

**Oregon Department of
Transportation**

Routine Road Maintenance

Water Quality and Habitat Guide
Best Management Practices
Revised 2004



**UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration**

NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OHB 2004-0168

July 26, 2004

Doug Tindall, PE
State Maintenance Engineer
Oregon Department of Transportation
Office of Maintenance
800 Airport Road SE
Salem, Oregon 97301-4798

Re: 4(d) Limit 10(i), Five-year Review of the Oregon Department of Transportation Routine Road Maintenance Program

Dear Mr. Tindall:

NOAA's National Marine Fisheries Service (NOAA Fisheries) has reviewed the July 2004, version of the Oregon Department of Transportation (ODOT) Routine Road Maintenance (RRM) Water Quality and Habitat Guide (Guide). On July 10, 2000, NOAA Fisheries published a final rule prohibiting take of 14 threatened salmon and steelhead evolutionarily significant units (ESUs) (65 FR 42421). Within the rule, NOAA Fisheries determined that Endangered Species Act (ESA) section 9(a)(1) take prohibitions on ESA-listed salmonids in the 14 listed ESUs need not apply when it results from a specified subset of activities specifically described in the rule. The ODOT RRM program is one subset of activities described in Limit 10(i) of the rule, and is based on a 1999 version of the Guide. Within the rule, ODOT committed to review the Guide and revise it as necessary, at least every five years. Hence, the submittal of the 2004 version of the Guide.

NOAA Fisheries participated in the review process by attending meetings with statewide maintenance staff and reviewing draft versions of the Guide. ODOT has spent significant effort updating the Guide and making modifications to improve protections for fish or to better reflect the implementation of RRM practices. Full implementation of the Guide, including training, monitoring, and reporting, will contribute to the restoration of habitat across the ESA-listed ESUs. Consequently, NOAA Fisheries approves the 2004 Guide under Limit 10(i), with the exception of pesticide and fertilizer applications.

The take prohibition of section 4(d) of the ESA will not apply to actions carried out in compliance with the program, as approved, through December 31, 2009. Please note that continuing approval depends on ODOT's careful adherence to the program, including annual monitoring and reporting requirements.

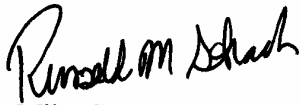


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Thank you for your commitment and efforts and those of your staff on behalf of ESA-listed species. If you have any questions regarding this letter or the continuing operation of your 4(d) limit, please contact Dr. Nancy Munn of my staff in the Oregon State Habitat Office at 503-231-6269.

Sincerely,


for Mike Crouse
Assistant Regional Administrator
Habitat Conservation Division

cc: Sue Chase, ODOT



Oregon

Theodore R. Kulongoski, Governor

Department of Transportation

Office of the Director

355 Capitol St. NE

Rm 135

Salem, Oregon 97301-3871

September 15, 2003

D. Robert Lohn
Regional Administrator
NOAA Fisheries
525 NE Oregon St.
Portland, OR

FILE CODE:

Subject: Oregon Department of Transportation Section 4(d) Submittal

The Oregon Department of Transportation (ODOT) is pleased to submit its revised ODOT Routine Road Maintenance Water Quality and Habitat Guide (Guide) to NOAA Fisheries, as specified under Limit 10 of the 4(d) rules (50 CFR Part 223, July 10, 2000).

ODOT revised the Guide with input from NOAA Fisheries, the Oregon Department of Fish and Wildlife, and a statewide cross section of maintenance managers, field staff, bridge staff, environmental staff and other technical experts. The resulting program, depicted in the revised Guide, has been clarified, improved, and expanded.

During the past several years, ODOT has strengthened its commitment to the environment. The Guide reflects that commitment. ODOT has incorporated environmental expectations into maintenance managers performance work plans; environmental goals have been developed for maintenance activities; and lessons learned over the past several years have resulted in best management practices adapted to the challenging nature of maintenance activities.

This letter serves as a commitment from the Oregon Department of Transportation to NOAA Fisheries that ODOT will implement the measures, and abide by the commitments made for training, documentation and reporting. In addition, ODOT will continue to work closely with NOAA Fisheries as we continue to evaluate and adapt the routine road maintenance program.

If you need additional information, or have any questions, please feel free to contact Sue Chase, ODOT Office of Maintenance, at (503) 986-3008.

Sincerely,

Bruce A. Warner
Director





Oregon

Theodore R. Kulongoski, Governor

Department of Fish and Wildlife

Wildlife Division
3406 Cherry Ave. NE
Salem, OR 97303
(503) 947-6300
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September 9, 2003



Mr. Bruce Warner
Office of Director
Oregon Department of Transportation
135 Transportation Bldg.
Salem, Oregon 97310


Dear Mr. Warner,

The Oregon Department of Fish and Wildlife (ODFW) staff has appreciated the opportunity to work with Oregon Department of Transportation (ODOT) on the refinement of the Routine Road Maintenance Water Quality and Habitat Guide. We believe this is a good working document that is being applied to ODOT maintenance activities statewide. We understand that construction projects outside of maintenance activities will require a separate review. We also believe that the document is adequate to protect habitat during routine maintenance activities with the understanding that the document will evolve over time, as new information and technology becomes available.

We appreciate the efforts that ODOT is making to minimize the environmental impacts that occur due to maintenance activities and the educational aspects of informing your staff on the issues. We look forward to continuing to work together to strengthen our partnership in protecting fish and wildlife species and their habitats and providing safe and efficient transportation systems.

Thank you for the opportunity to work with you on refining this document. Oregon Department of Fish and Wildlife looks forward to working with ODOT on these issues and other aspects of your mission.

Sincerely


Lindsay A. Ball, Director

Oregon Department of Fish and Wildlife

Cc: Doug Tindal ODOT
Sue Chase ODOT
Patty Snow ODFW
Randy Reeve ODFW

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INTRODUCTION

Foreword

Routine road maintenance is a valuable conservation measure for protected salmon and steelhead. Ensuring that the transportation system is stable and operating efficiently through routine and regular maintenance minimizes and avoids the potential for mass failure and subsequent impact to receiving waterbodies. The Oregon Department of Transportation (ODOT) Routine Road Maintenance program depicted in the ODOT Routine Road Maintenance Water Quality and Habitat Guide, July 1999 (Guide) recognized by the National Oceanic and Atmospheric Administration, Fisheries Division (NOAA Fisheries) in its federal 4(d) rules provides direction, best management practices (BMPs) and technical guidance for routine road maintenance activities.

In July 2000, NOAA Fisheries published its 'Endangered and Threatened Species; Salmon and Steelhead; Final Rules' that addressed 14 evolutionary significant units, or gene pools, of salmon and steelhead within Oregon (50 CFR Part 223, July 10, 2000).

Section 4(d) of the Endangered Species Act (ESA) allows the Secretary of the Interior (US Fish and Wildlife Service (USFWS)), or the Secretary of Commerce (NOAA Fisheries) to adopt regulations deemed necessary to conserve species listed as threatened under the Federal ESA. Included in these regulations are definitions of 'take' and prohibitions to 'take' for these listed species. 'Take' is an action that interferes with the natural life cycle or habitat of a protected species and is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect."

In the rules published in July 2000, NOAA Fisheries recognized the ODOT Routine Road Maintenance program as adequate to protect and conserve the listed salmon and steelhead species. The ODOT Routine Road Maintenance Program received an exemption to Section 9 prohibition of 'take' in the final rules. By following the BMPs in the Guide, employees, contractors and partners comply with the ESA by minimizing impacts to the protected species and habitat. In addition, by following the BMPs in the Guide, ODOT maintenance employees comply with the ODOT National Pollutant Discharge Elimination System (NPDES) Municipal Separated Storm Sewer System (MS4) permit, issued by the Oregon Department of Environmental Quality (DEQ) under the Clean Water Act.

The Oregon Department of Fish and Wildlife (ODFW) oversees the State Endangered Species Act, and the species that have been identified as state threatened or endangered. ODFW also oversees all fish, wildlife and non-game species and their habitat, and regulations for fish passage within the state. Biologists and staff with the ODFW serve as technical advisors to DEQ, the Oregon Division of State Lands (DSL), and work with NOAA Fisheries on the impacts of activities to water quality and fish and wildlife habitat. ODFW was actively involved in the 2003 review of the Guide, and has evaluated the Guide. ODFW, by letter, has recognized the Guide as a tool for ODOT maintenance forces to minimize impacts to fish and wildlife habitat across the state, and to meet the elements of the State Endangered Species Act. ODFW is referenced throughout the Guide as a technical advisor to ODOT maintenance forces, through

coordination and communication. This coordination and communication is part of a strong partnership between ODFW and ODOT, which provides direction and guidance to ODOT on its activities. Local ODFW biologists are recognized for their expertise on local conditions for fish species and other habitat issues.

The Guide is intended to provide direction for ODOT Maintenance employees, maintenance contracts authorized by the Department of Administrative Services (DAS) and administered by ODOT Maintenance managers and ODOT Maintenance partners working on ODOT Rights of Way under a memorandum of understanding or interagency agreement. Commission Services contracts administered by ODOT Maintenance will continue to follow the Oregon Standard Specifications for Construction and project special conditions as required by the contract.

The Guide is intended to provide direction for routine road maintenance activities, the operation and maintenance of maintenance yards, other maintenance sites, and the repair and operation of equipment. ODOT maintenance yards are strategically placed throughout the state. The maintenance yards provide storage for vehicles and equipment necessary for the operation and maintenance of the transportation system; storage for products necessary for vehicle upkeep and to perform road maintenance activities, and provide for materials necessary to maintain the facility. In addition, some of the maintenance yards provide permanent and temporary housing to meet the needs of the agency.

Activities Not Included in the 4(d) Exemption

The USFWS has not developed a program similar to NOAA Fisheries under Section 4(d) of the ESA. Consequently, the ODOT Routine Road Maintenance Program meets the needs of NOAA Fisheries for the threatened species under its jurisdiction, but there is no similar understanding with the USFWS. ODOT coordinates as necessary with the USFWS during routine road maintenance activities. The ODOT Region Environmental Coordinators (REC) can determine USFWS assistance as needed.

Activities that require US Army Corps of Engineers (Corps) permits are not included in the 4(d) exemption. These activities are mentioned in this Guide, with guidance to ODOT staff to seek further expertise. A programmatic biological assessment for maintenance activities that require a Corps permit was developed in conjunction with NOAA Fisheries, USFWS, and ODFW. NOAA Fisheries incorporated many of the maintenance activities and terms and conditions from the programmatic biological assessment into its Standard Local Operating Procedures for Endangered Species (SLOPES) III document. USFWS and ODOT were still in discussion on the programmatic biological assessment when this document went to print.

Herbicide spray is not included in the 4(d) exemption. NOAA Fisheries recognizes that the application of herbicides for vegetation management is necessary and that ODOT maintenance staff routinely perform this activity. NOAA Fisheries and the Environmental Protection Agency (EPA) are currently working to provide further recommendations and information on the use and impact of herbicides. Until such time as these two federal agencies can provide better direction, ODOT will follow the labels on the products and

use licensed applicators to apply herbicides to control noxious weeds and other vegetation along its Right of Way. ODOT will amend its spray program as appropriate, incorporating the information and direction from NOAA Fisheries and EPA. In addition, the application of fertilizers used by Maintenance is not included in the exemption.

The maintenance activities identified in the Guide represent activities determined by ODOT biologists and water quality specialists to have the most potential to impact watershed health. Consequently, not all maintenance activities are depicted. For activities that are not depicted, good housekeeping practices should be followed.

There are laws governing historical, cultural and archeological sites that affect maintenance activities, and the practices described in the Guide do not address these laws. Every effort has been made to direct maintenance staff to technical experts where appropriate.

Background

ODOT first developed a program for minimizing impacts to water quality from its routine road maintenance program in January 1995. A team of maintenance managers, field staff, and environmental staff reviewed maintenance activities for potential impacts to water quality and developed BMPs to minimize those impacts. This review was documented in the "Oregon Department of Transportation Maintenance Management System Water Quality Guide". The document was submitted to the DEQ as part of the ODOT NPDES MS4 permit requirements under the Clean Water Act.

In 1997, a similar team reviewed maintenance activities for impacts to riparian habitat. This review looked at the impacts that specific maintenance activities could have on habitat and fishery resources that are listed as threatened or endangered under the federal ESA. This review was documented in the "Oregon Department of Transportation Maintenance Management System Water Quality and Habitat Guide Best Management Practices, June 1997."

The 1997 document served as the foundation for a Programmatic Biological Assessment on ODOT maintenance activities determined to have potential impacts to protected salmon and steelhead. The Programmatic Biological Assessment evolved into the ODOT Routine Road Maintenance Water Quality and Habitat Guide Best Management Practices, July 1999 (Guide) and is the basis for the 4(d) exemption. As part of the 4(d) exemption process, ODOT agreed to review the program every five years.

In June 2002 a statewide team convened to review the existing Guide. The team was comprised of ODOT representatives from the Statewide Office of Maintenance, Bridge Maintenance, Highway Maintenance, Environmental Services, Geology/Hydrology Unit (Geo/Hydro), the ODFW, and NOAA Fisheries.

The team was charged with updating, modifying and clarifying the BMPs and program to better conserve the protected species and to provide better overall program results.

The six key areas of the Guide include:

- Letters of commitment and concurrence from the ODOT and ODFW Directors, respectively
- Description of documentation and reporting, monitoring, and process for review
- Description of the ODOT training program for routine maintenance and environmental considerations
- Descriptions of maintenance activities with minimization, avoidance, and BMPs
- Definition of terms
- Relevant references, sites or links

Professional Judgement

In the Guide, words and phrases such as ‘where feasible’, ‘where appropriate’ and ‘where practicable’ are used in conjunction with some minimization, avoidance and BMPs and techniques. These phrases, which allow some exercise of professional judgement, are not to be used for convenience or ease of operation. Rather, they are included to depict the unique nature of maintenance activities. Maintenance activities, in many ways, are reactive to constraints outside the control of ODOT: weather events, the traveling public, physical and geographic restrictions, availability of equipment, state, federal and local laws, and federal highway design guidelines. Compliance with this Guide means that ODOT Maintenance staff will use the discretion provided by these phrases where one or more of these constraints make implementation of the full measure impossible.

The Guide states: “Perform ditch work in optimum weather (when the ditch is dry but there is still sufficient soil moisture to prevent dust and the movement of small particulates) to minimize environmental impacts where feasible...” ODOT will strive to do so. However, where safety of the road requires ditch maintenance regardless of the weather and time of year, ODOT will proceed with the maintenance activity, implementing other applicable minimization, avoidance, and BMPs, including applicable erosion control, as required by the Guide.

Compliance Efforts

This Guide is one component of the ODOT Maintenance program in its effort to be a better environmental steward and to comply with environmental laws. Other efforts include a Programmatic Biological Opinion from NOAA Fisheries that ODOT received in January 2001. The Opinion provides direction for western Oregon in dealing with emergency slope failures that compromise the integrity of the transportation system. ODOT also entered into a statewide agreement with the EPA on developing Spill Prevention, Containment and Countermeasure (SPCC) plans at the ODOT Maintenance yards that require them. The intent of the agreement is to prioritize and address those yards that have the highest environmental risk. ODOT Maintenance is also working with EPA on developing an agreement and implementation plan for closing and decommissioning underground injection control systems located at maintenance yards around the state. Stormwater management plans are being developed for maintenance yards around the state, in conjunction with DEQ.

