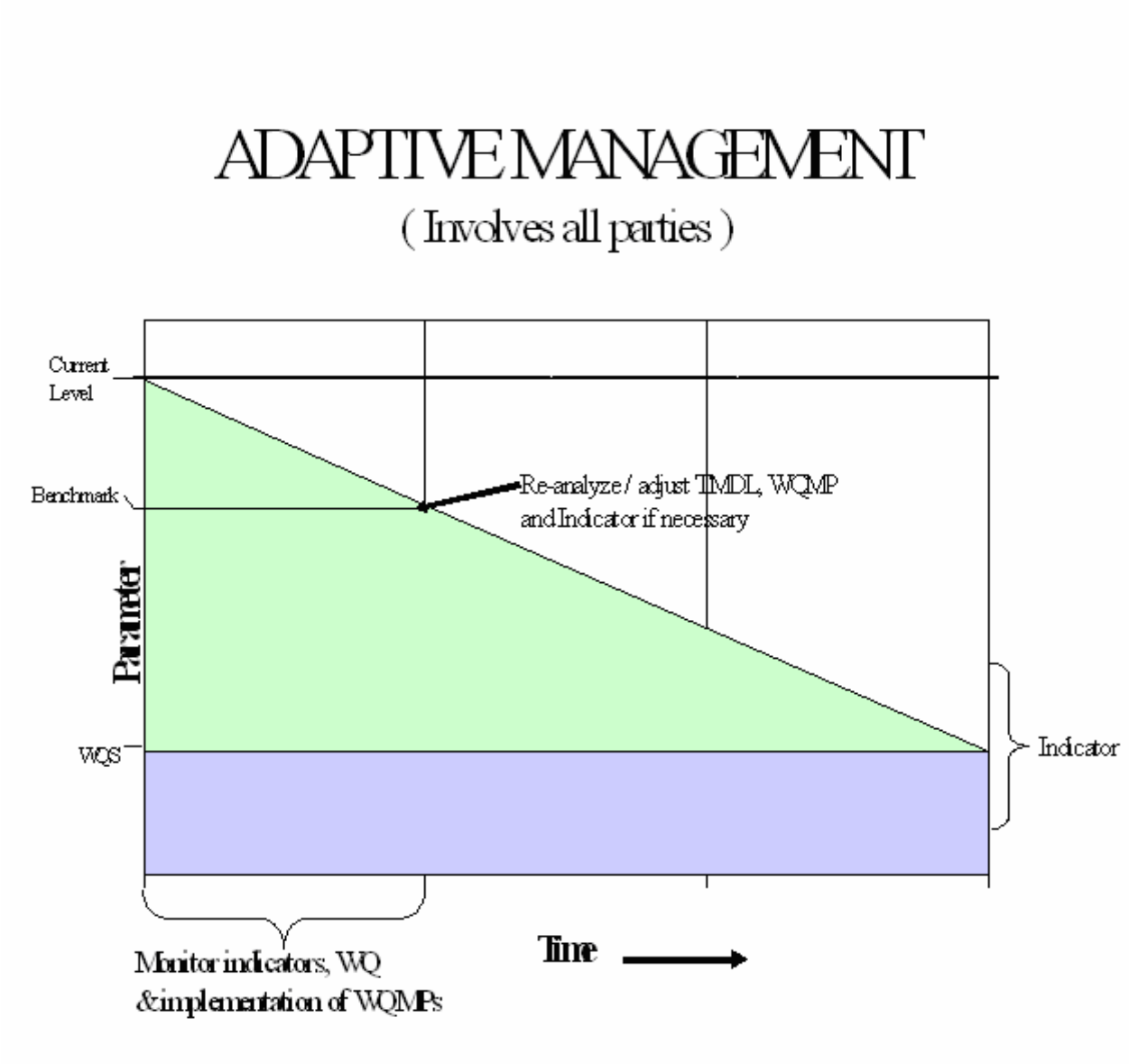


Figure 2. Adaptive Management

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
- Implementation of respective District/Forest management plan.

US Bureau or 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 and bacteria 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, USBOR (Emigrant Dam) (Plans required 18 months after TMDL order).			**X**							
Development and submittal of water quality restoration plans: BLM, USFS			**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: A portion of the federally managed lands within the Bear Creek watershed.
Plan Title: West Bear Creek Water Quality Restoration Plan
DMA: Bureau of Land Management and US Forest Service
Status: Completed (Approved by DEQ, November 2006))

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 Measurers 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.

Program	Agency/Source
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

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.

<u>RIPARIAN MANAGEMENT AREAS AND BASAL AREAS</u>

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.

		Square Feet of Basal Area per acre, each side of stream					
Geographic Region		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.

		Square Feet of Basal Area per acre, each side of stream		
Geographic Region		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 (<70o) 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, SEDMIENTATION 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

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/1999-1ES.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

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

FOR TECHNICAL REPORTS ON FOREST PRACTICES, LINK TO

HTTP://EGOV.OREGON.GOV/ODF/PRIVATE_FORESTS/FPMPPROJECTS.SHTML#FOREST_ROADS

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[1] to maximize their benefit to salmonids 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 Executive Order replaced the concept of "core areas" with "priority areas". See (1)(f) of the Executive Order (p.5).

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 formerly 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

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-BOFAttchE.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 Eric Nusbaum, Water Quality Specialist, Oregon Department of Agriculture 2446 Madison Street, Eugene, OR 97405 Phone/Fax (541) 302-3043, Mobile (503) 510-8930 enusbaum@oda.state.or.us.

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. <u>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.</u>

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 <u>March 30, 2004</u> 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.

The objectives of the Bear Creek AgWQMAP are to:

- 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

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.

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

TMDL IMPLEMENTATION PLAN GUIDANCE

FORMERLY:

DEQ INTERNAL MANAGEMENT DIRECTIVE

TMDL IMPLEMENTATION PLAN GUIDANCE

MAY 2007

FINAL DRAFT

DEQ

State of Oregon
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Disclaimer

The recommendations in this guidance document should not be construed as a requirement of rule or statute. DEQ may deviate from the guidance document in unusual situations that present situations that were not contemplated at the time the guidance document was developed. These excursions from the guidance document should generally be done with the knowledge and approval of the other members of the management team.

Oregon Department of Environmental Quality
Water Quality Division
Watershed Management Section
811 SW Sixth Avenue, Portland, OR 97204
(503) 229-5630

May 2007

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Appendices

Appendix A: DEQ Basin Coordinators (May 2007)
Appendix B: Inventory of Water Resource Management Activities
Appendix C: Sample Outline for TMDL Implementation Plan
Appendix D: TMDL Implementation Tracking Matrix

INTRODUCTION

Purpose

This document provides guidance for agency staff and designated management agencies (DMAs) on the development and implementation of sector or source-specific total maximum daily load (TMDL) implementation plans. These plans are required by Oregon Administrative Rule (OAR) 340-042-0080(3) for nonpoint sources of pollution that are not covered by permits.

DEQ anticipates revising this document occasionally as increased experience with TMDL implementation identifies the most effective approaches. For questions or comments on this document, please contact your DEQ basin coordinator (Appendix **A**).

Implementation plan basics (what, who, and when)

What is an implementation plan?

