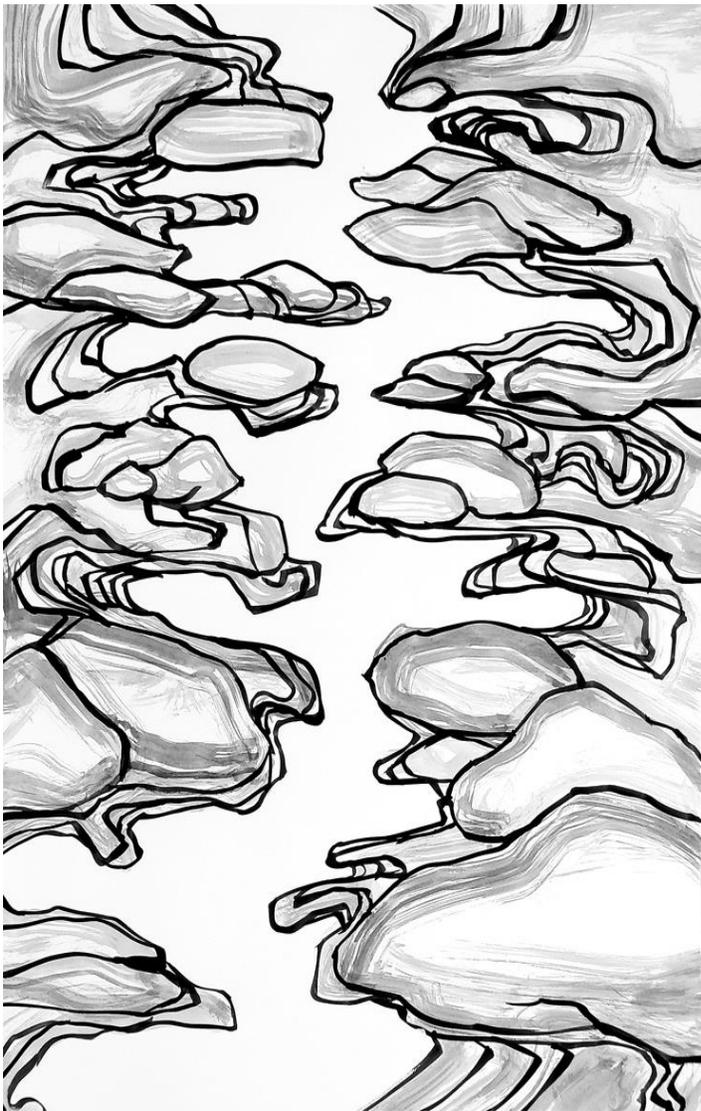


Lane County Public Works, Road Maintenance Division Water Quality & Habitat Guide



Best Management Practices

January 2014

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INTRODUCTION

Since September, 2001 Lane County Public Works, Road Maintenance Division has implemented the Routine Road Maintenance; Water Quality & Habitat Guide Best Management Practices Document. This second iteration of the guide continues to ensure that Lane County Public Works, Road Maintenance Division performs maintenance activities in efforts that protect and conserve those natural systems that encompass our network of roads.

This guide will govern the manner in which Lane County maintenance crews perform routine road maintenance activities. In which Lane County Maintenance crews will proceed on a wide variety of routine maintenance activities, including surface maintenance, shoulder work and restoration, ditch maintenance, culvert repairs, installation and cleaning, snow and ice removal, vegetation maintenance, emergency work and other road maintenance tasks.

The Best Management Practices are designed to eliminate the adverse impacts of road maintenance activities on Salmonid habitat and aquatic systems while maintaining the functional integrity of the existing transportation facility.

In this guide, words and phrases such as “where feasible”, “where appropriate”, and “where practicable” are used in conjunction with some minimization and avoidance measures, and BMP’s and techniques. These phrases, which allow some exercise of professional judgment by maintenance supervisors and staff, are not to be used for convenience or ease of operation. Rather, they are included to depict the unique nature of conditions and prioritization outside the control of Lane County Public works. Therefore, maintenance supervisors and staff must retain a certain level of flexibility to implement Best Management Practices (BMP’s) as best possible under varying constraints, including but not limited to; extreme weather events; accidents; physical and geographic restrictions; availability of equipment; immediate staff and budget resources; Local, State and Federal laws; design guidelines. Compliance with this guide means that Lane County Public Works Roads Maintenance will use the best available environmental guidance to implement the Best Management Practices (BMP’s) in full or to the best level possible under the circumstances.