The Guide incorporates the essential elements of these compliance efforts into one

document more easily utilized by the field maintenance staff.

Resource and Restricted Activity Zone Maps

Considerable effort is being made to provide maintenance personnel information on the natural, historical and cultural resources within their districts. Two sets of maps for each road have been developed: the Resource (RES) Map and the Restricted Activity Zone Map (RAZ). The RES map outlines general proximity and areas of probability for natural and cultural resources adjacent to ODOT roads. The RAZ Map defines several road maintenance activities and relates the identified resource to each maintenance activity. Maintenance personnel are expected to review the RAZ Maps while planning work and determining appropriate BMPs for each activity.

Use of the Guide

Maintenance employees are expected to be familiar with the Guide and its contents, and will review and implement both the minimization and avoidance measures as well as the BMPs when preparing for work. In addition, employees will review the RAZ maps to identify any concerns associated with locations for work.

If for any reason the minimization, avoidance, and BMPs are determined to be inappropriate for a given situation, or there are problems with the BMP, the employee will contact their Transportation Maintenance Manager (TMM) for advice and direction.

Information regarding the modification and problems associated with BMPs, and the methods by which the goal for the given activity was still met, will be promptly forwarded to the Office of Maintenance for compilation and annual reporting to NOAA Fisheries.

Training

Understanding and correctly implementing the BMPs for maintenance activities is the responsibility of every maintenance employee. ODOT has an extensive outreach/training program for its maintenance personnel.

Examples of ongoing training include:

- Maintenance Academy: for new employees, includes presentation of the Guide and other environmental issues
- Incident Responder classes, including “Plug and Patch” training on maintenance responsibilities for spills
- Basic Hazardous Materials Awareness
- Erosion and Sediment Control training
- Fish Passage Training
- Participation in professional symposiums and conferences
- Continuing Education Classes
- Technology Transfer (T2) programs including Roads Scholars that has environmental sessions including vegetation management, erosion control, etc.
- New product trials
- Team meetings
- Environmental Learning Program meetings
- Resource and Restricted Activity Zone map coordination meetings

- Field visits

To review the changes and improvements made to this Guide; the District Managers will schedule work sessions with the maintenance crews. These sessions will include representatives of ODOT Environmental Services Section (Biologist and Region Environmental Coordinator (REC)), Office of Maintenance (Program Manager) and ODFW as available. The intent of each session will be to review expectations, intent and changes made to the BMPs, definitions, etc. Following initial roll out of the new Guide, these presentations on the Guide can be made available as needed and requested by the District Managers.

Recognition of good stewardship and implementation of good management techniques is part of a comprehensive training program. Recognition occurs at crew meetings, manager meetings, professional symposiums and conferences. ODOT Maintenance will work toward identifying other means of recognition.

Documentation and Reporting

ODOT currently submits an annual report to the DEQ as part of its MS4 permit under the NPDES requirements and to NOAA Fisheries as part of the 4(d) exemption. The annual report will continue to be compiled and submitted by the ODOT Office of Maintenance staff. Elements that will be included in the report are:

- Summary of routine work that has been accomplished throughout the year, using representative BMPs.
- Summary of investigations of complaints received from or by ODOT staff, other agencies, or members of the public on impacts to the environment from routine road maintenance activities. The documentation will include the basis of the complaint, results of the investigation, and the resolution of the issue and any recommendations.
- Challenges, controversies and successes affecting the implementation of the BMPs.
- Updates to the NPDES permit requirements.
- Results of research and any recommendations for modifications to BMPs.
- Summary of crew level, program level, and activity specific training, as appropriate.
- Summary of other programmatic programs implemented by Maintenance.
- Summary of culvert/fish passage improvement projects.
- Documentation of any fish capture, rescue and/or salvage that has occurred under this program, including location, date, fish biologist doing the salvage/capture work, fish species handled, number of fish handled, number of fish injured or killed.
- Summary of trees removed by ODOT while implementing a corridor tree management plan along ODOT rights of way, including the location of mitigation plantings by sub-basins.
- Summary of leaks and/or spill locations that have occurred as a result of an ODOT Maintenance action, and that have been reported to OERS, including type of material, size of spill, response and resolution.

Monitoring

Every maintenance employee is responsible for knowing, implementing and monitoring the BMP's outlined in the Guide. As the implementation of the Guide is an agency expectation and commitment, the Maintenance Leadership Team has directed that all

Maintenance Managers include training on, and implementation of the Guide during the development of performance work plans. ODOT will utilize performance appraisals, crew meetings, and training meetings to review the implementation and value of the BMPs.

In addition, ODOT will continue to develop research programs as appropriate, which monitor the effectiveness or impacts of the agency BMPs or activities on habitat and water quality. Current research projects include:

- Evaluating BMPs that reduce pollutant loads associated with runoff into storm sewer systems;
- Developing a database that will efficiently track and monitor constructed stormwater treatment facilities, outfalls, and the structural integrity of culverts;
- Evaluating flocculants as a means to reduce total suspended solids in water associated with construction sites;
- Determining the effectiveness of using an agricultural byproduct as a filter media to improve existing water quality treatments in drainage ditches;
- Determining effectiveness of culvert retrofits on fish passage.

ODOT partners with Federal Highway Administration, other transportation agencies, and other interested parties in these research projects. The results of these research projects may provide information on ways to modify and improve BMPs for routine maintenance.

ODOT has monitoring activities built into specific maintenance practices and those activities that require permits from the Corps and/or the Division of State Lands (DSL).

ODOT will document the complaints received from or by ODOT staff, other agencies or members of the public on impacts to the environment by maintenance activities. Complaints will be forwarded to the appropriate manager for resolution. Managers may coordinate with representatives from ODOT Environmental Services, ODFW, or NOAA Fisheries in responding to the complaint. The documentation will include the basis of the complaint, results of an investigation, resolution and any recommendations.

Districts will forward results of meetings, complaints, and other pertinent information on the Guide and BMPs to the Office of Maintenance for compilation in the annual report.

In addition, ODOT will continue to network with other states, agencies and municipalities on monitoring non-point source pollution.

Process for Review

Every five years, ODOT will evaluate the need to rewrite the Guide. The need to rewrite the Guide will be determined in collaboration with NOAA Fisheries and ODFW by the amount of substantive changes, new technologies, lessons learned, available resources and value added. Modifications to the Guide, in concurrence with NOAA Fisheries and maintenance managers, may occur annually, and be documented to NOAA Fisheries in the annual report.

ODOT Maintenance has significantly increased its environmental awareness throughout the term of the first Guide. This awareness and knowledge has been reflected and incorporated into the most recent version.

Acknowledgements

ODOT sincerely appreciates the valuable input and contribution from its NOAA Fisheries and ODFW partners in developing and implementing this program. ODOT would also like to thank the maintenance employees and technical experts who have participated in the discussions, reviews, and implementation of this program. Every maintenance employee has provided valuable contributions to this success.

MAINTENANCE ACTIVITIES AND PRACTICES

Stormwater Management

Description: Stormwater management is not a unique activity, but an aspect of every activity performed by ODOT. Stormwater quantity and quality is an issue that must be considered and addressed during every activity performed by Maintenance crews. Stormwater BMPs are included under specific maintenance activities as appropriate. Stormwater management BMPs that apply to all maintenance activities are included in this section:

Goal: To reduce or eliminate pollutants of concern, to the maximum extent practicable, from entering the waters of the state. ODOT manages stormwater associated with the transportation system, maintenance facilities, and rest areas through erosion control, trapping winter sanding materials, developing permanent stormwater treatment facilities, maintaining ditches, etc. The ODOT drainage system is essential in maintaining a safe and effective transportation system.

Minimization, Avoidance, and BMPs:

1. Track intentionally added impervious area (chain up areas, pullouts, etc.) at the District level, and report added impervious to the ODOT Office of Maintenance. Intentionally added impervious material by Maintenance will be mitigated through a tree-planting program within the district or watershed. The Office of Maintenance will work with District staff and ODOT Environmental Services staff to track impact and mitigation requirements and plantings. The number of trees planted will be determined by ODOT Environmental Services and will be based on the amount and impact of the new impervious area.
2. Promote sheet flow for stormwater to leave the road, when and where appropriate. Methods for maintaining sheet flow may include blading or grading to re-establish sheet flow in areas where stormwater is being concentrated. Contact the ODOT Hydraulic Engineer for additional methods of restoring sheet flow.
3. Develop stormwater management plans for each individual ODOT maintenance yard. As ODOT completes the plans, they will be available for review by NOAA Fisheries and DEQ. The criteria for assessment and timeline for completing the plans is in Appendix A.
4. Develop maintenance and operation plans for all new permanent stormwater treatment facilities. The plans will be developed by the hydraulic engineer designing the facility and will be reviewed with Maintenance forces.
5. Work with regulatory agencies and land management agencies as appropriate to resolve heavy sediment or pollutant impacts to ODOT structures and drainage systems that result from adjacent land management practices. Contact the Office of Maintenance for impacts associated with adjacent land uses.
6. Take opportunities to minimize discharge to receiving streams. Examples may include plugging scuppers and weep holes on bridges; installing curbing to divert water off structures; or constructing sand traps, etc.

Fueling Areas

Description: Diesel and gasoline located at ODOT maintenance facilities.

Goal: Design, operate and manage fueling areas in a manner to minimize impacts to natural resources.

Minimization, Avoidance, and BMPs:

1. Facilities will design new fueling areas and Maintenance will operate existing fueling areas so that spills, overfills and leaks will not enter nearby waterbodies or stormdrains.
2. Clean spills using dry methods such as absorbent materials. Fueling areas will be swept rather than sprayed down with a hose.
3. Contact OERS, the REC and the Office of Maintenance if any amount of petroleum products enter waters of the state.

Aboveground Storage Tanks

Description: Aboveground storage tanks are used at maintenance yards to store fluids used to maintain and fuel equipment and fleet vehicles. Aboveground storage tanks are also used to store bulk fluids needed to perform certain maintenance activities. Fluids typically include fuel, oils, and winter maintenance chemicals.

Goal: Provide, manage, and store materials needed in the operation and maintenance of equipment, fleet vehicles and maintenance activities in a manner that minimizes potential impacts to natural resources.

Minimization, Avoidance, and BMPs:

1. Label tanks and piping.
2. Secure valves in the closed position and/or lock dispensers when not in use.
3. Post warning signs and/or operating instructions.
4. Protect tanks from vehicle impact.
5. Use overfill indicators and/or overfill protection on fuel tanks.
6. Situate tanks on a foundation if site appropriate. It is recommended that tanks be placed on an impervious surface to minimize opportunity for subsurface contamination in the event of a spill.
7. Provide secondary containment in areas where spills, leaks, or ruptures could enter nearby creeks or streams.

Vehicle Washing - 8 vehicles or more per week

Description: Equipment washing to ensure proper operation, function and safety of equipment and fleet vehicles performed at maintenance yards.

Goal: To minimize impacts from vehicle wash water to waterbodies.

Minimization, Avoidance, and BMPs:

1. Direct wash water to a municipal waste water system, where possible.
2. Use no-discharge methods of treating wash water such as recycling or evaporation, where practical.

3. Use pollution reduction equipment, such as oil/water separators and/or settling vaults, before releasing wash water to the ground.

Vehicle Washing - 7 vehicle or less per week

Description: Equipment washing to ensure proper operation, function and safety of equipment and fleet vehicles performed at maintenance yards.

Goal: To minimize impacts from vehicle wash water to waterbodies

Minimization, Avoidance, and BMPs:

1. Keep wash water on-site where possible. ODOT will minimize the amount of wash water that enters creeks, streams, and drywells.
2. Use cold water only (no detergent, steam or chemicals) if wash water flows into a creek or stream.
3. Use sediment filters, oil/water separators, and/or grassy swales where appropriate.
4. Clean vehicle exteriors only (no engines or undercarriages) unless drains are connected to a municipal waste water system.

Spill Prevention and Cleanup

Description: Spill prevention and clean up can be required during routine maintenance activities, the operation of equipment and fleet vehicles, events that may occur at maintenance yards, and encountered along the roadways.

Goal: To minimize spills and the impacts to natural resources.

Minimization, Avoidance, and BMPs:

1. Have absorbents and/or emergency response equipment on-site to clean spills.
2. Provide spill prevention training to maintenance employees.
3. Clean up spills as quickly as possible. Appropriate training is required for spill containment and clean up.

Catch Basin and Sumps in Maintenance Yards

Description: Catch basins and sumps are part of stormwater drainage systems at some maintenance yards.

Goal: To minimize sediment discharges from catch basins and sumps at maintenance yards.

Minimization, Avoidance, and BMPs:

1. Perform routine inspections per manufacturers recommendations, or annually.
2. Clean catch basins and sumps before deposits are deeper than 1/3 the depth from the bottom of the structure to the lowest pipe or opening.
3. Dispose of deposits in an appropriate location, if within the yard perimeter, isolate and berm the material to minimize erosion.

Material Handling and Housekeeping

Description: Various materials that are used in the maintenance of highways, structures, equipment and fleet vehicles are stored at maintenance yards. Materials stored will vary by location, but include: oils, automotive fluids, sand and gravel, winter maintenance chemicals, pesticides.

Goal: To store, handle and dispose of materials in a manner that minimizes impacts to natural resources.

Minimization, Avoidance, and BMPs:

1. Keep equipment properly maintained.
2. Frequently check equipment for leaks and drips.
3. Store vehicles and materials away from stormdrains.
4. Locate storage piles of loose materials (such as sand, cedar, or gravel) away from waterbodies.
5. Use erosion or sediment controls where appropriate.
6. Minimize the use of hazardous materials.
7. Properly dispose of hazardous and excess materials, and empty containers.
8. Store material in appropriate containers.
9. Label containers.
10. Protect containers from rain, either by covering containers or keeping them inside, where practical.
11. Keep containers closed when not in use.
12. Protect containers from vehicle impact and vandalism.
13. Inspect containers for deterioration and leaks.
14. Secure storage areas to discourage unauthorized use and/or vandalism
15. Secondary containment needs for materials stored near creeks or streams will be coordinated with the Office of Maintenance.
16. Complete the stormwater checklists monthly, as outlined in completed maintenance yard plans. Use the stormwater checklist form, number 734-2568 (3-03).

Equipment Maintenance and Operation

Description: Operation, repair and maintenance of equipment used to perform maintenance activities. These actions occur at maintenance yards, in shops, along the right-of-way, etc. Equipment may include trucks, graders, blowers, vacuums, and assorted power tools, etc.

Goal: To have safe, operational equipment for use by Maintenance employees.

Minimization, Avoidance, and BMPs:

1. Use the appropriate equipment for the job.
2. Check equipment for leaks before using.
3. Contain and stop leaks, where possible. If the maintenance employee has not had spill training or if it is a gasoline spill, contact the District Hazmat specialists.
4. Work from above Ordinary High Water Line (OHWL), whenever possible. If unable to avoid working below OHWL, install containment and use BMPs to ensure spills don't

enter waterbodies. Do not store equipment below OHWL. If equipment breaks down below OHWL, move above OHWL for repair, if possible. If unable to move equipment, repair immediately, and incorporate appropriate containment. Work zone isolation may be required if equipment is below OHWL. Coordinate with the REC.