An implementation plan describes the actions that are needed to improve water quality once a TMDL has been established. Generally, a plan includes a list of pollutants of concern and their sources (if known), proposed treatment strategies, a timeline for implementation activities, and proposed methods for monitoring the effectiveness of implementation activities. These plans are necessary because the TMDL only describes what needs to happen and does not set out a schedule for implementing specific improvements.

Who is required to develop and implement a plan?

The TMDL Water Quality Management Plan (WQMP) section of a TMDL identifies the DMAs that are required to develop and implement plans if their TMDL responsibilities are not already addressed through a prescribed approach or ORS 468B.050 permit requirement.

A DMA is a federal, state or local governmental agency that has legal authority of a sector or source contributing pollutants. This most commonly includes cities, counties, U.S. Forest Service, and U.S. Bureau of Land Management, but may also apply to other DMAs that manage significant tracts of land within 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), National Park Service, U.S. Army Corps of Engineers (federal dams), or Bureau of Reclamation (federal dams, irrigation projects). 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.

Note: The Oregon Departments of Agriculture and Forestry (ODA and ODF, respectively) are exempt from submitting implementation plans because their activities are regulated under other state statutes and rules. Water quality improvements related to agricultural practices (i.e., erosion control, siltation control, animal waste management, and riparian area management) are regulated by Oregon Senate Bill 1010 plans developed under oversight by ODA. Forest practices and timber harvest activities are regulated for sound management of soil, air, water, and fish and wildlife resources by ODF under the Oregon Forest Practices Act (FPA) for private commercial operations, state forest management plans and FPA for state forests, and federal forest plans, resource management plans, and water quality restoration plans for federal forests.

Are exemptions available?

DEQ prefers to work with smaller DMAs to develop a customized TMDL implementation plan suited to the magnitude of their contribution to the problem rather than consider exemptions. However, DEQ also recognizes that the authority and level of effort necessary to prevent water pollution varies greatly from one DMA to the next. As such, DEQ may elect to exempt specific entities from implementation plan requirements. Exemptions may be made: 1) as part of the TMDL development process and specified in the TMDL WQMP, or 2) after the TMDL is adopted if DEQ believes there is sufficient reason to justify an exemption. Note, however, that an exemption from the plan requirement does not negate the responsibility of the DMA to prevent their activities from violating water quality standards.

When are plans 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 issuance of a TMDL. DEQ is required to notify DMAs, affected parties, and others by letter of the plan due date within 20 days of issuing a TMDL. EPA's timeline for approving a TMDL does *not* affect the TMDL implementation plan timeline. DEQ may extend a deadline required in the WQMP if there is sufficient justification.

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

General considerations during plan development

Build upon other water protection efforts

TMDL implementation plans describe the actions that DMAs will undertake to reduce pollution in order to help restore and protect water quality. Many of the DMAs – municipalities, counties, land managers, ODA, ODF, and others – already have plans or strategies in place that help prevent or control water pollution, such as stormwater management plans or road maintenance plans, but these plans may not address all of the TMDL pollutants or cover all relevant sources of pollution. TMDL implementation plans should *build* upon these efforts, not duplicate or repeat them. Plans should reference existing 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 B can be used to identify planning and management activities already underway that might support the TMDL implementation effort and should be incorporated as actions within the TMDL implementation plan.

Adopt a 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 DMA 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 of protection will be maintained. Long term success is largely dependent upon having adequate pollution prevention mechanisms in place [e.g., erosion control best management practices (BMPs), riparian protection strategies, stormwater management strategies] 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.

Identify 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 failing septic systems, stormwater runoff, pet wastes, wildlife). Some strategies may require a significant public process (e.g., adopting a new ordinance or including stormwater management facilities in a capital improvement plan) while others can be undertaken relatively quickly (e.g., education and outreach efforts, changes in road maintenance programs).

To the extent possible given staffing levels and the amount of demand, DEQ staff should provide resource materials and technical assistance to those needing help with the identification of management strategies or with the development of their TMDL implementation plan.

DEQ expectations: progress not perfection

DEQ does not expect DMAs 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 or 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 DMA's jurisdiction.
2) Identify the actions the DMA is taking, or plans to take, to address each of those sources.
3) Describe how the DMA is going to gauge effectiveness of control efforts over time.

COMPONENTS OF AN IMPLEMENTATION PLAN

Overview of OAR requirements

The required components of a TMDL implementation plan are described in OAR 340-042-0080(3) excerpted below. DEQ expectations for these requirements are explained in the following sections. In addition, a sample outline for a TMDL implementation plan is provided in Appendix C.

OAR 340-042-0080(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.

Identification of management strategies

Explanation of OAR 340-042-0080(3)(a)(A)

Identify the management strategies the DMA or other responsible person will use to achieve load allocations and reduce pollutant loading.

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

Where to start

Prior to selecting management strategies, the DMA should review the TMDL WQMP for a list of management strategies that could be used to control sources of pollution. Typically, this list is not meant to be prescriptive or comprehensive, but should 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 DMAs to address specific measures (e.g., the Willamette TMDL requires certain DMAs to include specific stormwater control measures in the Implementation Plans to address bacteria and other pollutants).

Prioritize and fund strategies

In some instances it may be necessary for DMAs to prioritize among the strategies if resources are limited. This may 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.

DMAs will also need to conduct a fiscal analysis to determine what additional resources are necessary to develop, implement, and maintain the management strategies, and how these resources will be obtained. The results of this analysis should be briefly described in the implementation plan. In some cases, incorporation of these results into the implementation plan will be required by the TMDL WQMP (see section 0, *Additional requirements, p.* 42).

Information needed for plan

The following information should be provided in an implementation plan:

1) List of TMDL pollutants applicable to DMA activities.
2) Suspected or known sources of pollutants.
3) Management strategy for each source of pollutant.
4) Timeline for implementation and appropriate milestones.
5) Methods to be used for monitoring progress or effectiveness.

The last two elements listed above are discussed in greater detail in the following sections.

Available DEQ resource

The matrix in Appendix D is intended to guide a DMA through the process of identifying strategies and resource needs, establishing success measures and implementation timelines (including expected completion dates for major milestones), and tracking of implementation status. DEQ encourages the use of this matrix for organizing the implementation plan and tracking progress of the management measures. Additional details on each strategy can be included in a narrative portion of the plan.

Timeline for strategies and measurable milestones

Explanation of OAR 340-042-0080(3)(a)(B)

Provide a timeline for implementing management strategies and a schedule for completing measurable milestones.

These timelines are targets based upon best professional judgment; they are not intended to be enforceable compliance points. Where appropriate, a schedule for completing measurable milestones should be included. For example, if the adoption of an ordinance is proposed to require pet owners to pick up their pet waste, measurable milestones may include dates for public review of the proposed ordinance and ordinance adoption.

Performance monitoring and periodic plan review/revision

OAR 340-042-0080(3)(a)(C)

Provide for performance monitoring with a plan for periodic review and revision of the implementation plan.

Overview of performance monitoring

Two types of performance monitoring can be addressed in TMDL implementation plans:

1) Implementation monitoring (i.e., *Were specified management strategies implemented?*); and

2) Effectiveness monitoring (i.e., *Are the selected strategies effectively reducing pollutant loading?*).

These two types of performance monitoring are discussed in more detail below. DEQ expects DMAs to monitor and report on the implementation of their management strategies, but not every DMA is expected to implement its own water quality monitoring program. This is particularly true for smaller jurisdictions.