Defining professional judgment is difficult. It is developed over time through implementation of Best Management practices (BMP’s), the gathering of knowledge from continued trainings, internal dialogue and coordinating with the regulating agencies. Lane County Public Works, Road Maintenance staff will work with technical staff, regulating agencies, and its other partners to share knowledge and implement strategies to best implements Best Management Practices (BMP’s) covered in this guide.

TECHNICAL ASSISTANCE, COMMUNICATION AND COORDINATION

Throughout this Guide, reference will be made to coordinating with other Divisions of Lane County Public Works, including environmental staff, design, engineering and Waste Management . Lane County Public Works, Road Maintenance will also coordinate with outside agencies, including the Oregon Department of Fish and Wildlife (ODFW), Oregon Department of Agriculture (ODA), National Marine Fisheries Service (NMFS), Oregon Department of Transportation (ODOT) and other partners and agencies in the implementation of Best Management Practices (BMP's).

Lane County Public Works, Road Maintenance will partner in coordinating involvement and responses, as appropriate for maintenance activities with technical staff and state and Federal partners to insure Best management practices (BMP's) are implemented during maintenance activities. Environmental and technical staff within Lane County Public Works will help determine whether projects need State or Federal permits, clearances, or approvals including compliance with those documents used in conjunction with the Best Management Practices guide, such as the Oregon Fish Passage Law, NMFS fish passage design criteria, and other NMFS programmatic design criteria.

Coordination and communication is critical to the success of the partnerships and the implementation of the Best Management Practices Guide. All efforts are made to insure appropriate and timely communication and coordination occur.

CRITICAL RESOURCE AREAS

Considerable effort has been made to provide maintenance staff information on the natural, aquatic, historical, and cultural resources within Lane County Public Works, Road Maintenance management areas. To insure preservation and conservation of the natural resources Lane County Public Works, Road Maintenance created and continues to update mapping layers within our Geographic Information systems (GIS) database. These maps include straight-line maps of Lane County roadways; current and historic aerial maps; known critical habitat areas; waterways of Lane County; bridge and culvert locations; State and federally protected plant sites; topographic maps; soil profiles and various other natural and physical data. The mapping data originates from internal data gathering and surveys, inter-agency partnerships, wetland inventories, National Marine Fisheries Service (NMFS), Oregon Department of Fisheries and Wildlife (ODFW) Oregon Heritage Natural Resource Data Bank and from private surveys and communication. Maintenance Supervisors and staff are expected to review these maps while planning work and determining appropriate Best Management Practices (BMP's) for each activity listed in this guide. This review will help determine whether sensitive resources are present in the activity area before maintenance activities commence.

Protected Plant Species

Lane County Public Works, Road Maintenance established a field marking and signing system for both State and Federal protected plant sites, in accordance with the Endangered Species Act (ESA). This provides managers, staff and the public guidelines and markers to direct maintenance activities within and adjacent to these critical habitat areas. Data for these sites was gathered from agency partnerships, private surveys and staff monitoring. Lane County Public Works, Road Maintenance in December, 2010 developed the Lane County Public Works Roadside Threatened and Endangered Plant Management Handbook. This guide provides further direction to Supervisors and staff to the Best Management Practices, guidelines and regulations for maintenance activities in these critical habitat areas.

Protected Salmonid Species

Upper Willamette Spring Chinook, Oregon Coast Coho, and other anadromous salmonids migrate between the Pacific Ocean and inland freshwater streams. In Lane County, designated critical habitat for both Chinook and Coho occur throughout Lane County. Lane County Public Works, Road Maintenance Division works with outside agencies, including National Marine Fisheries Service (NMFS) Oregon Department of Fisheries and Wildlife (ODFW) and the Army Corp. of Engineers to both protect and enhance critical habitats for salmonids through the use of Best Management Practices (BMP's) during road maintenance activities.

Documents

Descriptions and maps of Critical Roadside Habitat Areas are included in the attached Appendix C. of this document. Lane County Public Works, Road Maintenance Threatened and Endangered Plant Management Handbook can be viewed at www.lanecounty.org

TRAINING AND EDUCATION

Understanding and correctly implementing the Best Management Practices (BMP's) for road maintenance activities is the responsibility of every maintenance employee. Lane County Public works has an extensive training program for maintenance personnel. Training is an on-going process in working with internal staff training, agency partnerships and technical assistance from private firms.

Lane County Public Works, Road Maintenance training programs include;

- Hazard Materials Training & Response
- Spill Prevention & Response
- Erosion & Sediment Control Training
- Equipment Operators Training
- First Responder Training
- Professional Conferences and Symposiums
- Hazmat
- Hazardous Materials Awareness
- Continuing Education Classes

Lane County Public Works, Road Maintenance Division developed and maintains a program called “short School” on a bi-annual basis for all staff involved in road maintenance activities. This is a cornerstone program for our continued education and training related to Best Management Practices (BMP's) for Road Maintenance within Lane County. Training topics incorporate Stormwater management and practices, erosion control methods and techniques, hazardous materials response and reporting, water quality issues, natural resource preservation and Best Management Practices (BMP's).