Stockpiling (Activity 081)

Description: Activity includes stockpiling materials for ODOT Maintenance activities.

Goal: To stockpile material for future use in a manner that minimizes impacts to natural resources.

Minimization, Avoidance, and BMPs:

1. Develop site plans for areas adjacent to or near riparian areas to identify erosion and sediment control needs, and to ensure stability of the stockpiled material.
2. Identify sites as part of local disposal plans.
3. See the Material Handling and Housekeeping BMPs on page 14 for additional direction.

Surface Work (Activity 100 – 110)

Description: Surface and inlay repair includes: all repairs of road bases, surfaces, and shoulder irregularities, including asphalt, concrete, and chip seal surfaces. Activities also include asphalt plant production, using and recycling grinding materials, deep base digging, site de-watering, fog sealing, filling voids (slab jacking), crack sealing, and production of rock for chip seal.

Goal: To repair the road and preserve a safe driving surface while protecting nearby waterways from potential pollutants associated with surface work that include asphalt, concrete, and release agents.

ODOT Asphalt Plant Production

Description: Asphalt plant production includes staging, moving, stockpiling and setup of asphalt plants for production of asphalt for paving and patching materials.

Minimization, Avoidance, and BMPs:

1. Ensure that Contractors and ODOT staff who fuel and operate asphalt plants develop and implement an adequate spill plan, and have materials for spill containment on site.
2. Establish mixing plants outside of riparian corridors, site location to be approved by the REC or ODOT Biologist, and/or with technical assistance from NOAA Fisheries Biologist.
3. Utilize commercial asphalt plants for asphalt supply, where economically feasible.
4. Provide upland areas for truck chute cleanout with proper containment of wet concrete. Clean out will not occur over waterbodies.
5. Protect inlets and catchments from fresh concrete.
6. Perform surface work in dry weather to minimize any runoff of potentially hazardous material, where possible.

Release Agents

Description: Release agents are used to soften hard asphalt or release asphalt and oils from paving equipment. Release agents are also used to pre-treat equipment to prevent asphalt from adhering to the equipment.

Minimization, Avoidance, and BMPs:

1. Eliminate the use of diesel fuel as a releasing or cleaning agent.
2. Use environmentally sensitive cleaning and releasing agents.
3. Use only products marketed as release agents, including those that may contain diesel. Capture and contain all excess materials when cleaning equipment at a maintenance yard. For areas without wash rack systems with oil/water skimmers, capture the material released using plastic, sand blankets, drip pans, etc. Capture and contain all excess material containing release agents when cleaning equipment in the field, or retain all material on the pavement.
4. Recycle or dispose of all release agents and materials released as directed by the materials safety data sheet or manufacturer's direction.
5. Prevent all release agents and released material from reaching the roadside environment. Use limited amounts of release agents or capture material as necessary.
6. Use heat sources to heat and clean tack nozzles during operations.
7. Carry adequate spill kits with absorbent materials (diapers, kitty litter, shovels, etc.) to keep materials out of water bodies.

Void Filling

Description: Activity includes filling voids in asphalt or concrete roadways that are not on bridges or over culverts.

Minimization, Avoidance, and BMPs:

1. Use a non-toxic dye test whenever a void is within 300 feet of a waterbody or the TMM or Coordinator cannot positively determine if the void can be filled without impacting a waterbody.
2. Use foam or other quickset material to plug the void prior to using concrete, if the void is connected to a waterbody (observed visually or through the use of non-toxic dye). The intent of the plug is to prevent concrete from entering a waterbody.
3. Contact the REC if any concrete enters a waterbody. Follow the reporting and tracking requirements outlined in the monitoring section of the Guide. Restoration and mitigation may be required.
4. Use good housekeeping practices including erosion control and spill containment as appropriate when using a dry product to fill voids.

Shoulder Blading and Repair (Activity 111)

Description: Activity includes blading and pulling shoulders to the pre-existing dimensions using existing materials. No new material can be added under this activity. This work is done to correct rutting and buildup of materials; to remove weeds; to maintain safety; and to maintain proper drainage. This activity does not modify ditch hydraulic capacity.

Goal: To repair shoulders to provide a safe surface for vehicle recovery; to provide an adequate clear zone; and to drain water away from the road while protecting nearby waterbodies. If shoulder material is not properly contained it has the potential to change site hydrology, increase sediment in streams, and degrade water quality.

Minimization, Avoidance, and BMPs:

1. Install erosion control measures when appropriate, such as check dams in roadside ditches. See the ODOT Field Manual, Erosion and Sediment Control, November 2000 for erosion control measure construction and installation information.
2. Determine if there is an existing barrier or natural bench to protect waterbodies from fallback material. If a barrier or natural bench is present, it is not necessary to use erosion control measures or take further protective actions. The bench or barrier must be above OHWL and be adequate in width and location to prevent any movement of material.
3. Evaluate specific sites for alternatives to blading, such as berming or paving the shoulder.
4. Evaluate the width of the blading activity and if the site warrants, modify the width to minimize disturbance of vegetation.
5. Blade in dry weather, while moisture is still present in soil and aggregate (to minimize dust), where possible.
6. Incorporate this activity into local Integrated Vegetation Management (IVM) plans to coordinate activities.
7. Permanently stabilize disturbed soils using BMPs (seeding, plants, etc.) as conditions warrant.

Shoulder Rebuilding (Activity 112)

Description: Activity includes replacing material lost to slumping or compaction, then blading, pulling, and rebuilding the shoulder to the pre-existing dimensions. This work is done to correct rutting and buildup of materials, to remove weeds, for safety, and to maintain proper drainage. This activity does not modify ditch hydraulic capacity.

Goal: To repair shoulders to provide a safe surface for vehicle recovery; provide an adequate clear zone; and to drain water away from the road while protecting nearby waterbodies. If shoulder material is not properly contained it has the potential to change site hydrology, increase sediment in streams, and degrade water quality.

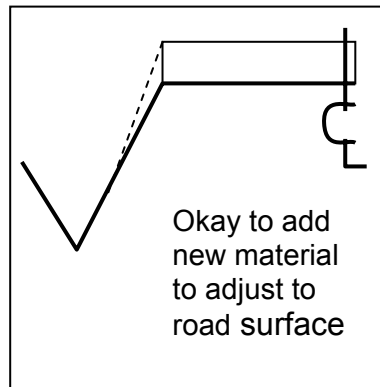
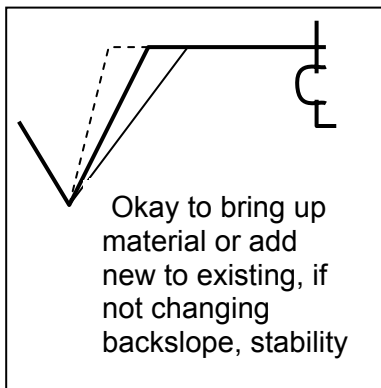
Minimization, Avoidance, and BMPs:

1. Review the ODOT Roadwaste Management chart in Appendix B, before reusing and recycling sweeping and grinding material.
2. Consult the RES and RAZ maps to identify areas of concern prior to starting work. If the shoulder rebuilding is in an area of concern, contact the REC. Be sure to document the process for use in future work.
3. Install erosion control measures such as check dams in roadside ditches, when appropriate. See the ODOT Field Manual, Erosion and Sediment Control, November 2000 for information regarding erosion control use and installation.
4. Determine if there is an existing barrier or natural bench to protect waterbodies from fallback material. If a bench or natural barrier is present, it is not necessary to use erosion control measures or take further protective actions. The bench or barrier

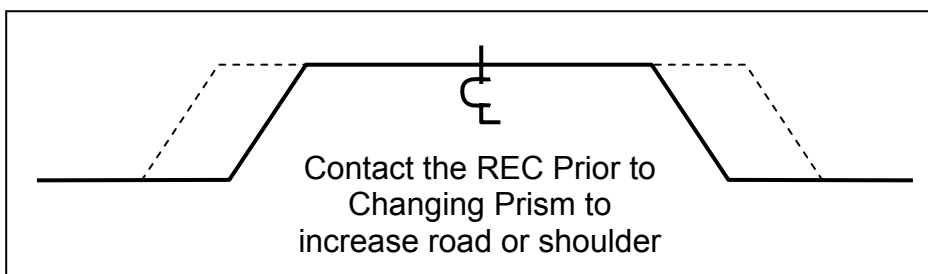
must be above OHWL and be adequate in width to prevent any movement of material.

5. Evaluate specific sites for alternatives to blading, such as berming or paving shoulder.
6. Evaluate the width of the blading activity and if appropriate, modify the width to minimize disturbance of vegetation.
7. Blade in dry weather, but while moisture is still present in soil and aggregate (to minimize dust), where possible.
8. Incorporate this activity into local IVM plans to coordinate activities.
9. Permanently stabilize disturbed soils using BMPs (seeding, plants, etc.), where appropriate,
10. Care should be taken not to over steepen ditch slopes or decrease ditch capacity, which could result in slope failure.
11. Contact REC if maintenance activity includes moving soils or bank that was previously undisturbed.

Note: Activities that are covered by this document:



Note: Any shoulder work that includes adding material to widen or increase existing road prism, including shoulder widening done as restoration work to improve water quality, control vegetation, etc. is not covered by the practices identified in this book. If it is necessary to increase or widen shoulders, contact the REC for assistance. Widening or increasing the shoulder has the potential to change site hydrology and stream dynamics.



Sweeping/Flushing (Activity 116 - Non-pickup)

Description: Activity includes sweeping and flushing of roadways, curbs, and bridge decks to remove dirt and debris, and scupper (weep holes or direct drains on bridges) cleaning. Materials are sidecast (not recovered) under this activity. Scupper cleaning involves unplugging the scuppers with a rod, sweeping excess material away from the scupper, then cleaning with high-pressure water. Activities are performed year round.

Goal: To remove materials such as sanding material, dirt, debris, etc. from the travel lanes and shoulders, while preventing suspended sediment and pollutants from reaching waterbodies so that water quality is not impacted. Cleaning scuppers allows water to drain off the bridge decks.

Minimization, Avoidance, and BMPs:

1. Schedule sweeping during damp weather, to minimize dust production when feasible. If sweeping cannot be done during damp weather, use water (as needed) to reduce dust.
2. Complete bridge sweeping/flushing activities prior to bridge washing, when feasible. By removing excess sediment on bridges by sweeping, there will be less sediment to be washed off the bridge.
3. Slow the sweeper and broom speed, and change the angle of the broom to prevent sweepings from leaving the road shoulders and entering the stream, if the road is parallel to a waterbody that is less than 25 feet from the fog line.
4. Recycle sweeping materials per accepted ODOT procedures, refer to the Roadwaste Management Chart Appendix B for reuse of material.
5. Plant vegetation buffers to catch sanding material and other pollutants to protect the water quality of nearby waterbodies where appropriate.
6. Reduce use of sanding material and the need for sweeping by using winter maintenance chemicals instead of sand and gravel during winter conditions.

Sweeping/Flushing (Activity 117 - Pickup)

Description: This activity includes sweeping and flushing of roadways, curbs, and bridge decks to remove dirt and debris, and scupper (weep holes or direct drains on bridges) cleaning. Materials are recovered (not sidecast) and disposed of during this activity. Scupper cleaning involves unplugging scuppers with a rod, sweeping excess material away from the scupper, then cleaning with high-pressure water. This activity is performed year round.

Goal: To remove materials such as sanding material, dirt, debris, etc. from the travel lanes and shoulders, and to prevent materials from reaching waterbodies so that water quality is not impacted. This activity includes the removal of materials from the site to further prevent impact to the resources.

Minimization, Avoidance, and BMPs:

1. Schedule sweeping during damp weather, to minimize dust production when feasible. If sweeping cannot be done during damp weather, use water (as needed) to reduce dust.
2. Store and dispose of collected materials at appropriate sites in keeping with local disposal plans. Collected material may be temporarily stored in stable locations.

3. Recycle sweeping materials where appropriate. Refer to the Roadwaste Management chart, Appendix B on reuse of materials.
4. Complete bridge sweeping/flushing activities prior to bridge washing, when feasible. By removing excess sediment on bridges by sweeping, there will be less sediment to be washed off the bridge.
5. Reduce use of sanding material and the need for sweeping by using winter maintenance chemicals instead of sand and gravel during winter conditions.

Ditch Shaping and Cleaning (Activity 120)

Description: Activity includes use of equipment for cleaning and reshaping of ditches including loading, hauling, and disposing of excess materials. Material is removed to an approved location for disposal or storage. Vegetation located in the ditch is removed during cleaning. This activity is performed in all weather.

Goal: To maintain ditches in a manner that allows for efficient stormwater passage, storage, and infiltration while minimizing sediment impacts to water quality.

Minimization, Avoidance, and BMPs:

1. Review Table 1.0 "When is a Waterway (Corps/DSL) Permit Needed for Ditch Maintenance" on the next page. Coordinate with the REC as needed.
2. Use erosion control devices such as check dams, silt mats, and other erosion control measures, when the potential exists to have sediment or other materials enter waters of the State. Reference the ODOT Field Manual Erosion and Sediment Control, November, 2000 for guidance on selection and installation of erosion control measures.
3. Use BMPs identified in the local IVM plan.
4. Re-seed drainage ditches and steep slopes as appropriate. Ditches functioning as rock fall areas (as determined by the ODOT District Manager) will not be re-seeded.
5. Perform ditch work in optimum weather (when the ditch is dry but there is still sufficient soil moisture to prevent dust and the movement of small particulates) to minimize environmental impacts where feasible. Consult with ODFW and/or the REC if erosion control devices are inadequate to filter water prior to draining to watercourses.
6. Evaluate and modify existing ditch slopes, where feasible and appropriate, to trap sediment and support development of vegetation
7. Dispose of collected ditching material above the OHWL and not in any waterway or wetland
8. Recycle excavated material when feasible. Refer to Roadwaste Management chart in Appendix B.

Table 1.0

**WHEN IS A WATERWAY (CORPS/DSL) PERMIT
NEEDED FOR DITCH MAINTENANCE?
ANSWER ALL QUESTIONS FROM BOTH COLUMNS**

WATERWAY ISSUES

WETLAND ISSUES

Is there running or standing water in drainage facility other than during or after rainfall events?

Yes

Yes

No

No

Is there wetland vegetation (willows, rushes, cattails) in ditch?

Does the drainage have an open water connection to a lake, pond, creek, river, or wetland?*

* If yes, contact REC to contact local ODFW fisheries biologist to determine potential impacts to fish.

Yes

Yes

No

No

Is there standing water or Wetland vegetation adjacent to ODOT ROW?
(Call Region Environmental Coordinator for assistance)

Is the waterway subject to tidal influence?