Implementation monitoring

DMAs must monitor implementation of management strategies by tracking the progress and accomplishments of each activity. The TMDL implementation tracking matrix in Appendix D is an example of a tool that could be used to monitor implementation of management strategies by filling in the "status" column. The matrix presented in Appendix C is intended as a sample and not for duplication. A blank matrix is available on the DEQ's TMDL Implementation webpage (http://www.deq.state.or.us/wq/TMDLs/ implementation.htm). The management strategies included in the matrix should be linked to the specific pollutant sources relevant to that particular DMA.

Submittal of this matrix to DEQ with the most updated information will also satisfy the annual reporting requirement. See Section 0, *Plan Implementation and Reporting Requirements*, p. 43.

Effectiveness monitoring

DMAs should consult with DEQ to ensure that their monitoring and evaluation strategies are adequate and do not duplicate other efforts or involve unnecessary data collection. For practical reasons, there is not a one-size-fits-all expectation for monitoring effectiveness. DEQ will be available to work directly with DMAs to establish a mechanism for monitoring effectiveness. As mentioned previously, DEQ does not expect each DMA, particularly smaller jurisdictions, to implement its own water quality monitoring program. DMAs that are not able to undertake an evaluation of effectiveness on their own are expected to participate in discussions with DEQ and other entities in the area (e.g., watershed councils, Soil and Water Conservation Districts, other municipalities). These discussions will help identify effectiveness monitoring needs and discuss how resources could be pooled to implement an effectiveness evaluation strategy for the area.

Quantitative vs. qualitative effectiveness monitoring

Many larger DMAs are already analyzing water quality and evaluating the effectiveness of their pollution reduction efforts by conducting laboratory analyses of water samples. These quantitative activities may have been undertaken voluntarily or required as part of an NPDES permit or other regulatory requirement. These jurisdictions are expected to describe the effectiveness of their TMDL implementation efforts in reducing pollutant loads.

While quantitative monitoring methods are preferred in most cases, qualitative methods may provide an effective measurement of implementation progress in some instances. Examples may include photo documentation of improvement in stream bank vegetation/cover for residential properties or vegetated stormwater containment/collection swales (i.e., photos before planting, shortly after planting, and after plant maturation), or the documentation of relative sediment volume (i.e., high, medium, or low) collected from detention ponds or filters in stormwater treatment systems. While these methods do not provide quantitative information on the effectiveness of the projects, they do illustrate progress and can be combined with other monitoring efforts to show success of implementation activities.

Periodic plan review and revision

All DMAs are expected to review and, if necessary, revise their implementation plan following submittal. The review is to be conducted as specified in the TMDL WQMP. If there is no frequency specified in the WQMP, the review should occur once every five years.

This review does not require additional monitoring or measurements. Rather, the review should use existing data and other information to evaluate plan effectiveness relative to pollution reduction goals. The review 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 DMA must describe how they will modify their plan or undertake other efforts to achieve these goals and the timeline for accomplishing this.

DMAs are also expected to review and revise their TMDL implementation plan as needed following DEQ reevaluation of the TMDL.

Compliance with land use requirements

Explanation of OAR 340-042-0080(3)(a)(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.

To provide evidence that a TMDL implementation plan is in compliance with local land use requirements, in most cases the plan must:

1) Identify applicable acknowledged local comprehensive plan provisions and land use regulations, and

2) 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.

Additional requirements

OAR 340-042-0080(3)(a)(E)

Provide any other analyses or information specified in the WQMP.

If DEQ identifies any additional requirements for DMAs in the WQMP, those must be addressed in the DMA's TMDL implementation plan. For example, the Willamette TMDL WQMP requires that DMAs:

1) Conduct a fiscal analysis to determine what additional resources are necessary to develop, implement, and maintain the management strategies, and how these resources will be obtained. The results of this analysis must be briefly described in the implementation plan.

2) Include citation and brief descriptions in the implementation plan of legal authorities used to carry out the management strategies. For example, cite and describe the ordinances that prohibit illegal dumping to the storm drainage system, require erosion control for grading projects, etc.

3) If located along the mainstem Willamette River from river mile 50 downstream to the confluence with the Columbia River, address cold water refugia in the implementation plan. This would be accomplished by identifying these areas and exploring opportunities to restore or enhance these areas whenever feasible. The results of this effort should be summarized in the plan.

PLAN IMPLEMENTATION AND REPORTING REQUIREMENTS

Plan implementation

Implementation responsibilities

All DMAs required to submit a TMDL implementation plan are expected to "implement and revise the plan as needed" [OAR 340-042-0080(3)(b)]. DEQ will make every attempt to work collaboratively with DMAs to help them achieve compliance. If this does not occur, however, DEQ has the regulatory authority to take enforcement action to compel the DMA to do so.

Accommodating plan changes

DEQ expects that the strategies and timelines in a TMDL implementation plan will ultimately be successful in meeting the pollution reduction goals. DEQ recognizes, however, that pollution prevention is an uncertain science and the pathway to implementing some of these strategies may also be uncertain due to availability of funds, level of public support, etc. As such, DEQ expects that the DMA 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 DMA 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 it to reflect the changes.

Reporting requirements

What needs to be reported and when?

Generally, two reports are required to be submitted to DEQ on a regular basis:

1) Progress report
   This report tracks implementation of each management strategy. Results of implementation and effectiveness monitoring are to be included as discussed in Section 0, *Performance monitoring*, p. 40, above.

2) Implementation plan review report
   All DMAs are expected to review and, if necessary, revise their implementation plan following submittal. This report is discussed in Section 0 under *Periodic plan review and revision*, p. 41.

Typically, the TMDL WQMP specifies the frequency of reporting. If there is no frequency specified in the WQMP, a progress report should be submitted to DEQ once a year and a review report once every five years.

Appendix A: DEQ Basin Coordinators (May 2007)