Lane County Public Works, Road Maintenance Division partners with outside agencies and private sector groups for technical and specialized trainings related to Water Quality and Best Management Practices. These trainings are determined and established based on permit requirements, state regulations or solicited requests from internal staff or managers.

Lane County Public Works, Road Maintenance staff are also provided opportunities for continuing education associated with Best Management Practices annually. Road Maintenance staff and Managers attend conferences, trainings and educational seminars annually to keep updated on techniques, methods and practices in road maintenance and related Best Management Practices (BMP's).

DOCUMENTATION AND REPORTING

Lane County Public Works submits an annual report to the Environmental Protection Agency (EPA), Region 10 in accordance with the Clean Water Act. The National Pollution Elimination System (NPDES) requires that municipalities must obtain permits if their discharges go directly to surface waters. Lane County Public works, Road Maintenance Division maintains both road surface and related drainage features that require annual review and updates to our approved NPDES Permit. In an effort to insure compliance with our permit requirements along with working as stewards of Oregon's clean water, Lane County Public Works, Road Maintenance Division in partnership with the Lane County Waste management Division annually documents and reports on maintenance operations related to stormwater compliance. Elements that will be included in our report are:

- Summary of routine work that has been accomplished throughout the year, including representative Best Management Practices (BMP's) reported by the Road Maintenance Division.
- Summary of Culvert and Fish Passage improvement projects, including stream miles improved and fish culvert installations, partnerships and expenditures
- Tracking of channel and ditch maintenance activities. Including total miles accomplished.
- Summary of Maintenance environmental program accomplishments that address impacts to natural resources. This includes bio-swale creation and maintenance, re-vegetation of maintenance areas, tree plantings, fish habitat improvements and other related natural resource preservation and restorations programs.
- Results and recommendations for modifications to Lane County Public Works, Road Maintenance Best Management Practices (BMP's).
- Erosion control measures and methods related to stormwater runoff and Best Management Practices (BMP's)
- Mapping, monitoring and maintenance of Lane County Public Works, Road Maintenance Divisions Stormwater facilities.
- Report on complaints and activities received from other agencies, public members and/or County staff on impacts to the environment from routine road maintenance activities. The Documentation will include the basis of the complaint, result of investigation, and the resolution of the issue and any recommendations.

MONITORING

Every Maintenance employee is responsible for knowing, implementing and monitoring the Best Management Practices (BMP's) outlined in this guide. It is vital to the success of this program and Lane County's compliance with County, State and Federal regulations that employees adhere to the standards of this guide by providing services in ways that protect the environment.

Road Maintenance zones have work planning sessions that identify personal protective equipment (PPE), traffic control standards and required Best Management Practices (BMP's) for planned activities. These are completed either formally or informally during morning work briefings, field "tail-gate" meetings, annual reviews or other training/education sessions to provide all staff with the knowledge and skills to implement Best Management Practices (BMP's).

Each year Lane County Public Works, Road Maintenance Division in partnership with other County and State departments works to review projects and evaluate impacts from the transportation infrastructure to natural resources. New techniques and tools are evaluated, either directly during maintenance or during review of projects completed in both the public and private sector. Engineering designs are developed that reduce impacts to aquatic systems, improve stormwater quality and reduce or eliminate erosion and sedimentation of maintenance activities.

Lane County Public Works, Road Maintenance Division partners with other transportation agencies, watershed councils and other interested parties in the development of new methodologies, designs and maintenance related to water quality and natural resource preservation. The results of these partnerships and projects may provide information on ways to modify and improve Best Management Practices (BMP's) for routine maintenance activities.

Lane County Public Works, Road Maintenance Division will document complaints received from County staff, other agencies, or members of the public on impacts to the environment by maintenance activities. Complaints will be forwarded to the appropriate supervisor or Manager within the Road Maintenance Division for resolution/investigation. Managers and Supervisors may coordinate with representatives including, environmental permits, design, engineering within Lane County, or outside agencies including, Army Corp. of Engineers, Oregon Department of Fish and Wildlife, Oregon Department of Forestry, Cities, National Marine Fisheries Service, U.S. Forest Service and Bureau of Land Management is responding to the complaint(s).