Yes

Yes

No

No

Would the activity add to or change the existing facility?
(Add rip-rap, extend culverts, ditch widening or deepening or new work)

A 'Yes' to any questions in this column:

If ALL responses are 'No':

A 'Yes' to any question in this column:

**PERMIT AND
BIOLOGICAL
ASSESSMENT MAY BE
NEEDED**
Contact Region Environmental Coordinators

**NO WATERWAY
PERMITS NEEDED**
If ODOT Best Management Practices are followed

**PERMIT MAY BE
NEEDED**
Contact Region Environmental Coordinators

ODOT Environmental Permit Coordinators:

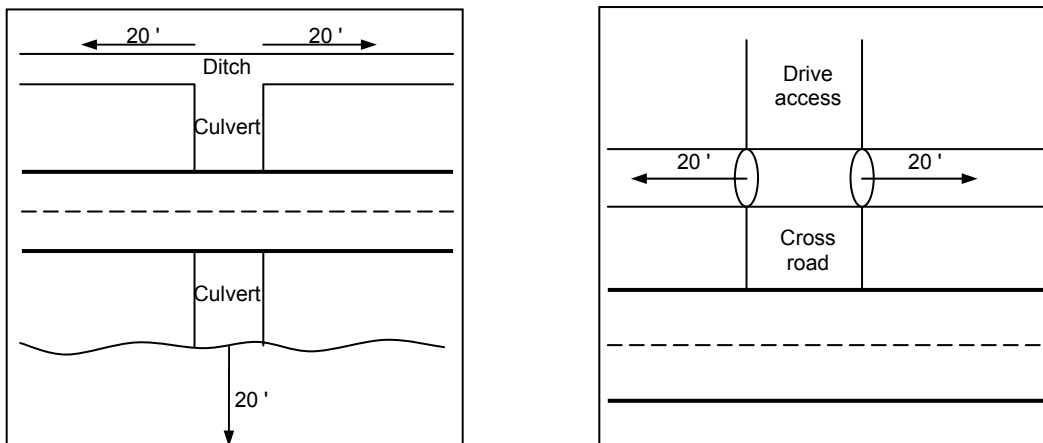
Check your regional listings for name and phone number

Culvert and Inlet Cleaning (Activity 121), Miscellaneous Hand/Minor Repair (Activity 129)

Description: Activity is done to restore function and to repair damaged water conveyances (including box, concrete, metal, and wood culverts, siphons, catch basins, and drop inlets). This action includes inspection of the culvert, including the use of camera and drills. This action includes clearing debris from culvert inlet/outlets, detention ponds, swales, pump stations, and wash rack sumps. This activity also includes cleaning diversions, trash racks, stand pipes, tide gates as well as fish passage retrofits and slip linings. This activity may also include the use of various equipment types including backhoes, spider hoes, vactor/jet rodder (powerful vacuum with a high-pressure hose), slip chute mechanism, drag lines, conveyer belts, bobcats, suction devices (dredges), clam buckets, and shovels. Vegetation may be removed during cleaning. These activities are performed in all weather. Fish passage and elements of ORS.509.585 must be considered when performing many of these activities. Coordinate with the REC and ODFW whenever planning work that involves the structural integrity (modifying the physical characteristics of, or extending the life of the culvert) of the culvert or roadbed, including culvert extensions, slip lining culverts, and culvert flooring.

Removal of beaver dams and other debris dams to restore flow, prevent flooding, and allow for fish passage within 20 feet upstream and downstream of the culvert barrel end is considered culvert cleaning (see below diagram). If work is outside this area, practices identified in the Channel and Ditch Maintenance section must be used.

The most current in-water work windows are available on ODFW is website at: www.dfw.or.state.us/ODFWhtml/infoCntrHbt/0600_inwtrguide.pdf



Goal: To provide for adequate hydraulic flow through the culvert to prevent flooding and restore fish passage upstream and downstream of the culvert, while protecting water quality from sedimentation. Additional caution is needed to reduce impacts to protected fish species and their habitat.

These activities may require a permit, temporary water management (TWM), fish salvage, and providing fish passage. Coordinate with the REC when planning work. If a permit is required, plan in advance to allow time to get permits. Acquiring the permits

and scheduling for fish salvage can require 75 to 150 days or more.

Culvert Cleaning, Beaver Dam, and Debris Dam Removal

Minimization, Avoidance, and BMPs:

1. Install erosion control measures during culvert or trash rack cleaning, where erosion control devices can feasibly be installed. Dispose of materials above the OHWL and not in any waterway or wetland.
2. Remove beaver dams and other debris in a manner that minimizes the likelihood of stranding fish, harming fish habitat, and adding sediment to the stream.
3. Perform work at low flow, and divert flow to minimize turbidity, when and where possible.
4. Consider installing deterrents to beavers, in appropriate culverts, in coordination with ODFW.
5. Manage drift removed from debris dam as appropriate and safe, using the following priorities: turning and allowing to float drift, remove drift to riparian area safely out of the channel, remove drift and place down stream, cut and turn drift to float. Dispose of excess material above the OHWL, where there is no opportunity for material to reach waters of the state, and stabilize in a timely manner. Stabilization of material may include spreading and top seeding, covering with matting, straw, or other appropriate erosion control or stabilization material to meet the intent of the goal. Haul away and appropriately dispose of any material that cannot be stabilized above the OHWL.

Temporary Water Management

Minimization, Avoidance, and BMPs:

1. Install erosion control devices prior to culvert work when there is flowing or stagnant water in the culvert.
2. Complete any work performed in flowing water, that is connected to waters of the state, during the ODFW in-water work period for that system, or as negotiated with ODFW.
3. Coordinate with ODFW on the removal of material from culverts when work is performed in stream reaches that ODFW has determined support sensitive fish species, or where there are habitat limitations for species, as advised by the REC.

Tidegate Maintenance

Minimization, Avoidance, and BMPs:

1. Coordinate with the REC, and other agencies as appropriate, when ODOT maintained tidegates fail or need replacement or removal. Individual biological assessments, permits, TWM, fish passage and fish salvage may all be involved with the activity. Some tidegates currently maintained by ODOT may no longer be maintained by ODOT as described in the ODOT tidegate policy (drafted March 2004).
2. Inspect and clean structures prior to the rainy season, if possible.

Note: Activities in navigable waters are subject to permit by the Corps. and may require consultation with NOAA Fisheries. It may take up to six months to obtain these permits and agreements, plan activities accordingly. These typically include waters that are

coastal, tidally influenced, and are used for commerce.

Note: Fish ladder maintenance will follow the above measures for culvert repair and cleaning. Fish ladder maintenance may be done 1 to 3 times per year and entails work generally from the banks of the drainage with a backhoe. Additional handwork and weir repair may also be occasionally required. Vegetation may be removed during cleaning. This activity should be coordinated with the REC.

Erosion Repair (Activity 122)

Description: Activity involves repairing water damage to roadways and fill-slopes, including importing and shaping material to restore slope and grade lines. In-water work covered by this action could include, but is not limited to, replacement of riprap or rock which have been removed due to bank erosion, gabion baskets, etc. In-kind replacement of riprap or other approved fill material will be done in coordination with ODOT engineers, ODFW, USFWS, NOAA Fisheries, DSL, and the Corps.

Goal: To maintain and repair the roadway while minimizing impacts to water quality and fish habitat, emphasizing opportunities to incorporate vegetation into the repair activity.

Minimization, Avoidance, and BMPs:

1. Coordinate with the REC when planning work. This activity may require a permit from the Corps and/or DSL, TWM or fish salvage.
2. Coordinate with the REC and ODFW any erosion repair activities which causes significant changes, as determined by the maintenance manager, in the topography or vegetation within the riparian area.
3. Consider use of bio-engineering solutions where practicable. Bio-engineered solutions are not restricted to an all or nothing approach. Some solutions may be completely bio-engineered, others may include an engineered solution that incorporates vegetation.
4. Replace riprap during ODFW in-water work periods, unless it is an emergency. Coordinate with the REC in urgent or emergency situations. Reference the Cut/Fill Urgency Emergency Users Guide as appropriate for Regions 1, 2, and 3.
5. Dispose of excess or removed material at appropriate sites above OHWL so the material won't be washed into wetlands, waterways, or impact other sensitive resources. Refer to the Roadwaste Management chart in Appendix B.
6. Install erosion control methods in a timely manner where they can be safely and successfully applied, in areas where erosion is likely to occur. Measures may include seeding and mulching specific areas with non-invasive species. Install silt fences and other devices as appropriate.
7. Look for opportunities to plant vegetation on failing banks to prevent further deterioration of the roadbed and reduce sediment and pollutants from reaching nearby waterbodies.
8. Reference the ODOT Field Manual, Erosion and Sediment Control, November 2000 for guidance and selection of erosion control devices for disposal sites.

Note: Installation of new material that exceeds the material removed by bank erosion (below OHWL) will constitute a significant action. Increases in the material profile will

require additional coordination with regulating agencies, may also require permits, and are not covered by this document (See Appendix C).

Culvert/Inlet Repair (Activity 123)

Description: Activity applies to replacement and repair of drainage structures that are less than 6 feet wide (for larger structures refer to Activities 160 and 162). This activity includes removing a culvert and re-installing a culvert in the same location. This activity may include the use of temporary water management. Culvert replacement usually requires a permit from the Corps and/or the DSL. In addition, replacement and some repairs will require that fish passage, fish salvage and TWM be addressed.

The most current in-water work windows are available on the ODFW website at: www.dfw.or.state.us/ODFWhtml/infoCntrHbt/0600_inwtrguide.pdf

Goal: To restore function or to prevent failure of a drainage structure while minimizing impact to water quality, aquatic species, and aquatic habitat.

Minimization, Avoidance, and BMPs:

1. Contact the REC when planning work to identify fish passage issues and to determine if work zone isolation techniques are needed.

Temporary Water Management

Minimization, Avoidance, and BMPs:

1. Coordinate with the REC while planning work to discuss TWM, fish salvage, and fish passage. This activity may require permits from the Corps, and DSL. Plan ahead to allow time to secure permits.
2. Coordinate work with ODFW through the REC.
3. Cross reference practices for Activity 162.
4. Restore diversions as appropriate.
5. Work will be done during the in-water work window unless otherwise negotiated with ODFW.
6. Obtain temporary water right to pull directly from source or de-chlorinate the water, where required.
7. Screen any intake pump per NOAA Fisheries screening criteria during operation. See Appendix D for screening criteria.

Channel Maintenance (Activity 124)

Description: Activity includes cleaning and repairing existing channels, may include placing riprap to restore the line and grade of the channel. Vegetation may be removed during this activity.

Goal: To maintain the integrity of the channel structure, improve flow, ensure fish passage, and minimize impacts to water quality and habitat.

Minimization, Avoidance, and BMPs:

1. Coordinate with the REC when planning work. This activity may require a Corps and/or DSL fill removal permit, as well as an individual Biological Assessment.

2. Attempt to utilize bioengineering solutions during replacement of significant sections of riprap within channels, wherever appropriate i.e.: provides adequate stability, and is not cost-prohibitive.
3. Remove any excess material associated with the maintenance activity and deposit above the OHWL or in appropriate locations off site.
4. Perform work that is below OHWL during the ODFW in-water work window, or as negotiated with ODFW.
5. Communicate cleaning schedules, methods, and repairs of channels to ODFW (by email) at least two weeks prior to cleaning, in ODFW/DSL identified sensitive areas such as spawning grounds or essential salmonid habitat. Any in-water work will be coordinated with ODFW (except during emergency situations) to ensure that no fish stranding occurs, to minimize sediment in the stream, and to clarify in-water work periods in transitional stream reaches.
6. Use appropriate rock sources to maximize safety, operation, and habitat function as guided by ODFW.
7. Manage drift removed from channels as appropriate and safe, using the following priorities: turning and allowing to float drift, remove drift to riparian area safely out of the channel, remove drift and place down stream, cut and turn drift to float.

Note: Installation of new sections of riprap in channels will be considered a significant action, and not covered by this document.

Water Quality Facilities (Activity 125)

Description: Activity includes maintaining permanent water quality structures designed and constructed to treat stormwater runoff from ODOT roads and facilities. These structures include detention and retention ponds, grassy swales, holding vaults, etc. Maintenance activities include removing sediment, vegetation, changing filters, holding periodic inspections, grading as needed. Equipment used to maintain these structures include backhoes, vactors, jet rodders, hand tools, etc. Specialty equipment may be used as needed.

Goal: To ensure that the designed facilities for stormwater treatment function as intended.

Minimization, Avoidance, and BMPs:

1. Implement maintenance procedures described in the operations and maintenance manual developed for the structure.
2. Dispose of removed material appropriately above the OHWL or as directed in the Roadwaste Material Management Chart (Appendix B).
3. Practice good housekeeping practices during any maintenance activity such as having spill kits on site.

Vegetation Management Program Overview

ODOT implemented an Integrated Pest Management (IPM) Program as required by ORS 634.660. An IPM program identifies the most appropriate method for controlling a pest. For ODOT, the “pest” being controlled is unwanted vegetation, consequently,

ODOT prefers the term Integrated Vegetation Management (IVM). IVM methods typically involve:

- Mechanical: using equipment such as mowers, chain saws, brushers, etc.
- Biological: using a natural predator to control the noxious weed or unwanted vegetation (flea beetle or Cinnabar Moth to control tansy ragwort, for example).
- Cultural: incorporating native, or more appropriate plant material to out-compete the unwanted vegetation.
- Chemical: applying appropriate chemicals.

For the past several years, ODOT has required that each Maintenance District develop an IVM plan. Each plan typically includes:

- Goals and objectives for IVM,
- Maps of roads and management zones,
- Methods (in some cases by mile point) to be used to control vegetation,
- Reports, and
- BMPs including timing activities in consideration of fish and wildlife species,
- Coordination with other maintenance activities as appropriate.

ODOT incorporates routine maintenance activities, landscape maintenance, nursery production, and rest area vegetation activities into the IVM program.

ODOT incorporates tree management into its vegetation management program. ODOT maintenance managers determine immediate tree hazards and remove them. ODOT Foresters, working with ODOT Maintenance, also remove trees from unstable slide areas that are forested, where the trees or slide have the potential to reach the highway. ODOT Maintenance occasionally removes trees threatening to fall, and in the process, may remove large portions of bank areas.

Goal: To maintain a safe and efficient transportation system that includes controlling noxious, invasive, and inappropriate vegetation, while promoting beneficial and native vegetation for the benefit of adjacent landowners, the public user and the natural environment.

Minimization, Avoidance, and BMPs:

1. Maintain buffer strips along scenic highways, and other visual corridor as requested. Vegetation removal based on visual or scenic requests will be coordinated with the REC and ODFW.
2. Maintain riparian trees along streams or rivers unless those trees are hazard trees as described in the Definitions of Terms. If trees provide shade or bank stabilization, are within 150 feet of streams or other waterbody, and are determined to be hazard trees that must be removed, the trees will be removed in consultation with ODFW.
3. Coordinate with the REC, ODFW and/or appropriate regulatory agency prior to removing trees within a riparian area to reduce weight on a failing slope. Develop an erosion control plan as appropriate. Significant consideration will be given to retaining trees that provide stream shading (e.g. within 150 feet of the active

channel).

4. Replant two seedlings/cuttings for every tree removed when removing trees over 12-inch (30cm) diameter at breast height (dbh) in riparian areas. Coordinate with the REC and/or ODFW on the species and location of seedling/cuttings to be replanted within the same watershed. Locate the replanted trees so the trees will not pose a future threat to the transportation system.
5. Use appropriate site-specific practices in Special Management Areas (SMAs) where threatened or endangered plant species are present within ODOT right of way.
6. Coordinate with ODFW, as appropriate, on incorporating downed trees in fish and wildlife habitat restoration projects.
7. Develop corridor tree management strategies as authorized by District Managers, in consultation with an ODOT Forester, the REC, and ODFW. These strategies will define which trees along an ODOT corridor need to be removed based on health, location, species, etc; develop a time line for removal; a mitigation plan that reflects appropriate conditions for the area; and a disposal plan.