Basin or Watershed	Basin Contact	Telephone Number and E-mail
Columbia River	Agnes Lut	(503) 229-5247 Portland; lut.agnes@deq.state.or.us
Clackamas	Manette Simpson	(503) 229-5294 Portland; simpson.manette@deq.state.or.us
Deschutes (Upper) Basin	Bonnie Lamb	(541) 388-6146 x239 Bend; lamb.bonnie@deq.state.or.us
Goose and Summer Lake Basin	Steve Kirk	(541) 388-6146 x235 Bend; kirk.steve@deq.state.or.us
Grande Ronde Basin	Tonya Dombrowski	(541) 278-4615 Pendleton; dombrowski.tonya@deq.state.or.us
Hood Basin	Bonnie Lamb	(541) 388-6146 x239 Bend; lamb.bonnie@deq.state.or.us
John Day Basin	Don Butcher	(541) 278-4603 Pendleton; butcher.don@deq.state.or.us
Klamath Basin	Steve Kirk	(541) 388-6146 x235 Bend; kirk.steve@deq.state.or.us
Malheur River Basin	John Dadoly	(541) 278-4616 Pendleton; dadoly.john@deq.state.or.us
Malheur Lake Basin	Bonnie Lamb (Alvord only)	(541) 388-6146 x239 Bend; lamb.bonnie@deq.state.or.us
Mollala-Pudding Subbasin	Nancy Gramlich	(503) 378-5073 Salem; gramlich.nancy@deq.state.or.us
North Coast / Lower Columbia (Tillamook)	Bruce Apple	(503) 842-3038 Tillamook; apple.bruce@deq.state.or.us
	York Johnson	(503) 322-2222 Tillamook; johnson.york@deq.state.or.us
Powder/Burnt	Mitch Wolgamott	(541) 278-4619 Pendleton; wolgamott.mitch@deq.state.or.us
Owyhee Basin	John Dadoly	(541) 278-4616 Pendleton; dadoly.john@deq.state.or.us
Rogue Basin	Bill Meyers	(541) 776-6010 x253 Medford; meyers.bill@deq.state.or.us
Sandy (Lower Columbia)	Karen Williams	(503) 229-6254 Portland; williams.karen@deq.state.or.us
Snake River / Hells Canyon	Mitch Wolgamott	(541) 278-4619 Pendleton; wolgamott.mitch@deq.state.or.us
South Coast Basin	David Waltz	(541) 687-7345 Eugene; waltz.david@deq.state.or.us
South Steens Subbasin	Eric Nigg	(541) 388-6146 x251 Bend; nigg.eric@deq.state.or.us
Tualatin Subbasin	Dennis Ades	(503) 229-6351 Portland; ades.dennis@deq.state.or.us
Umatilla Basin	Don Butcher	(541) 278-4603 Pendleton; butcher.don@deq.state.or.us
Umpqua Basin	Paul Heberling	(541) 440-3338 x224 Roseburg; heberling.paul@deq.state.or.us
Walla Walla Subbasin	Don Butcher	(541) 278-4603 Pendleton; butcher.don@deq.state.or.us
Wallowa Subbasin	Mitch Wolgamott	(541) 278-4619 Pendleton; wolgamott.mitch@deq.state.or.us
Willamette Basin Implementation Team	North: Nancy Gramlich	(503) 378-5073 Salem; gramlich.nancy@deq.state.or.us
	South: Jared Rubin	(541) 687-7437 Eugene; rubin.jared@deq.state.or.us
	Coast Fork and South Santiam: Pamela Wright	(541) 686-7719 Eugene; wright.pamela@deq.state.or.us
	Lower Willamette: Manette Simpson	(503) 229-5294 Portland; simpson.manette@deq.state.or.us
Yamhill Subbasin	Nancy Gramlich	(503) 378-5073 Salem; gramlich.nancy@deq.state.or.us

Appendix B: 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

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

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

3. 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 address any of the following:
   - ☐ Erosion and/or sediment control requirements at construction sites
   - ☐ Retention of vegetation and/or re-planting requirements at construction sites
   - ☐ Impervious surfaces limitations for new development
   - ☐ Development limitations in floodplains
   - ☐ Septic system inspection and maintenance requirements
   - ☐ Riparian area protections

4. 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

1. Does your jurisdiction have an NPDES municipal separate storm sewer system (MS4) permit?

2. Does your jurisdiction have any underground injection control (UIC) facilities (e.g., sumps)? If so, are they covered under a UIC general or individual permit?

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

4. Has your jurisdiction completed a stormwater management plan?

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

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

POLLUTION CONTROL

1. Does your jurisdiction have any voluntary or mandatory inspection or maintenance programs for onsite septic systems?

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

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

OUTREACH AND EDUCATION

1. 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)?

2. 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 stormwater system?

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

REGIONAL COORDINATION

Which watershed councils, soil and water conservation districts (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 stormwater)? Has the data been analyzed?

Appendix C: Sample Outline for TMDL Implementation Plan

1. BACKGROUND AND IMPLEMENTATION PLAN GOALS

(Not required by OAR)

Where can this information be found?

This information can be drawn directly from the TMDL and customized for the DMA's jurisdiction.

Why should this be included?

Although not required, it is helpful to provide this context so that the people who read the plan understand what it is for.

EXAMPLE (based on the Willamette TMDL WQMP):

The Willamette River and numerous tributaries do not currently meet several water quality standards including bacteria, mercury and temperature. These standards assure that beneficial uses of the river and tributaries, such as swimming, fish consumption and fish rearing, are protected. When water quality standards are not met, the federal Clean Water Act requires a Total Maximum Daily Load (TMDL) to be established. A TMDL determines how much pollution can be added to the river without exceeding water quality standards.

On September 21, 2006, the Oregon Department of Environmental Quality (DEQ) issued the Willamette Basin TMDL as an Order, and submitted the TMDL to the Environmental Protection Agency (EPA) for approval. As part of the Willamette TMDL, DEQ developed a Water Quality Management Plan (WQMP) to describe the overall framework for implementing the Willamette Basin TMDL. The WQMP includes a description of activities, programs, legal authorities and other measures for which ODEQ and other designated management agencies (DMAs) have regulatory responsibility.

A DMA is "a federal, state or local governmental agency that has legal authority of a sector or source contributing pollutants, and is identified as such by the Department of Environmental Quality in a TMDL." TMDL implementation activities will be carried out under existing regulatory authorities, programs and water quality restoration plans as well as by TMDL implementation plans that certain DMAs will develop in fulfillment of the requirements of this TMDL.

Along with other cities and agencies in the Willamette Basin, [name of DMA) has been named by ODEQ as a Designated Management Agency in that it has legal authority over a sector or source contributing pollutants on the XXX acres within the City's limits, and in that it operates a sewage treatment plant with a permit to discharge treated effluent into the XXX River, which flows for about XX miles through the length of the City. The XX River is currently listed as a water quality limited river due to [e.g. elevated summer temperatures, elevated bacteria levels]. As such, [name of DMA] is required to develop a TMDL implementation plan for review and approval by ODEQ.

TMDLs, the WQMP, and associated implementation plans and activities are designed to restore water quality to comply with water quality standards. In this way designated beneficial uses, such as aquatic life, drinking water supplies, and water contact recreation, will be protected. When implemented, the TMDL will result in a cleaner, healthier Willamette river for current and future generations.

2. WATER QUALITY ASSESSMENT

(Not required by OAR)

What information should be provided?

- ☐ List of waterbodies within or near the DMA's jurisdiction that may be affected by activities within the jurisdiction, including waterbodies receiving runoff from the jurisdiction.
- ☐ List of TMDL pollutant(s) and potential source(s) that are under the DMA's jurisdiction, including a description of why these pollutants are of concern.

Why should this be included?
Including this information in the plan will help to explain the selection of management strategies and prioritization of these strategies.

Where can this information be found?
This information can be drawn from the TMDL Water Quality Management Plan (WQMP) and other assessments of water quality resources for the area in question. 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 the DMA's jurisdiction therefore it is important to assess whether other sources are likely to exist.

EXAMPLE (based on the Willamette TMDL):

Water Quality Limited 303(d) Listings Addressed by TMDLs
The Coast Fork of the Willamette River is currently listed by ODEQ as water quality limited due to elevated summer temperatures, elevated bacteria levels, and mercury. The watersheds are drained by X,Y, and Z. City stormwater drains to all these waterbodies and the wastewater treatment plant discharges to X.

The table below identifies waterbodies within or near the [name of DMA] that may be affected by activities within the [name of DMA]'s jurisdiction, and also indicates the river miles affected, the TMDL parameter, and the season affected by the listing.