PROCESS FOR REVIEW

Every five years, Lane County Public Works, Road Maintenance Division will evaluate the need to rewrite this guide. The need to rewrite or edit this guide will be determined in partnership with other County Departments, staff advice and collaborative input received from outside agencies. County staff will review the need for substantive changes, new technologies available, available resources, experience gained and lessons learned over the previous five years. Modifications to this guide, in concurrence with the National Marine Fishers Service (NMFS) and the County's National Pollution Discharge System (NPDES) permit may occur annually, and be documented to the NMFS in our annual report.

ACKNOWLEDGMENTS

Lane County Public Works, Road Maintenance Division in developing this guide adhered to the framework established by the Oregon Department of Transportation (ODOT). ODOT implemented the "Routine Road Maintenance: Water Quality & Habitat Guide Best Management Practices" in a working partnership with numerous State and Federal agencies, including; The Oregon Department of Fisheries and Wildlife (ODFW); National Marine Fisheries Service (NMFS); Oregon Department of Environmental Quality (ODEQ); Unites States Forest Service (USFS); Army Corp. of Engineers (ACE),and the State Historic Preservation Office (SHPO).

The Oregon Department of Transportation's guide was supported and adopted by the State, external agencies and working partners. Lane County worked to support their ideas and framework in the development of Lane County's Water Quality and Habitat Guide, Best Management Practices. This Guide will accommodate improvements to our past program, improve upon our environmental stewardship and encompass the goals and directives of the regulating agencies across all of Lane County in the maintenance of our road system. We want to acknowledge the work of the Oregon Department of Transportation and their partnering agencies.

Definitions

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

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.

Waste Material: Materials that are listed as hazardous, routine or universal wastes. Waste materials will be handled based upon their characteristics and definitions listed by the State, and will be disposed of properly. This definition is broad and may include hazardous waste materials or work related waste that is of a non-hazardous nature.

Spill Kits: Containment kits that are intended to capture or contain small spills from maintenance operations. These kits are not intended for large spills, but for small hydraulic, oil or other material containment that may occur during routine maintenance operations.

Cleaning Agents: Chemicals or other products used to clean tools or equipment used in road maintenance activities.

Dust Palliative: A chemical or water solution used to reduce dust that results from activities performed on access roads, maintenance yards, and slide areas. Dust palliatives may include water, calcium magnesium acetate, magnesium chloride, or lignin sulfonates, applied in a liquid form.

Erosion control: Methods and/or supplies employed to prevent erosion. These may include building berms or benches to prevent erosion or contain materials. It also may include bio-bags, seeding work, or other bio-engineered products to prevent erosion during and after routine road maintenance activities.

Ordinary High Water line: Jurisdictional boundary on freshwater streams that defines where DSL and Corps regulations apply. That line on the bank to which the high water rises annually in season, excluding exceptionally high water levels caused by large flood events. The Ordinary High Water is determined in the field based on physical indicators including a clear natural line impressed on the bank, change in vegetation from riparian to upland.

Illegal Discharge: Any discharge to a municipal stormwater system that is not entirely comprised of storm water.

Noxious Weeds: Plants species that are defined by either the State or County as noxious. These plant species are considered a detriment to the State and County and are listed in priority for control based upon the location, species or risk to public health.

Invasive Plant Species: Plant species that may or may not be listed on the State or County Noxious weed lists for management but are still considered invasive based upon their negative impacts to public health, routine maintenance activities or other factors.

Riparian Areas: The land touching and immediately surrounding a stream, river, lake or other body of water. The riparian area usually consists of three elements: 1) the stream channel, 2) the flood plain, and 3) some of the upland area near the stream. The riparian area is assumed to be 150 feet wide measured horizontally from edge of ordinary high water (OHWL).

SURFACE ACTIVITIES

Maintenance activities designed for long term preservation of County road system. Surface maintenance is prioritized by road condition, repair needs and general maintenance of roadways to insure the long term preservation and safety of Lane County roads. Includes blade patching, crack-sealing, hand patching, chipseal, fogseal, paving driveway aprons, gravel road blading, maintenance rocking and dust oiling.

FOG SEALING (Activity P2130)

Description: Fog seals are a method of adding asphalt to an existing pavement surface to improve sealing or waterproofing, prevent further stone loss by holding aggregate in place, or simply improve the surface appearance.

Goal: Fog sealing is designed to coat, protect, and/or rejuvenate the existing asphalt binder while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Use environmentally sensitive cleaning agents for tools and equipment.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Lane County maintenance crews will perform Fog Sealing work in dry weather, to minimize any runoff of potentially hazardous materials, when possible.