Mowing (Activity 130), Brush Mowing (Activity 132), Brush Cutting (by hand) (Activity 133) Landscape Area Maintenance (Activity 136), Rest Area Maintenance (Activity 137)

Description: Activities are designed to restore sight distance, minimize or remove shading that may cause icy road conditions, and control or prevent slope failure. These activities are also designed to control unwanted vegetation, control noxious weeds, comply with city, county or local ordinances, reduce fire danger, reduce snowdrift accumulation near roadways, and to maintain a clear zone along the roadway. These actions involve mechanical mowing, trimming, removal of brush and cleanup.

Goal: To maintain sight distance and clear zone requirements amid other factors associated with a safe transportation system, while maintaining appropriate vegetation and controlling noxious vegetation.

Minimization, Avoidance, and BMPs:

1. Maintain existing mowing plans identified in district IVM plans. District IVM Plans identify mowing areas, and are designed to minimize impact to receiving waters while still maintaining grassed areas.
2. Leave cut brush, in riparian areas, in place where doing so does not interfere with sight distance, create safety issues, cause fire hazards, involve noxious weeds or impact the proper functioning of highway features (e.g. drainage).
3. Limit mowing to no more than 8 feet off the edge of pavement in significant resource areas, unless needed to maintain proper functioning of highway features (e.g. drainage). In areas where this is impossible due to physical constraints, safety, local conditions, traffic management issues, etc., these areas will be described in the district IVM plans with alternate BMPs.
4. Maintain riparian trees along streams and rivers, unless trees are hazard trees (as determined by an ODOT Forester), could potentially impact bridge structures, or could impact the line of sight. Trees that provide shade or bank stabilization within 150 feet of streams, are determined to be hazard trees and need to be removed, will be coordinated with ODFW or other regulatory agency. Trees determined by local TMM to be immediate hazard will be removed immediately and any needed

coordination and communication will occur following the tree removal.

5. Remove brush within 20 feet on either side of and under all bridge structures. All other brush not within the clearzones will be left in its current condition, unless the brush interferes with sight distance, shades the structure, or the brush is a noxious weed so as to maintain functional fish and wildlife habitat. RAZ maps may identify other areas where brushing around structures should be minimized.
6. Remove only brush necessary to perform the maintenance required at culverts, including maintaining the clear zone, line of sight, and addressing other safety issues from the road to both ends of the culvert, unless the brush is a noxious weed. If other brushing needs are identified, ODOT will coordinate with ODFW.
7. Replant two seedlings/cuttings for every tree removed when removing trees over 12-inch (30cm) (dbh) in riparian areas. Coordinate with ODFW on species and location of trees to be replanted within the same watershed. Locate the replanted trees so they will not pose a threat to ODOT structures.

Spraying (Activity 131)

Description: Activity consists of spraying chemicals to control the growth and spread of noxious weeds and brush. Herbicides used include broad-based foliar-active herbicides and soil residual herbicides.

Goal: To control noxious weeds and other vegetation through the application of herbicide under the guidance of EPA and the Oregon Department of Agriculture (ODA).

Minimization, Avoidance, and BMPs:

1. Follow an IVM program. The local IVM Plan maps locations of sensitive natural resources and identifies areas where spraying does not occur. The local IVM Plan identifies buffer limits for areas around water resources and addresses practices for the protection of sensitive fish species. The herbicide spray program may also include modification of spray times and modifications of spray widths to protect riparian areas. Specific minimization/avoidance measures will be developed on a site-specific basis.
2. Use and store herbicides in accordance to EPA labels.
3. Coordinate with ODFW on the treatment and timing of the spray in areas where noxious weeds reach open stream channel.

Note: Because herbicide application is not included in ODOT's 4(d) exemption, any 'take' occurring as part of maintenance operations resulting from herbicide application would not be permitted.

Striping (Activity 140, 141)

Description: Activities include painting traffic lines, arrows, bike lanes, crosswalks, etc. Materials used to establish road markings include waterborne paint and longer lasting durable products containing glass beads to provide retroreflectivity. The materials are placed on the road using specialty equipment. These activities are done as needed on the road, and are done during dry weather conditions. Pavement preparation may include grinding off old markings. Less than 10% of old markings are ground off.

Goal: To maintain traffic markings for the safety of the traveling public.

Minimization, Avoidance, and BMPs:

1. Recycle grindings at appropriate landfill.
2. Contain all waste from equipment clean outs and dispose appropriately.
3. Store materials appropriately, use containment as necessary.
4. Use environmentally safe products.

Sign Installation (Activity 142, 143)

Description: Activity includes washing, locating, installing, repairing, and replacing signs along the rights of way.

Goal: To ensure that signs that provide information to the public are in good repair and legible.

Minimization, Avoidance, and BMPs:

1. Use best professional judgement on installing erosion control and implementing good housekeeping practices for signs that are placed within cut faces, fill slopes, or are replaced in kind.
2. Consult RAZ/RES maps to determine probability of archeological sites, wetlands, etc for new signs with 5'x5' x6" or larger concrete pads that need to be placed outside cut faces or fill slopes. If in doubt, coordinate with REC for expedited review. In areas where maps are not available, fax the One-Call locate information to REC.
3. Avoid wetlands at all times.
4. Install erosion control devices where appropriate to prevent work from possibly impacting wetlands, stormdrains, etc.
5. Coordinate with REC if clearing, grubbing or grading for access road.
6. Replace the signpost in kind in historic areas. If replacement in kind is not possible due to federal and state required standards, coordinate with the REC.
7. Coordinate with REC in areas with sensitive plants. Plant surveys are done in the spring, if new sign is to be installed in a Special Management Area, plan accordingly.
8. Coordinate with REC on any installation of permanent variable message signs.

Accident Clean-up (Activity 149)

Description: Activity includes removal of accident debris, and may include response to hazardous spills. ODOT is responsible for maintaining public safety and working with DEQ contractors or responsible parties to ensure the cleanup is done in an appropriate manner.

Goal: To restore transportation system following unforeseen incidents.

Minimization, Avoidance, and BMPs:

1. Assess the situation for safety considerations.
2. Stop and contain any spill if appropriate. Appropriate training is required for spill containment.
3. Call Region Hazmat Coordinator or REC for assistance as needed.
4. Provide traffic control as appropriate.

Note: Notify Oregon Emergency Response System (1-800-452-0311) when a spill of 42 gallons or more of oil is released to the surface; any amount of oil is released to the water, or when there is a hazardous spill of concern.

Guardrail Replacement (Activity 151)

Description: Activity involves repair and replacement of existing guardrail sections, including pouring concrete pads and placing concrete barriers.

Goal: To maintain physical barriers that guide and direct traffic in a manner that minimizes impacts to the natural resources.

Minimization, Avoidance, and BMPs:

1. Check RAZ maps to identify the possibility of nesting birds in nearby vegetation. If there are possibly nesting birds present and the work requires the use of a pneumatic hammer, pile driver, or other loud equipment, consult the REC for assistance.
2. Install erosion control measure (silt fences, etc) in unstable areas to protect the downslope during guardrail replacement to minimize adding sediment into aquatic systems, as appropriate.
3. Contain all green concrete to prohibit it from coming into contact with the aquatic system.
4. Match new guardrail with the existing material, which may include the use of treated guardrail posts. (See Appendix I)
5. Limit the use of creosote or other treated woods (See Appendix I).

Attenuator Maintenance (Activity 153)

Description: Activity includes service, repair, replacement, and realignment of damaged attenuators (physical systems that are strategically placed along exit ramps, bridge abutments, etc. to minimize impacts and cushion vehicles). Following impact, attenuators compact, sometimes releasing fluid (often ethylene glycol) which may flow directly to drainage systems.

Goal: To repair, replace, and restore impact systems for the safety of the traveling public in a manner that minimizes impacts to the natural resources.

Minimization, Avoidance, and BMPs:

1. Use non-chemical systems when installing new attenuators.
2. Install those devices found to be the most environmentally sound when replacing attenuators.
3. Use absorbent materials (dams, diapers, etc.) around attenuators during repair or maintenance.
4. Identify and close inlets (if it can be done safely) during attenuator maintenance.

Guardrail Cleaning (Activity 154)

Description: Activity includes the removal of material from under guardrail and around posts by hand or grader mounted cleaner.

Goal: To clean and install guardrail while preventing debris from entering waterbodies or streams.

Minimization, Avoidance, and BMPs:

1. Contain material to prevent material from entering streams or waterbodies.
2. Pick up excess material rather than blading material out on the bank when working near streams.

Bridge Maintenance (Activity 160, 163) Other Structure Maintenance (Activity 169)

Description: Activity is a large category of ODOT Maintenance actions. There are two major categories: drift removal and maintenance of bridges and large (over six feet diameter) culverts. Maintenance and replacement of structures includes washing, painting, scraping and patching of curbs, rails, deck joints, on wood, concrete and steel bridge components. Pesticides are applied to bridges occasionally.

Goal: To maintain and repair the structural integrity of bridges and culverts along state highways in a manner that minimizes impacts to natural resources.

Drift Removal

Minimization, Avoidance, and BMPs:

1. Perform all work within the flowing channel of any aquatic system during the appropriate in-water work window for that system, or as negotiated with ODFW (except when there is imminent danger to life, limb, or structure).
2. Refer to the ODFW website for the most up to date in-water work windows: www.dfw.state.or.us/ODFWhtml/infoCntrHbt/066_inwtrguide.pdf
3. Manage drift as appropriate and safe, using the following priorities: turning and allowing to float drift, remove drift to riparian area safely out of the channel, remove drift and place drift downstream of structure, cut and turn drift to float.
4. Repair and restore riparian areas temporarily impacted by machinery during drift removal. Long-term access for drift removal will be coordinated with ODFW.
5. Contact the REC if drift is buried in the mud during low flows in tidally influenced areas and mainstem rivers in Western Oregon. A Corps permit may be required.

Bridge Cleaning and Maintenance

Minimization, Avoidance, and BMPs:

1. Follow the ODFW Bridge Washing Guidance (Appendix F).
2. Implement adequate measures to ensure that paint and other hazardous material does not enter waters of the State. Coordinate guano removal and any other specific concerns with DEQ. Any material which does fall into the water will be removed (if possible) in the least destructive way possible, or left in place if this would be less destructive to fisheries habitat.
3. Temporarily block deck drains and scuppers over streams when pressure washing, sandblasting, or scraping structures, to route water off deck and into vegetated areas where practicable.
4. Remove debris from bridge decks in a manner that minimizes material entering waterbodies. Preferred methods may include removal of large debris from bridge decks with a sweeper or a shovel. Other material may be scraped by hand before being collected, removed (prior to pressure washing). Material will be disposed of as

identified in the local disposal plan.

Temporary Water Management

Minimization, Avoidance, and BMPs:

1. Obtain temporary water right to pull directly from source or de-chlorinate the water, where required.
2. Work with the water source (the city) to identify chlorine levels prior to using water.
3. Screen any intake pump used in this activity per NOAA Fisheries Screening criteria. See Appendix D.

Bridge Repair (Activity 162)

Description: Activity includes repair of bridges and large culverts (over six feet diameter). In-water bridge repair can include repair or replacement of riprap, drainage features, and catch basins and replacement of structural members. Bridges may be constructed of steel, wood, or concrete. Maintenance typically replaces structural elements in kind.

Goal: To maintain and repair the structural integrity of bridges and culverts along state highways in a manner that minimizes impacts to natural resources.

Minimization, Avoidance, and BMPs:

1. Coordinate with the REC when planning work. These activities may require a permit, TWM, and fish salvage. Activities that occur in the stream channel or below the OHWL may require permits. Activities that occur on the deck, superstructure, or other parts of the bridge structure outside the stream channel and above OHWL, do not require permits.
2. Consider use of bio-engineered solutions for bridge repair work that requires installation of riprap, where practicable. "Practicable" use areas will include areas unshaded by bridge elements, above the OHWL where success is probable and safety of the bridge structure is assured. Bio-engineered solutions are not restricted to an all or nothing approach. Some solutions may be completely bio-engineered, others may include an engineered solution that incorporates vegetation.
3. Coordinate bridge repairs that require in-water work with the REC and/or ODFW. Structural repairs need to be coordinated with the responsible Engineer to minimize impacts. These actions may require a Biological Assessment and consultation with NOAA Fisheries/USFWS. If activities are required to be performed outside the in-water work window negotiate timeframes with ODFW.
4. Attempt to incorporate fish passage solutions and enhancements such adding roughness in the engineering solution when repairing drainage features. Coordinate with the REC, ODFW and ODOT Hydraulics.
5. Place refuse material above the bank, away from waterways and wetlands. See Appendix B: Roadwaste Management Chart.
6. Ensure that the active flowing stream will not come into contact with fresh, plastic concrete.
7. Provide a stable, appropriate concrete truck chute clean-out area and require the contractor to use it, to keep material from being deposited in riparian corridors.
8. Use cofferdams for structural repairs as appropriate.
9. Contain saw chips where feasible.

10. Use the NOAA Guidance, found in Appendix I, when using creosote or pressure treated wood, when replacing in-kind, for permanent structures only when necessary for the integrity of the structure and safety of the traveling public.
11. Delay bridge repair work if birds are found nesting in or on the structure. In an emergency, notify REC and ODFW.
12. Coordinate with ODFW on timing and possible options to the work, if bats are present on structure.

Bridge Vegetation (Activity 160, 133)

Description: Activity includes vegetation management around existing bridges. The primary purpose of bridge vegetation management is to maintain sight distance. Bridge vegetation management must also maintain access to the bridge structure for structure maintenance, fire safety, access for bridge inspection, and to maintain the integrity of the structure.

Goal: To manage the vegetation that may limit sight distance or impact the structural integrity of bridges and culverts on state highways in a manner that minimizes impacts to natural resources.

Minimization, Avoidance, and BMPs:

1. Remove brush to 20 feet on either end and under all maintained bridges for access or repair. (In some instances, road access under or adjacent to the structure will be outside the 20 foot buffer).
2. Remove only the brush necessary to perform the activity unless the brush around the culvert is a noxious weed. If other brushing needs are identified, coordinate with ODFW.
3. Replant two seedlings/cuttings for every tree removed when removing mature trees (over 12-inch (30cm) dbh) in riparian areas. Coordinate with ODFW on species and location of seedlings/cuttings to be replanted within the same watershed. Ensure that the replanted trees will not pose a future threat to ODOT structures.

Snow and Ice Removal (Activity 170)

Description: Activity includes removal of snow, ice, and slush from roadways, ramps, interchanges, and shoulders. Includes removal by snow plow, grader, or snow blower.

Goal: To remove snow and ice from the roadway for safety purposes, while protecting nearby forestry and water resources.

Minimization, Avoidance, and BMPs:

1. Reduce plowing speeds in sensitive areas.
2. Adjust blower chute to minimize blowing into sensitive areas, where appropriate and if traffic allows.