Subbasin	Waterbody Name	River Miles	Parameter	Season
Coast Fork	Coast Fork Willamette R.	0 to 31.3	Temperature	Summer
Coast Fork	Coast Fork Willamette R.	0 to 31.3	Fecal Coliform	W/S/F
Coast Fork	Coast Fork Willamette R.	0 to 31.3	Fecal Coliform	Summer
Coast Fork	Coast Fork Willamette R.	0 to 31.3	Mercury	All year

TMDL Pollutants and Potential Sources of Pollutants within [name of DMA's] Jurisdiction
TMDL pollutants in the vicinity of [name of DMA]'s jurisdiction as well as the primary suspected sources of the pollutants are:

- *Warmer Instream Temperatures: Caused by historic removal of shade-producing vegetation along streams.*
- *Fecal Coliform: Likely sources include domestic animal waste carried in stormwater runoff and illicit cross connections between sanitary and wastewater systems.*
- *Mercury: Found in sediments; likely source is erosion from construction sites not covered by DEQ permit (i.e., sites with disturbed ground surface area of less than 1 acre).*

Concerns Associated with Pollutants

- *Temperature*
  At times, the Willamette River and its tributaries are too warm to support healthy salmon and trout. Some of these cold waster fish including lower Columbia coho, spring Chinook, winter steelhead, and bull trout are threatened with extinction and elevated stream temperatures have contributed to their decline. Warm water interferes with adult salmon and trout migration and spawning. Warm water also decreases chances of juvenile survival, affects egg and embryo

development, alters juvenile fish growth rates, and decreases their ability to compete with temperature-tolerant fish species for habitat and food. Salmon and trout are also more susceptible to disease when water temperatures are warmest.

- *Bacteria*
  People can be affected by bacteria present in water when enjoying water activities such as swimming, wading, wind surfing, water skiing, boating, or fishing. Ingestion or contact with water contaminated with bacteria can cause skin and respiratory ailments, gastroenteritis and other illnesses in humans.

- *Mercury*
  The accumulation of mercury in fish is a well recognized environmental problem throughout the United States. Mercury is a potent toxin that can cause damage to the brain and nervous system. Small children and the developing fetus are most sensitive to mercury's toxic effects. The primary way that humans are exposed to mercury is through the consumption of fish or seafood containing elevated levels of mercury.

3. MANAGEMENT STRATEGIES

[Required by OAR 340-042-0080(3)(a)(A)&(B)]
Note: DEQ recommends using the matrix in

Appendix D as a framework for fulfilling the requirements of this section.

What should be included?
Description of how the DMA will manage the known or suspected sources of pollution. *Note:* The DMA is not responsible for pollution arising from activities that occur outside of the DMA's jurisdiction. At a minimum, the following should be provided:

- ☐ List of pollutants, sources of pollutants, and management strategy for each source.
- ☐ Timeline for implementing strategy, and, where appropriate, a schedule for completing measurable milestones. For example, if the adoption of an ordinance to require pet owners to pick up their pet waste, measurable milestones may include dates for public review of the proposed ordinance and ordinance adoption. Note: These timelines are targets based upon best professional judgment. They are not intended to be enforceable compliance points.

Where to start
Prior to selecting management strategies, the DMA should review the TMDL WQMP for a list of management strategies that could be used to control sources of pollution. Typically, this list is not meant to be prescriptive or comprehensive, but should 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 DMAs to address specific measures (e.g., the Willamette TMDL requires certain DMAs to include specific stormwater control measures in the Implementation Plans to address bacteria and other pollutants).

Prioritize and fund strategies
In some instances it may be necessary to prioritize among the strategies if resources are limited. This may 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.

DMAs will also need to conduct a fiscal analysis to determine what additional resources are necessary to develop, implement, and maintain the management strategies, and how these resources will be obtained. The results of this analysis should be briefly described in the implementation plan. In some cases, incorporation of these results into the implementation plan will be required by the TMDL WQMP (see section 0, *Additional requirements, p.* 42).

Available tools
The matrix in

Appendix D is a tool designed to guide a DMA 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.

EXAMPLE:
See Appendix D: TMDL Implementation Tracking Matrix for Willamette TMDL bacteria example.

4. PERFORMANCE MONITORING [Required by OAR 340-042-0080(3)(a)(C)]

What information should be included?
Performance monitoring includes two types of monitoring:

1. Implementation monitoring
   For implementation monitoring, a description of the progress of management strategies should be included. The TMDL implementation tracking matrix in Appendix C is an example of a tool that may be used to monitor implementation of management strategies by filling in the "status" column.

2. Effectiveness monitoring
   If applicable, a description of how the effectiveness of TMDL implementation efforts in reducing pollutant loads will be assessed should be included. DMAs that are not able to undertake an evaluation of effectiveness on their own are expected to participate in discussions with DEQ and other entities in the area (e.g., watershed councils, Soil and Water Conservation Districts, other municipalities), and describe those discussions here. These discussions should help identify effectiveness monitoring needs and opportunities to pool resources to implement an effectiveness evaluation strategy for the area.

DMAs should consult with DEQ to ensure their monitoring and evaluation strategies do not duplicate other efforts or involve unnecessary data collection.

5. PLAN REVIEW, REVISION, AND REPORTING REQUIREMENTS [Required by OAR 340-042-0080(3)(a)(C) and WQMP]

What information should be included?
Description of DMA's intention to review its implementation plan and report to DEQ on the frequency specified in the TMDL WQMP. Generally, the implementation plan review must be conducted once every five years and results of that review submitted to DEQ. In addition, a report must be submitted to DEQ on an annual basis describing the progress of the DMA's management strategies.

EXAMPLE:
[Name of DMA] will track TMDL implementation activities and report to DEQ annually by December 31 on progress and accomplishments.
Note: If a DMA uses the matrix in Appendix D 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 DMA] 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, 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 DMA] will review and revise this Implementation Plan as needed following DEQ reevaluation of the TMDL.

6. EVIDENCE OF COMPLIANCE WITH LAND USE REQUIREMENTS [Required by OAR 340-042-0080(3)(a)(D)]

What information should be included?
The following information provides evidence of compliance with land use requirements:
- ☐ Identification of applicable acknowledged local comprehensive plan provisions and land use regulations, and
- ☐ Explanation 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.

EXAMPLE:
All of the strategies outlined here and listed in the matrix are consistent with [name of DMA's] land use plans. [Name of DMA] will evaluate and maintain consistency with local and statewide land use laws in any future actions related to TMDL implementation.

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 DMAs in the WQMP, those must be addressed in the TMDL Implementation Plan. For example, the Willamette TMDL WQMP requires that DMAs:

1. Conduct a fiscal analysis to determine what additional resources are necessary to develop, implement, and maintain the management strategies, and how these resources will be obtained. The results of this analysis must be briefly described in the implementation plan.

2. Include citation and brief descriptions in the implementation plan of legal authorities used to carry out the management strategies. For example, cite and describe the ordinances that prohibit illegal dumping to the storm drainage system, require erosion control for grading projects, etc.

3. If located along the mainstem Willamette River from river mile 50 downstream to the confluence with the Columbia River, address cold water refugia in the implementation plan. This would be accomplished by identifying these areas and exploring opportunities to restore or enhance these areas whenever feasible. The results of this effort should be summarized in the plan.