Sanding and Pre-wetting (Activity 171)

Description: Activity includes applying abrasive material to roadway surfaces to assist with traction. ODOT recycles sanding material into shoulders. ODOT crews estimate that anywhere from 10% to 50% of the sand applied is trapped or re-used. The majority of sanding material is removed from the road by plows. ODOT captures sand around

bridges, guardrails, and near streams, where possible. Activity also includes mixing pre-wetting agents, such as magnesium chloride, with sanding material. Pre-wetting sanding material helps the material bore into the snow and ice. This helps the material improve traction and stay on the road longer, which reduces the need for and amount of sand applied.

Goal: To apply sanding material on roads and bridges to provide traction for safer driving, while protecting water quality and fish habitat in nearby waterbodies.

Minimization, Avoidance, and BMPs:

1. Reduce application rates and frequency of sand when weather and traffic conditions allow.
2. Carefully review the use of sanding material in the following areas: those with dust related air quality problems; those where there is danger of siltation in streams, shallow lakes, or ponds; and those that have sensitive or rare plants near the road.
3. Store sanding material in a manner to minimize any contamination of surface or groundwater. Contain runoff from chemically treated stockpiles. Covered storage for sanding material is preferred.
4. Treat sanding material with chemical per manufacturer's recommendations when pre-wetting. If applying chemical to stockpiled material, prevent or capture runoff.
5. Keep accurate application records including when, where, and quantity and sanding material applied. Keep application records of chemicals used to pre-wet sand.
6. Place barriers in site specific locations to capture sanding material where appropriate and practical, along streams or areas that drain directly to waterbodies.
7. Identify and create facilities to capture sanding material where appropriate.
8. Increase use of sand sheds.
9. Clean inlets prior to first rain as feasible.

Anti-icing and Deicing (Activity 176)

Description: Activity includes applying anti-icing and deicing chemicals to road surfaces to prevent snow and ice from bonding to the roadway or to break the bond between snow and ice and the roadway. This activity is performed solely for safety purposes.

Goal: To provide a reasonably safe roadway surface for the traveling public during winter conditions. The use of anti-icing and deicing chemical is helpful in reducing the need for sanding material. Reducing the use of sanding material will also reduce sanding related impacts to air quality, water quality, and aquatic habitat. Additionally, the use of anti-icing and deicing chemicals has been associated with vehicle accident reduction. Reducing accidents reduces the risk of petroleum and debris entering waterbodies and reduces the opportunity for structural damage to stream systems and habitat.

Minimization, Avoidance, and BMPs:

1. Use the lowest application rate necessary to achieve agency mission.
2. Carefully review the use of anti-icing and deicing chemicals in the following areas: where receiving waters will not provide 100:1 dilution; areas without a vegetation buffer between the road and waterbody (especially shallow ponds, lakes, or

wetlands); areas having coarse soils overlying sensitive aquifers or percolation devices (French drains, etc.).

3. Use only chemicals that meet the Pacific Northwest Snowfighters specifications. All chemicals under price agreement to ODOT meet the specifications.
4. Maintain a quality assurance, quality control program. Crews will sample all anti-icing and deicing chemical shipments, and send samples to the ODOT Office of Maintenance for testing.
5. Keep accurate application records including when, where and quantity of chemical applied.
6. Routinely inspect equipment, including nozzles and storage tanks, for damage. Promptly repair or replace all damaged equipment.
7. Place barriers in site specific locations that are adjacent to sensitive areas or drain directly to waterbodies.
8. Store chemicals in a manner that minimizes contamination of surface or groundwater. Care should be taken to prevent runoff from chemical tanks or chemically treated stockpiles. Covered storage is preferred for dry chemicals.
9. Provide an annual training and information sharing opportunity for ODOT crews.
10. Coordinate the trial of new or experimental chemicals with the ODOT Office of Maintenance. The ODOT Office of Maintenance will research the new chemical and provide information including chemical type, toxicity data, and location of trial, via email, to the ODOT/NOAA Fisheries liaisons.

Emergency Maintenance (Activity 180)

Description: Activity includes fixing damage to roadways, the roadside and structures (bridges) caused by storms, floods, and other activities. Failure to perform these activities may result in immediate threat to life, limb or structures.

Goal: To restore and manage the transportation system in the event of natural and man-made emergencies, while minimizing impact to the resources.

Minimization, Avoidance, and BMPs:

1. Provide quick response and first inspection, and notify appropriate resource staff in a timely manner using the Emergency Authorization Form in Appendix G as needed.
2. Coordinate with the REC to assist with identifying environmental concerns, notifying regulatory agencies, and obtaining verbal approval or after-the-fact permits as required by the situation. This activity may require a permit from the Corps and/or DSL, TWM, or fish salvage.
3. Repair any damage to fishery or water resources caused by ODOT Maintenance responses to the emergency, as directed by ODFW.
4. Avoid and or minimize additional impacts to wetlands or waterbodies.
5. Provide, whenever possible, adequate erosion control or bank stabilization necessary to keep material from entering watercourses.
6. Identify and plan for slide debris disposal sites as part of local disposal plans. Appropriate sites for long and short- term material disposal will be identified and cleared for any potential wetland or sensitive species impact and mapped.
7. Incorporate bioengineering and fish friendly designs into emergency repair taking

into account stability and safety, as appropriate.

8. Coordinate with Office of Maintenance, Emergency Management on FEMA issues for wildland fire reimbursements.
9. Explore alternatives to blasting in areas with bird presence, if appropriate and emergency allows.
10. Reference the Cut/Fill Urgency Emergency Users Guide, as appropriate, for Regions 1, 2, and 3, for guidance on riprap placement during emergencies.

Settlements and Slides (Activity 181)

Description: Activity includes repair of settlements and slides by placing fill and removing material. Settlement/slide repairs are done primarily when a road is in danger of collapse, and to forestall an emergency.

Goal: To proactively repair and restore the roadway to prevent a catastrophic failure.

Minimization, Avoidance, and BMPs:

1. Provide quick response and first inspection, and notify appropriate resource staff in a timely manner.
2. Coordinate with REC when planning work. This activity may require a permit from the Corps and/or DSL, TWM or fish salvage.
3. Repair any damage to fishery or water resources caused by ODOT Maintenance responses to the emergency, in coordination with the REC and/or ODFW.
4. Avoid and or minimize additional impacts to wetlands or waterbodies. Mitigation may be required depending on resource impacts.
5. Provide adequate erosion control or bank stabilization necessary to keep material from entering watercourses.
6. Identify and plan for slide debris disposal sites as part of local disposal plans as resources allow. Appropriate sites for long and short- term material disposal will be identified and cleared for any potential wetland or sensitive species impact and mapped.
7. Incorporate bioengineering and fish and wildlife friendly designs, taking into account stability and safety during repair activities, as appropriate.
8. Explore alternatives to blasting in areas with bird presence, if appropriate and emergency allows.
9. Coordinate with the REC, ODFW and other regulatory agencies significant changes, as determined by maintenance manager, in the topography or vegetation within the riparian area.
10. Follow ODFW in-water work periods or as negotiated with ODFW.
11. Reference the Cut/Fill Urgency Emergency Users Guide, as appropriate, for Regions 1, 2, and 3, for guidance on riprap placement during emergencies.
12. Dispose of removed material at appropriate sites (stable locations above the OHWL, so the material will not be washed into wetlands or waterways). Refer to the Roadwaste Management chart in Appendix B.
13. Install erosion control methods in a timely manner where they can be safely and successfully applied, in areas where erosion is likely to occur. Measures may include seeding and mulching specific areas with non-invasive species. Install silt fences and other devices as appropriate.
14. Look for opportunities to plant vegetation on failing banks to prevent further

deterioration of the roadbed and reduce sediment and pollutants from reaching nearby waterbodies.

15. Reference the ODOT Field Manual, Erosion and Sediment Control, November 2000 for guidance and selection of erosion control devices for disposal sites.

Note: Any installation of new material that exceeds the material removed by bank erosion (below OHWL) will constitute a significant action. Increases in the material profile will require additional coordination with regulating agencies, and are not covered in this document (See Appendix C).

Extraordinary Maintenance (Activity 189)

Description: Activity includes work which is extraordinary, but not specifically identified as a separate activity. Examples include: military operations, forest and other fire response, cleaning benches and moats, ice floes, transient housing control and cleanup, slides and sumps, and broken water line repair and cleanup.

Goal: To maintain the transportation system under circumstances outside the control of ODOT, while making every effort to protect valuable resources.

Minimization, Avoidance, and BMPs:

1. Practice good housekeeping activities to ensure sediment and other materials do not enter watercourses.
2. Repair any damage to fish habitat caused directly or indirectly by ODOT actions.
3. Coordinate with Office of Maintenance, Emergency Management on FEMA reimbursement, if responding to wildland fire situations.

Fish Habitat Restoration (No Activity Number)

Description: Activities include any ODOT work that involves planting vegetation or placing large woody material (LWM- e.g. logs, rootwads) in or along a stream corridor (e.g. slope stabilization, replanting of removed vegetation). Any ODOT work that incorporates bioengineering into existing riprap or any ODOT work that modifies an existing drainage ditch for better water-quality control (no major construction is involved). Restoration guidelines have been developed for restoring sites impacted by maintenance activities. These restoration guidelines incorporate habitat concerns as well as maintenance concerns (see Appendix E).

Goal: To improve habitat conditions as appropriate, while maintaining a safe and efficient transportation system.

Minimization, Avoidance, and BMPs:

1. Coordinate with REC when planning work. This activity may require a permit from the Corps and/or DSL, TWI or fish salvage.
2. Install erosion control devices, such as check dams, silt mats and other erosion control measures. Reference the ODOT Field Manual Erosion and Sediment Control, November, 2000 for guidance on selection and installation of erosion control measures.
3. Install erosion control methods in a timely manner, including seeding and mulching

specific areas with non-invasive species. Install silt fences and other devices as appropriate.

4. Consider use of bio-engineering solutions where practicable. Bio-engineered solutions are not restricted to an all or nothing approach. Some solutions may be completely bio-engineered, others may include an engineered solution that incorporates vegetation.
5. Follow ODFW in-water work periods for that system or as negotiated with ODFW.
6. Look for opportunities to plant vegetation on failing banks to prevent further deterioration of the roadbed and reduce sediment and pollutants from reaching nearby waterbodies.
7. Dispose of removed material above OHWL and not in any waterway, wetland, greenway, park, riparian area, floodplain, or regulated area. If directed by ODFW or NOAA Fisheries, material may be incorporated into fish habitat or fish passage structure. If required local, state, or federal permits will be obtained.

Note: Installation of new material that exceeds the material removed by bank erosion (below OHWL) will constitute a significant action. Increases in the material profile will require additional coordination with regulating agencies, and are not covered in this document (See Appendix C).

Fish Habitat and Passage Improvement (No Activity Number)

Description: These activities include improvements, betterments, opportunities, or repairs to fish passage or fish habitat. Typical fish betterments may include installation and removal of culverts, installation, removal, and repairs of baffles, weirs, or other systems within and adjacent to culverts for fish passage. In addition, this may include the placement of large wood and other methods of improving fish passage.

Goal: To restore fish passage (per ORS.509.585) and improve habitat conditions as appropriate, while maintaining a safe and efficient transportation system.

Minimization, Avoidance, and BMPs:

1. Coordinate with the REC when planning work. This activity may require a permit, TWM, fish salvage, fish passage, or coordination with NOAA.
2. Install erosion control devices prior to culvert work when there is flowing or stagnant water in the culvert.
3. Complete any work performed in flowing water connected to waters of the state during ODFW in-water work period for that system, or as negotiated with ODFW.
4. Coordinate with ODFW on the removal of material from culverts when work is performed in stream reaches that ODFW has determined support sensitive fish species, or where there are habitat limitations for species, as advised by the REC.
5. Place excess material above the OHWL where there is no opportunity for the material to reach waters of the state or impact a wetland, and it can be stabilized in a timely manner. Stabilization of material may include spreading and top seeding, covering with matting, straw, etc. Haul the material away and dispose of appropriately if unable to stabilize on site.

Dust Abatement (No Activity Number)

Description: Activity is the application of dust palliatives to control dust generated during routine activities. ODOT uses palliatives to control dust on access roads, maintenance yards, and slide areas. Dust palliatives may include water or calcium magnesium acetate, magnesium chloride, or lignon sulfonates, applied in a liquid form. Other types of dust palliative products may be used as approved by NOAA Fisheries and other partner agencies on a case by case basis.

Goal: To control dust during maintenance activities to protect air quality.

Minimization, Avoidance, and BMPs:

1. Construct gravel berms at the low shoulders of the roadway during preparation for application of dust palliatives to inhibit liquid palliatives from entering waters of the state, where appropriate.
2. Eliminate applying dust palliatives during rain.
3. Use water (whenever feasible) as a dust palliative.
4. Apply materials in a matter that is not detrimental to either water or vegetation, and in accordance with the manufacturers' recommendations.
5. Provide adequate spill containment materials on site when palliatives are applied.
6. Dispose of excess materials per manufacturers' recommendations.

ACRONYMS

BMP	Best Management Practices
DEQ	Department of Environmental Quality
DSL	Department of State Lands
EPA	Environmental Protection Agency
ESA	Endangered Species Act
IPM	Integrated Pest Management (Integrated Vegetation Management)
IVM	Integrated Vegetation Management
MS4	Municipal Separated Storm Sewer System
NOAA	National Oceanic and Atmospheric Administration Fisheries Division
NPDES	National Pollutant Discharge Elimination System
ODA	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
OHWL	Ordinary High Water Line
REC	ODOT Region Environmental Coordinator
TWM	Temporary Water Management
Corps	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

DEFINITION OF TERMS

Betterments: Opportunities to improve conditions, both for the benefit of maintenance and the benefit of the resource. An example is the reconfiguration of a ditch to flatter slopes, wider, flatter bottom: the design improves water quality, and makes the ditch easier to mow.

Channel: A channel is different from a ditch in that a channel is a facility that collects drainage water, can be parallel or perpendicular to the highway facility, and may or may not be a natural stream.

Clearzone: A roadside area, cleared of obstruction, designed to allow for vehicular recovery. Design area is determined by traffic speed, actual daily traffic, horizontal curvature, and embankment slope (1996 AASHTO Roadside Design Guide).

Ditch: A manmade conveyance, typically parallel to the road, that carries stormwater runoff draining from the ODOT facility and adjacent properties. It is not a channelized stream, or fish bearing stream.

Dust Palliative: A chemical or water solution used to reduce dust that results from activities performed on access roads, maintenance yards, and slide areas.

Emergency: Immediate action is required to repair a structure or facility that has failed or is in imminent danger of failing. The decision that the problem is an emergency is based on the best professional judgement of the Maintenance Managers responding to the problem. Although there would not be enough time for design and environmental documentation prior to the repair, ODOT Maintenance Managers will coordinate with Geo/Hydro staff to determine the appropriate solutions when time allows.

Enhancement: Activities performed by Maintenance that improve resource conditions, with out any benefit to the transportation system. Enhancements by Maintenance may be inappropriate use of gas tax dollars.

Fallback: Material that falls down the slope or goes past the intended location while performing activities including, but not limited to, shoulder work under activity 112, or sidecast sweeping under activities 116 and 117. Fallback material in locations near streams or waterbodies have the potential to impact water quality.

Hazard tree: A tree or trees that have the potential to fail due to structural defect, or site conditions (e.g. weighted slopes) that may result in property damage or personal injury. Trees or snags near the highway that are weakened, unsound, undermined, leaning, or exposed so they may fall across the highway. When permission to remove the trees cannot be obtained, it is necessary to trim and do whatever else is reasonable to alleviate the hazard.

Mitigation: Replacement of resources that are damaged or impacted as a result of a permitted activity, or performing some other activity that offsets or alleviates such damage.

Ordinary High Water Line: Physical demarcation where water ordinarily rises to along a stream bank during a season. This demarcation is usually indicated by characteristics such as a clear natural impression in the bank, a bench that separates the water and the upland vegetation, changes in vegetation from rocks/bare to grasses or shrubs, top of zone of exposed roots, break in slope angles, etc. If there is any doubt as to the demarcation, contact the Environmental Permit Specialists, see Table 1. Other terms that are used include Ordinary High Water, Ordinary High Water Elevation and Ordinary High Mark. These words are used interchangeably.

Region Environmental Coordinator: Initial contact person for Maintenance forces. Provides technical assistance, direction, and coordination on environmental issues for maintenance actions. Coordinates other technical experts as appropriate for maintenance actions (TWM, erosion control, etc.)

Routine Maintenance: Recurring activities (scheduled or predictable) that are needed to maintain the functional integrity of the existing transportation facility.

Temporary Water Management: A temporary containment or dewatering and re-watering system to effectively isolate the in-stream waters from the work area.

Urgency: Repair work that must be completed to prevent further damage to the road and to prevent an emergency. The work may or may not be conducted within the in-water work period, depending on the severity of the urgency and how long the repair can be delayed. There may be sufficient time for some level of design and environmental review and permitting prior to the repair, although the amount of time also depends on when the repair is needed. There is not a clear distinction between what constitutes an urgency or emergency. Best professional judgement is used in making a call either way. ODOT Maintenance Managers will coordinate with Geo/Hydro staff in determining the appropriate solution.

Waterbody: Includes any river, creek, ditch, wetland, or other that holds water anytime during the year.

Water Diversion: A temporary water management strategy for removing water from a culvert and isolating the work zone, and re-establishing water strategy.

Waters of the State : Natural waterways including all tidal and non-tidal bays, intermittent and perennial streams, lakes, wetlands, and other bodies of water in this state, navigable and non-navigable, including that portion of the Pacific Ocean, which is in the boundaries of this state. "Waters of the State" does not include the ocean shore, as defined in ORS 390.605.

LIST OF APPENDICES

- Appendix A: Stormwater Management Plan
- Appendix B: Roadwaste Material Management Chart
- Appendix C: Division of State Lands Fill/Removal Cross Section
- Appendix D: NOAA Fisheries Pump Screening Criteria
- Appendix E: Restoration Guidelines
- Appendix F: ODFW Bridge Washing Guidance
- Appendix G: Emergency Authorization Form
- Appendix H: Resources and References
- Appendix I: NOAA Guidelines for Treated Timber

Appendix A

Stormwater Management Plan

ODOT Maintenance Yard Stormwater Evaluation Plan

Investigation Objectives:

- Evaluate the quantity and quality of stormwater pollution at ODOT maintenance yards.
- Inventory ODOT yards for items associated with stormwater impacts.

Investigation:

Task 1

Identify and compile stormwater information that can be used to assess, manage, or track stormwater pollutants at ODOT maintenance yards.

Identify information or items that can be inventoried at ODOT yards that will be useful in evaluating stormwater or stormwater risks. Begin collecting and compiling stormwater information that is readily available, such as:

- Mean annual rainfall
- Nearest surface water
- Size of facility
- Age of yard
- Fuel stored on site
- Availability of sanitary hookups

Use this information to offer a general understanding of ODOT yards in terms of their individual stormwater pollutant risks.

Schedule: Task 1 has been completed.

Task 2

Continue to collect and compile stormwater inventory information identified in Task 1 by visiting ODOT yards.

Visit all ODOT yards and work with yard managers and staff to inventory and compile all the stormwater information identified in Task 1. Inventory visits will occur predominantly during dry season months.

Stormwater items to be inventoried during yard visits will include:

- Stormwater discharge points.
- Receiving waters or wetlands
- Stormwater protection devices
(oil / water separators, filters, swales, etc.)
- Sewerage systems or sewerage connections.
- Yard materials stored that have the potential to impact stormwater
- Yard activities performed that have the potential to impact stormwater.
(vehicle washing, painting operations, deicing operations, etc.)

During inventory yard visits ODOT staff will inspect the yards for stormwater pollutant risks and concerns. If stormwater problems are observed they will be noted and recommendations offered. Appropriate stormwater sample locations for select yards will also be identified.

Inventory visits will ultimately result in a stormwater plan for each ODOT maintenance yard. The plans will include a site map, a summary of yard stormwater issues or concerns, recommendations, inventoried stormwater items and additional useful stormwater information. The stormwater plan will be housed at the yard and yard staff will use it to inspect and evaluate stormwater concerns and implement stormwater BMPs.

Schedule: Yard stormwater inspections and inventories will be completed by May 2005.
(ODOT expects Maintenance Yard Stormwater Plans will be completed at this time as well. Implementation of Stormwater Management Plans is not part of this stormwater evaluation project.)

Task 3

Collect stormwater pollutant data from ODOT maintenance yards.

ODOT will collect data that characterizes stormwater pollutant levels associated with its yards. Stormwater grab samples will be collected from sixteen representative ODOT yards and analyzed for pollutant concentrations.

Storm water grab samples will be collected at yard outfalls during typical rain events. Sampling will not be tied to defined storms (such as first flush or set precipitation amounts). For yards with multiple stormwater outfalls, sample locations will be selected that are representative of the entire yard. Composite samples will not be collected. Two storm water samples will be collected from each yard then data generated will be assessed to determine if sampling should be continued or modified.

Data Analysis:

ODOT will perform stormwater monitoring for storm water pollutants as defined in DEQ's 1200 Z permit. Pollutants analyzed will include:

- Oil and Grease
- pH
- Total Suspended Solids
- Total Metals (Cu, Pb, Zn.)
- E. coli (as appropriate)

Pollutant levels will be analyzed for trends or patterns using simple statistical methods. ODOT will attempt to total and average pollutant loads so that stormwater pollutant levels for ODOT yards, yard items, or yard activities can be estimated.

If data generates a wide range of pollutant levels and characterization is impossible, ODOT will use the pollutant data collected to identify and prioritize maintenance yard stormwater pollutant issues or concerns. Pollutant data and analysis will be compiled and submitted to DEQ in ODOT NPDES annual reports.

Schedule: The collection of two stormwater samples from 16 ODOT yards will be completed by May 2004. Data will be analyzed and a decision to modify or continue sampling will be made by September 2004.

Project Conclusion

ODOT plans to complete the maintenance yard stormwater assessment project by May 2005. Stormwater pollutant data generated will be compiled and analyzed with the intent of characterizing stormwater pollutants associated with ODOT yards and identifying ODOT yards, yard items, or yard activities that pose the greatest risk to stormwater.

Appendix B

Roadwaste Material Management Chart

ODOT Roadwaste Management Chart for Waste Generated through Routine Maintenance

Material or Waste	Compliance issues	Concerns	Sample Management or Disposal Options
<p>Litter</p>	<p>Litter may not be stored, stockpiled, or landfilled at non-permitted waste disposal sites.</p>	<p>Stockpiling, storing, or landfilling litter can create human health hazards and negatively impact the environment.</p> <p>Public complaints drive DEQ enforcement actions. If litter contaminated material is temporarily stockpiled (before litter is disposed or recycled), screen it from public view. Be sure all stockpiles are contained and appear well managed.</p>	<ul style="list-style-type: none"> • Separate litter from other highway waste through litter patrol, screening, or other means. Landfill or recycle litter and trash as appropriate. • All roadwaste contaminated with litter must be disposed of as waste at a permitted disposal facility. Roadwaste (sweepings, vector waste, landscape debris, etc.) can not be stockpiled or stored longer than 6 months if it contains litter and trash.
<p>Street sweepings</p>	<p>Classified as industrial process waste. Must be managed at permitted waste facilities or recycled appropriately.</p> <p>Hydrocarbons (oil, diesel, gasoline) and heavy metals are common chemical pollutants in sweepings. These pollutants are regulated and can pose health risks to humans and the environment.</p> <p>Division of State Lands (DSL) Removal Fill laws may apply when placing sweepings near waters of the State.</p>	<p>If pollutant contamination levels are high, special management or disposal may be required. Sweepings can have low pollutant levels (especially from roads under 30,000 ADT) but the presence of pollutants is always a concern.</p> <p>Stockpiling or landfilling sweepings at non-permitted waste disposal sites is not allowed unless reuse or recycling is planned.</p> <p>Proper placement (no impact to wetlands or streams) and erosion control is a concern with storage of all sweepings (clean or contaminated).</p>	<ul style="list-style-type: none"> • Dispose all sweepings at local landfill or incinerator. • Test and characterize pollutant levels. Sort sweepings for disposal or reuse. • Work with ODOT staff to develop appropriate ways to remediate or reuse contaminated sweepings (screen trash, stockpile for natural break down of hydrocarbons, use for concrete manufacture, use in fill, compost, or as soil amendment in appropriate high traffic areas). Reuse of any contaminated sweepings requires DEQ approval. • Reuse clean sweepings for construction fill, shoulder repair, quarry reclamation, etc. Sweepings that are high in organic levels (leaves, twigs, etc.) can make poor fill. As organics break down material shrinks and bacteria and nitrates can become pollutant problems. • Stockpiling is allowed if reuse is planned. BMPs may be needed to ensure contaminants do not migrate into the environment or the ground (store on pavement, cover storage piles, etc.).

ODOT Roadwaste Management

Material or Waste	Compliance Issues	Concerns	Sample Management or Disposal Options
<p>Vector waste</p>	<p>Classified as an industrial process waste. Must be managed at permitted waste facilities or recycled appropriately.</p> <p>Hydrocarbons and heavy metal contaminants are common and are regulated as toxic pollutants.</p> <p>Liquids and Solids must be separated prior to disposal. Solids typically go to a landfill or incinerator and liquids to a sewerage treatment facility.</p>	<p>If pollutant contamination levels are high, special management or disposal may be required.</p> <p>Vector waste collected in highly urbanized areas may have high pollutant levels that pose health risks to humans and exceed DEQ pollutant clean-up standards.</p> <p>The more often catchbasins are cleaned the lower the pollutant levels. Clay and fine soil is more likely to bind with chemical pollutants than coarse soil or sand and gravel.</p>	<ul style="list-style-type: none"> Partner with local jurisdictions and develop vector waste management options (construct decant facilities, share disposal contracts, etc.). Contaminated vector waste is primarily an urban issue. Local transportation agencies often share ODOT's need for vector waste management. Characterize and test vector waste loads. Sort for management and disposal. If contaminant levels are low, land decanting liquids and stockpiling solids for reuse may be allowed. Work with ODOT staff and regulators to identify appropriate areas and methods to dispose, stockpile, or use clean vector waste (high and dry storage, fill sites, drying strategies, etc.) Work with ODOT staff, regulators, and waste management experts to develop low cost methods and technologies for managing contaminated vector waste (evaporation ponds, pollutant filters, microbes, flocculant, etc.)
<p>Brush and Landscape debris</p>	<p>Classified as waste and must be managed at a permitted disposal site or recycled appropriately.</p> <p>Noxious weeds (including seeds) can be present. Regulated by ODA.</p>	<p>Landscape debris is waste and can not be temporarily stored over 6 months.</p> <p>Decomposing vegetation in large quantities is associated with a number of pollutants including bacteria, nutrients, and low oxygen levels (in association with water).</p>	<ul style="list-style-type: none"> Separate brush and reuse or dispose at a landfill (or other permitted waste facility). Grind or chip and use for compost or mulch (composting more than 20 tons/year requires a DEQ permit). Place large woody debris in waterways. Coordinate with ODOT REC and ODFW. This may require a permit from the Army Corps of Engineers. Burning is allowed only in limited areas: outside riparian corridors, where air quality allows, etc. Various permits may be required.

ODOT Roadwaste Management

Material or Waste	Compliance Issues	Concerns	Sample Management or Disposal Options
<p>Ditchings</p>	<p>Classified as waste and must be managed at a permitted disposal site or recycled appropriately.</p> <p>DSL Removal Fill may apply when placing ditchings near waters of the State. Storage or fill sites must be suitable (proximity to wetlands or streams). Erosion control may be required.</p>	<p>Regulated pollutants can be present, especially in urban ditchings or ditchings in high traffic areas.</p> <p>ODOT has found contaminant levels vary widely in ditchings, whether the source is an urban or rural ditch.</p>	<ul style="list-style-type: none"> • Pollutant testing may be needed to determine if ditchings meet clean fill requirements (especially in urban, high traffic areas, or areas where chemical pollutants are suspected). • ODOT REC should assess storage and fill sites for environmental concerns (needed removal fill permits, wetland impacts, etc.). • Stockpiling is allowed if use as fill is planned. • Erosion control may be required for stockpiles or fill areas. • Screening may be needed to remove litter or excessive amounts of organic debris.
<p>Used Winter Sand and Gravel</p> <p>Slide Debris</p> <p>Grindings (old asphalt)</p>	<p>Considered waste if regulated pollutants are present. However, these materials can often meet clean fill requirements.</p> <p>DSL Removal Fill laws may apply when placing material near waters of the State. Storage or fill sites must be suitable (proximity to wetlands or streams). Erosion control may be required.</p>	<p>Regulated pollutants can be present (litter, brush, chemical pollutants, etc.).</p> <p>Used Winter Sand and Gravel typically has low pollutant levels if it is picked up quickly – after 2 or 3 days. However, dust, erosion, and chemical pollutants can be problems if traffic counts are high.</p> <p>Proper placement and erosion control are concerns even if material is clean.</p>	<ul style="list-style-type: none"> • ODOT REC should assess storage and fill sites for environmental concerns (needed removal fill permits, wetland impacts, etc.). • Stockpiling is allowed if use as fill is planned. • Erosion control may be required for stockpiles and fill areas. • Screening may be needed to remove litter or excessive amounts of organic debris. • Testing will be needed if pollutants are suspected (winter sand and gravel is dirty, slide debris originated near a septic drainfield, waste was collected near a high traffic area, spill or illicit dumping is suspected, etc.).

Direct questions regarding roadwaste management to Jeff Moore (ODOT Office of Maintenance) (503) 731-8289

Appendix C

Division of State Lands Fill/Removal Cross Section

DSL FILL/REMOVAL CROSS SECTION

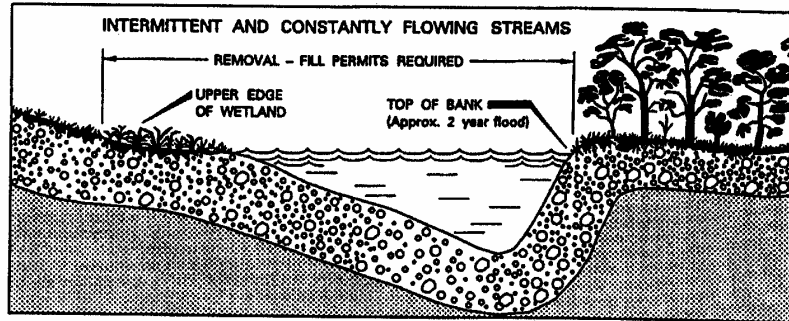


Figure 1

1. Intermittent streams, which are habitats to aquatic life, to the line of non-aquatic vegetation or bankfull stage, whichever is higher.
2. Constantly flowing streams to bankfull stage or the line of non-aquatic vegetation, whichever is higher.
3. Lakes to bankfull stage or the line of non-aquatic vegetation, whichever is higher.