Appendix D: TMDL Implementation Tracking Matrix

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

Use of this matrix or a similar matrix has a number of advantages and will:

1) Guide DMAs 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 (e.g., a DMA 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) Make it easier for DEQ to summarize the information to produce a report on TMDL implementation activities throughout a basin or across the state.

The basic matrix table, including explanations of what each column heading means, is shown in the following example. 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.

POLLUTANT: Bacteria
City of Example: TMDL Implementation Tracking Matrix

SOURCE *What sources of this pollutant are under your jurisdiction?*	**STRATEGY** *What is being done, or what will you do, to reduce and/or control pollution from this source?*	**HOW** *Specifically, how will this be done?*	**FISCAL ANALYSIS** *What is the expected resource need? Are there existing resources budgeted? If not, where will the resources come from?*	**MEASURE** *How will you quantitatively or qualitatively demonstrate successful implementation or completion of this strategy?*	**TIMELINE** *When do you expect it to be completed?*	**MILESTONE** *What intermediate goals do you expect to achieve, and by when, to know progress is being made?*	**STATUS** *Include summary and date.*
1. Failing septic systems	a. Ensure repair of failing systems	i. Respond to reports of failing systems; work with homeowner to set a timeline for repair	Already funded; see specific program budget	Track # of reports, outcome of inspection (failing or not) and date of follow-up that confirmed repairs were made	Ongoing	NA	
	b. Educate homeowners about system maintenance and how to detect failures	i. Mail DEQ info. to X homeowners	$X	Number of brochures mailed	Once every two years by May 1	NA	
		ii. Provide info at city's booth at community festival	No additional resources needed	Number of contacts	July of each year	NA	
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	No additional resources needed.	Track # of referrals	Ongoing	NA	
	b. Prevent	i. Erect	$X	Check bag	Ongoing	NA	

	pet waste from reaching waterways	signage and provide poop bags in parks	borrowed from park tree planting budget	supply weekly;	thru end of 2008; evaluate effectiveness based upon rate of use		
		ii. Get article in local paper to raise awareness	No additional resources needed; newspaper donating column space	Article in paper	Summer 2008	NA	
		iii. Adopt ordinance requiring owners to clean up after their pets		Adopted ordinance	2008	• Convene Advisory Committee by 12/06 • Draft rule by 6/07 • Adoption by 2/08	

APPENDIX E

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

--DRAFT -July 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.

Debra Whitall Hydrologist, RRNF **Michael Zan Hydrologist,** RRNF

APPENDIX F

MEMORANDUM OF AGREEMENT

CONVERSIONS OF FORESTLAND

Among

The Oregon Department of Forestry

The Oregon Department of Agriculture

The Oregon Department of State Lands

The Oregon Department of Fish and Wildlife

The Oregon Parks and Recreation Department

The Oregon Department of Land Conservation and Development

And

The Oregon Department of Environmental Quality

The Oregon Department of Forestry (ODF), Oregon Department of Agriculture (ODA), Oregon Department of State Lands (DSL), Oregon Department of Land Conservation and Development (DLCD), Oregon Department of Fish and Wildlife (ODFW), Oregon Parks and Recreation Department (OPRD), and Oregon Department of Environmental Quality (DEQ) have common interests and responsibilities in protecting waters of the state and other natural resources during the conversion of forestland to non-forest uses. It is in the best interest of the state to closely coordinate efforts, minimize duplication, and to work towards common goals in regulating the conversion process.

I. PURPOSE

THE PURPOSE OF THIS AGREEMENT IS TO CLARIFY THE ROLES AND RESPONSIBILITIES OF THE STATE AGENCIES INVOLVED DURING THE CONVERSION OF FORESTLAND TO OTHER NON-FOREST USES ON PUBLICLY OR PRIVATELY OWNED LANDS, TO ENSURE THAT STATE WATER QUALITY AND OTHER RESOURCES ARE PROTECTED THROUGHOUT THE PROCESS, AND TO ENSURE A SMOOTH TRANSITION OF JURISDICTION BETWEEN THE AGENCIES.

II. Legislative Direction

1. The Environmental Quality Commission (EQC) and DEQ are responsible for implementing the Federal Clean Water Act in Oregon, ORS 468B.035, including adoption and enforcement of water quality standards (OAR 340-040 to 340-041).

2. The Oregon Board of Forestry (BOF) is vested by ORS 527.630 with exclusive authority to develop and enforce forest practice regulations and to coordinate with other agencies that are concerned with the forest environment. The Oregon Forest Practices Act (FPA) requires the BOF, in consultation with the EQC, to establish Best Management Practices (BMPs) to apply to forest operations to insure to the maximum extent practicable nonpoint source discharges from forest operations do not impair the achievement and maintenance of water quality standards established by the EQC (ORS 527.765). ODF is the Designated Management Agency by DEQ for protecting water quality on non-federal forestlands. Forestlands managed by the USDA Forest Service and USDI Bureau of Land Management are not addressed by this MOA.

3. The BOF, with the consultation and support of DEQ, has adopted BMPs for forest operations ((OAR 629-600-0100(47)). These rules, including but not limited to, OAR 629-635 to 629-660 are administered and monitored by ODF to assure their implementation and effectiveness. DEQ participates in the monitoring efforts. The EQC and BOF, advised by DEQ and ODF have determined the BMPs, as required by ORS 527.765, are sufficient to achieve and maintain state water quality standards. The Water Quality Protection Rules are reviewed regularly and altered when deemed necessary.

4. The FPA applies to forest operations on forestlands, regardless of how the land is zoned or taxed or how any state or local statutes, ordinances, rules or regulations are applied (ORS 527.620). No unit of local government shall adopt

any rules, regulations, or ordinances or take any other actions that prohibit, limit, regulate, and subject to approval or in any way affect forest practices on forestlands located outside of an acknowledged urban growth boundary (ORS 527.722). If a city or county has assumed the responsibility of regulating forest operations (ORS 527.722) then those local governments are responsible for protecting water quality during any forestland conversions within their city limits or urban growth boundaries.

5. Nothing in the FPA shall prevent the conversion of forestland to any other use (ORS 527.730). Only bona fide, established and continuously maintained changes from forest use are granted an exemption from reforestation requirements (ORS 527.760). All exemptions from reforestation requirements must demonstrate that an intended change in land use is authorized under local land use and zoning ordinances and the exemption is only for the smallest land area necessary to carry out the change.

6. Operators conducting forest operations in accordance with the FPA shall not be considered to be in vio

7. ODA is responsible for addressing water pollution associated with agricultural lands and soil erosion. The Agricultural Water Quality Management Act (SB1010) allows ODA to develop and implement water quality management plans and administrative rules for agriculture and rural lands (ORS 568.900 to 568.933).

8. DSL is responsible for administration of Oregon's Removal-Fill Law (ORS 196.795 to 196.990). The law requires a permit from DSL to remove, fill or alter more than 50 cubic yards of inorganic material within the bed or banks of waters of the state. Exceptions are in State Scenic Waterways and areas designated as essential salmon habitat, by DSL in consultation with ODFW, where a permit is required for all in-stream activity, regardless of size. DSL must ensure that during forestland conversion the landowner/operator obtains a Removal-Fill permit when appropriate.