Appendix D

NOAA Fisheries Pump Screening Criteria

uniform approach velocity (plus or minus 10%) over the entire screen area. Additional screen area or flow baffling may be required to account for designs with non-uniform approach velocity.

Pump Intake Screen Mesh Material

Screen mesh openings shall not exceed 3/32 inch (2.38 mm) for woven wire or perforated plate screens, or 0.0689 inch (1.75 mm) for profile wire screens, with a minimum 27% open area. If fry-sized salmonids are never present at the site (by determination of agency biologists) screen mesh openings shall not exceed 1/4 inch (6.35 mm) for woven wire, perforated plate screens, or profile wire screens, with a minimum of 40% open area.

Screen mesh material and support structure shall work in tandem to be sufficiently durable to withstand the rigors of the installation site. No gaps greater than 3/32 inch shall exist in any type screen mesh or at points of mesh attachment. Special mesh materials that inhibit aquatic growth may be required at some sites.

Pump Intake Screen Location

When possible, pump intake screens shall be placed in locations with sufficient sweeping velocity to sweep away debris removed from the screen face. Pump intake screens shall be submerged to a depth of at least one screen radius below the minimum water surface, with a minimum of one screen radius clearance between screen surfaces and adjacent natural or constructed features. A clear escape route should exist for fish that approach the intake volitionally or otherwise. For example, if a pump intake is located off of the river (such as in an intake lagoon), a conventional open channel screen should be considered, placed in the channel or at the edge of the river. Intakes in reservoirs should be as deep as practical, to reduce the numbers of juvenile salmonids that approach the intake. Adverse alterations to riverine habitat shall be minimized.

Pump Intake Screen Protection

Pump intake screens shall be protected from heavy debris, icing and other conditions that may compromise screen integrity. Protection can be provided by using log booms, trash racks or mechanisms for removing the intake from the river during adverse conditions. An inspection and maintenance plan for the pump intake screen is required, to ensure that the screen is operating as designed per these criteria.

JUVENILE FISH SCREEN CRITERIA FOR PUMP INTAKES

Developed by
National Marine Fisheries Service
Environmental & Technical Services Division
Portland, Oregon
May 9, 1996

The following criteria serve as an addendum to current National Marine Fisheries Service gravity intake juvenile fish screen criteria. These criteria apply to new pump intake screens and existing inadequate pump intake screens, as determined by fisheries agencies with project jurisdiction.

Definitions used in pump intake screen criteria

Pump intake screens are defined as screening devices attached directly to a pressurized diversion intake pipe. Effective screen area is calculated by subtracting screen area occluded by structural members from the total screen area. Screen mesh opening is the narrowest opening in screen mesh. Approach velocity is the calculated velocity component perpendicular to the screen face. Sweeping velocity is the flow velocity component parallel to the screen face with the pump turned off.

Active pump intake screens are equipped with a cleaning system with proven cleaning capability, and are cleaned as frequently as necessary to keep the screens clean.

Passive pump intake screens have no cleaning system and should only be used when the debris load is expected to be low, and

- 1) if a small screen (less than 1 CFS pump) is over-sized to eliminate debris impingement, and
- 2) where sufficient sweeping velocity exists to eliminate debris build-up on the screen surface, and
- 3) if the maximum diverted flow is less than .01% of the total minimum streamflow, or
- 4) the intake is deep in a reservoir, away from the shoreline.

Pump Intake Screen Flow Criteria

The minimum effective screen area in square feet for an active pump intake screen is calculated by dividing the maximum flow rate in cubic feet per second (CFS) by an approach velocity of 0.4 feet per second (FPS). The minimum effective screen area in square feet for a passive pump intake screen is calculated by dividing the maximum flow rate in CFS by an approach velocity of 0.2 FPS. Certain site conditions may allow for a waiver of the 0.2 FPS approach velocity criteria and allow a passive screen to be installed using 0.4 FPS as design criteria. These cases will be considered on a site-by-site basis by the fisheries agencies.

If fry-sized salmonids (i.e. less than 60 millimeter fork length) are not ever present at the site and larger juvenile salmonids are present (as determined by agency biologists), approach velocity shall not exceed 0.8 FPS for active pump intake screens, or 0.4 FPS for passive pump intake screens. The allowable flow should be distributed to achieve

Appendix E
Restoration Guidelines

Restoration Guidelines

Developed for activities needing a Corps 404 permit

The goal of site restoration is to restore site function while recognizing operational and maintenance issues associated with the restoration and scope and scale of the action.

All site restorations will be developed and agreed to with input by ODOT Geo/Hydro, Environmental and Maintenance, as appropriate. The scope and scale of the maintenance impact will be considered as well as opportunities to improve function. The plan will reference the plants in the area and consider long-term issues associated with the plantings.

All site restorations will utilize the plant list developed and cited in 'Roadway Applications of Vegetation and Riprap for Streambank Protection'. Alder, Western Hemlock and Black Cottonwood will be used as a restoration planting only after agreement by ODOT Foresters and Maintenance, to ensure that problems associated with these species are avoided. All opportunities to utilize native herbaceous materials will be taken, but native herbaceous materials will not be used in areas where operational activities will impact or remove the natives.

The restoration planting will look toward planting herbaceous materials nearest the road, guardrail, etc. Shrubs and trees will be incorporated into the design away from the road, closer to the stream. Shrubs may be used adjacent to road if appropriate species, considering operational issues.

Woody material planting ratios will be 2:1, with the preference for seeds and small bare root over containerized stock. Restoration plantings will occur during first planting season following the project. Woody material will be replanted between October and March; grasses and herbaceous materials will be replanted between Sept and April. All work sites will be stabilized by temporary cover following project work, and before planting.

Restoration will be on site unless operational issues interfere. If unable to restore on site, ODOT will coordinate with ODFW to do restoration off-site within the same watershed.

ODOT will monitor the site in two ways, depending on the size and scope of the restoration plan. On small scale projects, ODOT District Maintenance will count tree for tree as outlined in the plan to ensure that the plan was planted as outlined. If the plan is larger in scale, ODOT Environmental will monitor the replanting plan. District or Environmental monitoring plan will be agreed to during the development of the project. At the end of 5 years, the site will have 80% success of vegetation planted if monitored by District, and ODOT 'walks away from the project'. If Environmental does the monitoring the success rate will reflect any agreement on monitoring with NOAA Fisheries.

ODOT will work with the Corps on the documentation required for the Programmatic Biological Assessment (PBA) but it is expected that an annual report that is similar to the reporting requirements of the SLOPES document will be required. Included in the annual report will be District reports that summarize:

- total number of permitted actions
- description of the actions (culvert replacement, tidegate, etc.);
- description of the mitigations: what, where, how many, opportunities, etc.
- sites monitored during the course of that year and replants, if any, that occurred
- sites that met the 5 year time frame and are completed

An element of the annual report is a description of 'take' that ODOT Environmental will estimate and develop.

Appendix F

ODFW Bridge Washing Guidance



Oregon

Theodore R. Kulongoski, Governor

Department of Fish and Wildlife

Wildlife Division
3406 Cherry Ave. NE
Salem, OR 97303
(503) 947-6300
FAX (503) 947-6330

GUIDELINES FOR BRIDGE WASHING

September 12, 2003



Bridge Washing can occur if the following criteria are met:

1. Occur during the period Nov. 15 to April 1 for East of the Cascades
2. Occur during the period Nov. 15 to March 15 West of the Cascades
3. Must occur during a high water event
4. Use high pressure water, air or sweep, shovel.
5. If paint is observed being displaced cease washing operations
6. Avoid washing tight areas (e.g. cracks crevices) where bats may be present
7. If bats are observed to be displaced cease washing operations
8. If birds are building nests, laying eggs, tending young, no washing will occur in the general area of the nests. (intent is to not disturb).
9. IF ANY OF THE ABOVE CRITERIA CANNOT BE MET, THE LOCAL ODFW OFFICE MUST BE CONTACTED AND THE INDIVIDUAL BRIDGE WILL BE DISCUSSED.
10. **Washing and sweeping of the top of the bridge (deck up)** can be done outside of the timing windows if all materials including water is kept on top of the bridge. (plugging scuppers etc). Any water that is pushed to the ends of the bridge needs to run through a vegetated swale or sediment control device. And guidelines 5,6,7,8 are followed.
11. For bridge washing that occurs over dry waterways, or that does not occur over waterways, only apply guidelines 5-8.

Oregon Department of Fish and Wildlife believes that the above guidelines will minimize the impacts to fish and wildlife during bridge washing . We realize that this activity is very critical in being able to prolong the life of the bridge and the safety of the public. These guidelines were drafted with regard to Fish and Wildlife resources statewide and the need to comply with State and Federal regulations.

Appendix G

Emergency Authorization Form

**DIVISION OF STATE LANDS
EMERGENCY AUTHORIZATION CHECK LIST**

DATE: _____ RECEIVED BY: _____
APPLICANT NAME: _____ PHONE: _____
ADDRESS: _____

PROJECT LOCATION INFORMATION:

Waterway: _____ River Mile: _____ County: _____
Section: _____ Township: _____ Range: _____ City: _____
Federal Wild/Scenic River State Scenic Waterway Finds of Fact Completed _____ Date _____

NOTE: If State Scenic Waterway, contact with Oregon Department of Fish & Wildlife and Oregon Parks and Recreation Department is required.

Driving Directions:

PROBLEM OR NEED FOR THE PROJECT AND POTENTIAL CONSEQUENCES IF NO ACTION:

AGENCIES NOTIFIED: _____ DATE: _____

PROPOSED PROJECT INFORMATION:

Activity type: _____ Disposal Area: _____
Impact area feet/linear area: _____ Material Used: _____
Brief description: _____

TELEPHONE/VERBAL APPROVAL
SITE INSPECTION CONDUCTED BY: _____ DATE: _____
 Special Permit Conditions _____

ADDITIONAL INFORMATION REQUESTED:

DATE: _____
 Photos Cross section drawings
 Plan view showing intended work, site preparation, staging areas and temporary impacts
 Other: _____

Entered In Data Base Project # _____ Application # _____ Site # _____
 File Set Up Final Authorization Signed Date: _____
 Monthly Report Final Log Out Authorization # _____
Copies Distributed to: Applicant DEQ ODFW Planning Other _____ Date: _____

Appendix H

Resources and References

World Wide Web Reference Sites

ODFW In-water work times:

http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf

ODFW Road-Stream Crossing guidelines:

http://www.dfw.state.or.us/odfwhtml/infocntrfish/management/stream_road.htm

NOAA Fisheries Pump Screening Requirements for Culvert Work

<http://www.nwr.noaa.gov/1hydrop/nmfscrit1.htm>

<http://www.nwr.noaa.gov/1hydrop/pumpcrit1.htm>

Appendix I

NOAA Guidelines of Treated Timbers

NOAA Guidelines for Use of Treated Timbers From Draft SLOPES III

Guidelines to be used for treated timber in bridge repair.

Piling removal. If a temporary or permanent piling will be removed, the following conditions apply.

1. Dislodge the piling with a vibratory hammer.
2. Once loose, place the piling onto the construction barge or other appropriate dry storage site.
3. If a treated wood piling breaks during removal, either remove the stump by breaking or cutting 3-feet below the sediment surface or push the stump in to that depth, then cover it with a cap of clean substrate appropriate for the site.
4. Fill the holes left by each piling with clean, native sediments, whenever feasible.

Treated wood. Use of lumber, pilings, or other wood products that are treated or preserved with pesticidal compounds (including, but not limited to, alkaline copper quaternary, ammoniacal copper arsenate, ammoniacal copper zinc arsenate, copper boron azole, chromated copper arsenate, copper naphthenate, creosote, and pentachlorophenol) may not be used below ordinary high water, or as part of an in-water or over-water structure, except as described below.

- i. **On-site storage.** Treated wood shipped to the project area must be stored out of contact with standing water and wet soil, and protected from precipitation.
- ii. **Visual inspection.** Each load and piece of treated wood must be visually inspected and rejected for use in or above aquatic environments if visible residues, bleeding of preservative, preservative-saturated sawdust, contaminated soil, or other matter is present.
- iii. **Pilings.** Pilings treated with ammoniacal copper zinc arsenate, chromated copper arsenate, or creosote may be installed below ordinary high water according to NOAA Fisheries' guidelines,¹ provided that no more than 50 piles are used. Note, also, that these guidelines do not apply to pilings treated with any other preservative, and do not authorize use of treated wood for any other purpose.
- iv. **Prefabrication and field preservative treatment.** Use prefabrication to the extent feasible to ensure that cutting,

¹ Letter from Steve Morris, National Marine Fisheries Service, to W.B. Paynter, Portland District, U.S. Army Corps of Engineers (December 9, 1998) (transmitting a document titled Position Document for the Use of Treated Wood in Areas within Oregon Occupied by Endangered Species Act Proposed and Listed Anadromous Fish Species, National Marine Fisheries Service, December 1998).

drilling, and field preservative treatment is minimized. When field fabrication is necessary, all cutting and drilling of treated wood, and field preservative treatment of wood exposed by cutting and drilling, will occur above ordinary high water to minimize discharge of sawdust, drill shavings, excess preservative other debris in riparian or aquatic habitats. Use tarps, plastic tubs or similar devices to contain the bulk of any fabrication debris, and wipe off any excess field preservative.

5. Abrasion prevention. All treated wood structures, including pilings, must have design features to avoid or minimize impacts and abrasion by livestock, pedestrians, vehicles, vessels, floats, etc., to prevent the deposition of treated wood debris and dust in riparian or aquatic habitats.
6. Waterproof coating. Treated wood may be used to construct a bridge, over-water structure or and in-water structure, provided that all surfaces exposed to leaching by precipitation or overtopping waves are coated with a waterproof seal or barrier that will be maintained for the life of the project. Coatings and any paint-on field treatment must be carefully applied and contained to reduce contamination. Surfaces that are not exposed to precipitation or wave attack, such as parts of a timber bridge completely covered by the roadway wearing surface of the bridge deck, are exempt from this requirement.
7. Debris Removal. Projects that require removal of treated wood must use the following precautions.
 - (1) Ensure that, to the extent feasible, no treated wood debris falls into the water. If treated wood debris does fall into the water, remove it immediately.
 - (2) After removal, place treated wood debris in an appropriate dry storage site until it can be removed from the project area. Do not leave treated wood construction debris in the water or stacked on the stream bank.
 - (3) Evaluate treated wood construction debris removed during a project, including treated wood pilings, to ensure that debris is properly disposed of.
 - (4) After removal, place treated wood debris in an appropriate dry storage site until it can be removed from the project area. Do not leave treated wood construction debris in the water or stacked on the stream bank.
 - (5) Evaluate treated wood construction debris removed during a project, including treated wood pilings, to ensure that debris is properly disposed of.