9. DLCD is responsible to ensure that all Oregon cities and counties have a comprehensive plan and accompanying implementing ordinances that are in compliance with state land use planning goals (ORS 197.225 to 197.245). Goal 4, "Forest Lands," requires that local comprehensive land use plans and land use regulations provide for the conservation of forestlands by maintaining the forestland base. Goal 6, "Air, Water and Land Quality," requires such plans and regulations to provide for the maintenance and improvement of the air, water and land quality of the state. The conversion of forestlands to urban or rural non-forest uses is limited. Any comprehensive plan or zone changes must comply with the statewide planning goals. The allowance of any permitted or conditionally allowed non-forest uses must comply with locally acknowledged comprehensive plan, zoning and other local land use provisions.

10. ODFW is responsible to protect and enhance fish and wildlife resources, to manage fishery and wildlife resources, prevent the serious depletion of any indigenous species and to provide the optimum recreational, commercial, and aesthetic benefits for present and future generations of citizens through the Wildlife Policy (ORS 496.012) and Food Fish Management Policy (ORS 506.109). ODFW has also adopted the Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0000) to mitigate impacts to fish and wildlife habitat caused by

land and water development actions. Other state agencies, such as ODF and DSL, consult with ODFW as necessary.

11. OPRD is responsible to protect and enhance scenic, aesthetic, natural, recreation,
scientific, and fish and wildlife values along scenic waterways (ORS 390.805 to 390.925). OPRD must be notified of and give approval before certain activities proposed within ¼ mile of the bank of Oregon's designated scenic waterways may be undertaken. Such activities include the cutting of trees, mining, construction of roads, railroads, utilities, buildings, or other structures. The proposed uses or activities may not begin until the written notification is approved, or until one year after the notice is accepted.

12. DEQ is responsible for providing a 401 Certification for all proposed projects that require a federal permit if the proposed activity may result in a discharge into navigable waters. Section 401 of the Federal Clean Water Act requires applicants for federal permits or licenses to provide the federal agency a water quality certification from the State of Oregon if the proposed activity may result in a discharge to surface waters. Applicants may be required to pay a fee and must submit all necessary project information as indicated in OAR 340-048-0020. The certification ensures that any project or activity subject to federal permit or license requirements will not violate applicable water quality requirements or standards (OAR 340-048-0005). A 401 Certification is required for a variety of projects including, but not limited to, stream and wetland restoration projects, dredging, wetland fills, fish habitat enhancement projects, and forest conversions when activities associated with the project may result in a discharge to surface waters.

13. DEQ is responsible for administering the National Pollutant Discharge Elimination System (NPDES) storm water permit program for the State of Oregon. NPDES permits are required for certain industrial sites, construction activities, and municipal storm sewer systems. Prior to any on-site activities, DEQ requires coverage under the NPDES 1200-C general permit or an individual permit for construction activities if one or more acres of land will be disturbed during an operation. If a landowner proposes to convert forestland to another use, an NPDES 1200-C permit may be required. Unless waived, an applicant must pay fees and submit a complete permit application including, but not limited to a *Land Use Compatibility Statement* and an *Erosion and Sediment Control Plan* to the appropriate DEQ Regional office or DEQ Agent (OAR 340-045-0015).

14. All agencies are committed to protecting and restoring salmon habitat and water quality, consistent with the Oregon Plan for Salmon and Watersheds (ORS 541.405 to 541.420).

III. Mutual Agreements

1. **State agencies signatory to this MOA are committed to collaborate on jurisdiction and enforcement issues related to forestland conversions.**

2. **The FPA's Water Protection Rules are the standard to protect water quality from nonpoint sources on non-federal forestland. The landowner/operator is responsible for following all relevant rules in the FPA unless they have been specifically waived, exempted, and/or modified, until forest operations have ceased. ODF will take appropriate enforcement actions if the FPA is violated.**

3. **When a landowner/operator proposes to convert forestland to another use, ODF may waive, exempt, or modify FPA requirements as provided by statute and rule (ORS 527.760; OAR 629-605-0173, 629-610-0090). ODF will require a Plan for an Alternate Practice containing information describing the specific waiver, exemption, or modification of rules requested as applicable to the specific operation proposed. (Exemption from reforestation requirements for the smallest land area necessary to carry out the change is generally the only exception requested.)**

4. **ODF will provide DEQ copies of all notifications proposing conversions to another land use, unless the only deviation from FPA requirements is reforestation exemption of less than 1 acre. ODF will also provide copies to other regulatory agencies as appropriate, i.e. conversions to agricultural use to ODA, operations within ¼ mile of a scenic river to OPRD, and to DSL when a wetland is proposed to be filled, excavated, or altered.**

5. **A plan for an alternate practice must address potential water quality or natural resource impacts of the proposed alternate practices. If alternate practices are proposed in addition to the exemption from reforestation, the receiving regulatory agency whose standards may potentially be affected must determine that their standards will also be met by the proposed alternate practice, by issuing required permits, granting approvals or providing other assurances to ODF, before the plan for an alternate practice is approved by ODF. No activity will be approved under a conversion plan for an alternate practice unless the activity complies with the regulations of the new land use in effect at the commencement of the conversion activity. (See Appendix for explanation of plan for an alternate practice and/or responses.)**

6. **When a specified resource site as defined in OAR 629-665-0000 is proposed to be converted to a non-forest use, ODF may consult with ODFW.**

7. **When contacted by a landowner/operator regarding a proposed forestland conversion, all state agencies signatory to this MOA will provide timely written approval and/or response. Each agency will provide input as needed and requested by ODF and the landowner/operator.**

8. **DLCD staff will, upon request, assist ODF staff in determining whether a proposed forestland conversion is authorized under local land use regulations and that all necessary land use approvals and construction permits have been obtained, or are likely to be obtained in the specified timeframe.**

9. **ODA will determine if proposed conversion to agricultural use includes farm use as defined in ORS 215.203 and farming practices as defined in ORS 30.930 (2).**

10. **State agencies signatory to this MOA retain their independent enforcement authority over any violations under their jurisdiction.**

11. **The parcel of land that is being converted must show progress towards the future use within twelve months of completion of the forest operation. The landowner shall ensure sufficient re-vegetation of the site to provide continuing soil productivity and stabilization during this time (OAR 629-610-0080). Evidence of progress toward the future use may include, but is not limited to, stump removal, cultivation, excavation, fencing and construction (OAR 629-610-0090). Activities associated with forest operations during this time period remain under the jurisdiction of the FPA unless otherwise outlined in the plan for an alternate practice and agreed upon by the jurisdiction of the future land use. Any water quality or other natural resource violations during this time may also be enforced by other appropriate state agencies in collaboration with ODF.**

12. **Once forest operations have been completed as indicated in the plan for an alternate practice, and during the twelve month conversion period, the landowner/operator is responsible for meeting state water quality standards and/or the resource protection rules of the appropriate state agency and/or local government that has jurisdiction over the new land use. If the landowner/operator has not begun action to convert to another use within twelve months, ODF may reassert jurisdiction and administer all appropriate rules under the FPA (OAR 629-610-0000 to 629-610-0080).**

13. **The change in land use shall be completed and continuously maintained within twenty-four months of the completion of the forest operation (OAR 629-610-0090). To remain exempt from the reforestation requirements the new use must also be maintained for at least six years. If the conversion is not completed or maintained, ODF may reassert jurisdiction and administer all appropriate rules under the FPA.**

14. **The point at which an operation ceases to be a forest operation and becomes preparation for the new non-forest use is variable and may not be a discrete point in time if conversion operations overlap with forest operations. Examples of these activities include, but are not limited to, any road construction that is beyond what is covered under the FPA's forest road construction standards, landing expansion beyond that reasonably expected for timber harvest, removal**

of tree stumps, and the installation of utility lines, water lines, septic tanks, wells or other facilities needed to support non-forest uses.

15. **If an undocumented conversion from forestland to another land use is identified by ODF, ODF will inform the appropriate state agencies and local governments of the situation. If notice is provided to another agency, the other agency will contact ODF, and collaborate on the necessary steps to be taken.**

16. **Enforcement actions among interested agencies and local governments will be coordinated to ensure all relevant resource protection requirements are addressed. For example, if an area has been harvested and not re-vegetated, the landowner may be subject to enforcement actions including but not limited to:**

    a. Failing to meet the conditions specified under the plan for an alternate practice

    b. Failing to obtain the appropriate NPDES storm water permit from DEQ;

    c. Causing pollution to any waters of the state as defined in ORS 468.025;

    d. Failing to obtain removal/fill permits regulated by DSL;

    e. Violating rules in the appropriate Agriculture Water Quality Management Area;

    f. Failing to obtain approvals, permits, and comprehensive plan and zoning changes required by local jurisdictions; and/or

    g. Failing to obtain written approval to conduct activities within state scenic waterways by OPRD.

IV. Implementation, Training, and Evaluation

1. DEQ, ODF, ODA, DSL, ODFW, OPRD and DLCD agree to work together to:

    a. Conduct training sessions for appropriate staff that will include representation from all agencies signatory to this agreement. The intended purpose of the training sessions will be to explain the forestland conversion process and to ensure communication and collaboration between the staff of each agency.

    b. Hold training sessions for city and county planning, public works, and development staff as needed.

2. Training sessions will also be offered by ODF for cities and counties interested in assuming the responsibilities of regulating forest operations within urban growth boundaries.

3. Outreach efforts will be undertaken with key related industries such as contractor and realtor associations and lending institutions.

4. This MOA and the Forestland Conversion process will be evaluated in 2008 and triennially after that to determine whether revisions are necessary.

V. Issue Resolution:

1. DEQ, ODF, ODA, DSL, ODFW, OPRD and DLCD are committed to work together to ensure that water quality and other natural resources are protected and maintained during the forestland conversion process. Should issues arise:

    a. The local offices of each agency will evaluate the issue and work together on a resolution in a timely manner. The state agency responsible for regulating the proposed future land use shall provide input as necessary. ODF will coordinate with each state agency to ensure that the transfer of oversight responsibility and enforcement authority is accomplished. Coordination with the local government shall occur as needed. In the case of a violation, it is possible that more than one agency and/or the local government will take enforcement actions. Enforcement actions will be coordinated between the agencies and the local government taking such action.

    b. If there is a situation that requires immediate actions to rectify a water quality and/or other natural resource problem, the responsible agencies will work together to ensure that appropriate and timely measures are taken. If necessary, staff from each interested agency will visit the site, together if possible, to determine what BMPs should be used to correct the situation and decide what, if any, enforcement actions are necessary. It is understood that communication and collaboration on the timeliness and necessary actions needed regarding such issues is imperative.

    c. If a resolution cannot be agreed upon, the local offices will jointly develop a briefing document and will elevate the issue to each agency's headquarters office. The briefing document will accomplish the following: 1) Describe the background, including a statement of why the issue has not been resolved;
    2) Describe alternative solutions including pros and cons; and 3) Describe any recommendations for resolution. Communication amongst agencies will occur as necessary to resolve the issue in a timely manner. Those responsible for addressing issues in each agency include: the Operations Unit Manager for the Private Forests Program at ODF, the Assistant Administrator of the Natural Resources Division at ODA, the Manager of the Program Policy and Project Assistance Section at DEQ, the Manager of the Natural Resources Section at OPRD, the Forest Practices Coordinator at ODFW, the Assistant Director for the Wetlands and Waterways Conservation Division at DSL, and the Farm and Forestlands Specialist in the Planning Services Division at DLCD.

    d. Issues may be raised to the attention of the Division Administrator of the

Natural Resources Division at ODA, the program Director of the Private Forests Program at ODF, the Water Quality Division Administrator at DEQ, the Division Administrator of the Resources Management and Planning Division at OPRD, the Land Resources Program Manager at ODFW, the Assistant Director of the Wetlands and Waterways Conservation Division at DSL, and the Manager of the Planning Services Division at DLCD if a resolution is not achieved at the previous level.

e. The DEQ, ODF, ODA, DSL, ODFW, OPRD and DLCD may request assistance from other agencies or entities at any step in the dispute resolution process as deemed necessary.

VI. Other Considerations

1. This agreement will be effective as of the date of the last signature. The termination of this document may occur by mutual consent of the agencies or by sixty days notice of cancellation from one or more of the agencies to all of the others. This termination notice shall be in writing.

2. Nothing in this Memorandum of Agreement shall be construed as obligating any listed agency to expend funds or involve any listed agency in any contract or other obligation for the future payment of money in excess of appropriations authorized by law and administratively available for this work.

Approved:

Oregon Department of Forestry

Marvin Brown, State Forester

Date:

Oregon Department of Agriculture **Oregon**

Katy Coba, Director

Date:

Oregon Department of State Lands **Oregon**

Louise Solliday, Director

Date:

Oregon Department of Parks and Recreation

Tim Wood, Director

Date:

APPENDIX

All plans for alternate practices proposing conversion to a nonforest use must include:

1) A description of the intended change in land use and the incompatibility of the land use with forest tree cover on all or part of the operation area.

2) The specific statute or rule requirements to be waived, exempted, and/or modified.

3) Identification on a map of the specific portion of the operation area necessary for the proposed change in land use.

4) Written approvals from the applicable local jurisdiction (city and/or county planning department) and the county assessor stating that the proposed land use change is authorized under local land use and zoning ordinances and the land owner has obtained, or will obtain all necessary state, federal, and local land use and construction permits within twelve months.

5) Written approval and/or response from each state agency with resource protection jurisdiction over the proposed non-forest use for which a waiver or modification of FPA requirements other than reforestation outside the RMA are requested. These include:

    a) DEQ: When a conversion from forestland to a residential and/or urban use is proposed the landowner must obtain a written response from DEQ that states all necessary permits (i.e. 1200-C permits for stormwater) have been obtained or are in the process of being obtained for the future use. DEQ will also communicate any water quality sensitive information such as Source Water Assessments and Total Maximum Daily Loads that are relevant to the area proposed to be converted. The response should acknowledge that both the proposed future use and the interim condition of the land during the conversion will meet applicable water quality standards.

    b) DSL: When a wetland is proposed to be filled, excavated, or altered, written approval from DSL as well as a 401 Certification from DEQ may also be required.

    c) OPRD: When a conversion is within ¼ mile of a state scenic waterway written approval from OPRD is required regardless of waiver or modification of FPA requirements.

    d) ODA: When a conversion from forest to agricultural use is proposed, the landowner must obtain a written response from ODA stating that the proposed conversion is consistent with the goals of the local Agricultural Water Quality Management Area Plan and in compliance with the Area Rules established to implement the Area Plan. The

landowner must provide sufficient information to establish the proposed activity will be a farming practice as defined in ORS 30.930