PAVING – DRIVEWAY APRONS (Activity P2140)

Description: Paving and repairing driveway approaches that adjoin a County road to maintain a safe approach along with preparation work prior to a surface treatment on a County roadway.

Goal: To repair and maintain driveway aprons that adjoin county roads for safety and maintenance needs, while minimizing impacts to water quality and natural resources

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Use environmentally sensitive cleaning agents for tools and equipment.

- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

CRACK SEALING (Activity P2150)

Description: The filling of cracks and voids in the road surface with a hot emulsified sealant. To prevent pavement deterioration and preserve the road surface.

Goal: To preserve and extend the life of the paved surface by sealing voids and cracks to prevent water penetration into the sub-grade in a manner that minimizes impacts to natural resources

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Use environmentally sensitive cleaning agents for tools and equipment.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Crackseal operations should be completed during dry weather to prevent potential runoff of hazardous materials, when feasible and predictable.
- ❖ When using compressed air to clean cracks, efforts should be taken to minimize airborne dust and pollutants, when feasible and appropriate.

PAVING – MACHINE OR BLADE PATCHING (Activity P2155)

Description: Eliminating extensive areas of paved surface depression, break-up, roughness and other surface hazards by area patching with asphaltic mix materials using mechanical spreading techniques.

Goal: To maintain, repair and preserve the County road system in a cost effective manner while minimizing impacts to water quality and natural resources

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Use environmentally sensitive cleaning agents for tools and equipment.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Prevent all release agents and release materials from escaping the top of the asphalt. Use limited amounts of release agents or capture materials as necessary.
- ❖ Use heat sources to heat and clean tack nozzles during operations.

- ❖ Paving operations should be completed during dry weather to prevent potential runoff of hazardous materials.

PAVING HAND PATCHING (Activity P2160)

Description: Eliminating minor areas of paved surface depression, potholes, beak-up, roughness and other surface hazards by area patching with asphaltic mix materials (hot or cold) using hand spreading techniques.

Goal: To repair, maintain and preserve Lane County roads while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Use environmentally sensitive cleaning agents for tools and equipment.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Perform surface/patching work in dry weather, to minimize any runoff of potentially hazardous materials, when possible.

CHIPSEAL (Activity P2165)

Description: Applying alternate layers (one or more layers) of liquid asphaltic material and cover with aggregate to seal the surface and restore surface life, flexibility and skid resistance.

Goal: Provide a cost effective method for maintaining and preserving County roadways and preserve a safe driving surface while protecting nearby waterways from potential pollutants associated with surface work that includes chipseal materials.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Use environmentally sensitive cleaning agents for tools and equipment.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Prevent all release agents and release materials from escaping the top of the asphalt. Use limited amounts of release agents or capture materials as necessary.
- ❖ Use heat sources to heat and clean tack nozzles during operations.

- ❖ Perform surface work in dry weather to minimize any runoff of potentially hazardous materials, when possible.

GRAVEL ROAD BLADING (Activity P2200)

Description: Restoring the roadway cross slope, drainage and grade by blading, reshaping and smoothing of existing gravel surface materials.

Goal: To rehabilitate non-paved surfaces by blading to restore road prism and proper drainage while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Blading maintenance should be limited during heavy rain events to reduce/eliminate the risk of sedimentation and siltation, when feasible.
- ❖ Where possible, LCPW maintenance will blade in dry weather, but while moisture is still present in soil and aggregate (to minimize dust), when feasible.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Compact final blading pass to limit the possibility of runoff from the roadway, when appropriate.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

GRAVEL ROAD MAINTENANCE ROCKING (Activity P2205)

Description: Rehabilitating non-paved surfaces by adding gravel and then blading it to restore/establish a smooth stable surface with proper drainage.

Goal: To rehabilitate non-paved surfaces by adding gravel and blading to restore road prism and proper drainage while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Blading maintenance should be limited during heavy rain events to reduce/eliminate the risk of sedimentation and siltation, when feasible.
- ❖ Where possible, LCPW maintenance will blade in dry weather, but while moisture is still present in soil and aggregate (to minimize dust).
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Dispose of excess or waste materials at appropriate sites.

DUST OILING (Activity P2215)

Description: Applying a dust palliative coat to non-paved surfaces to reduce dust.

Goal: To control dust on gravel roadways maintained by Lane County Public Works, Road Maintenance Division while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Provide adequate spill containment materials on site when palliatives are applied.
- ❖ Build berms along road edges to prevent possible contamination of palliatives into waterways, wetlands or aquatic systems.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Use environmentally sensitive cleaning and releasing agents.
- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

SHOULDER ACTIVITIES

Maintenance activities designed to maintain and preserve road shoulders adjacent to Lane County roadways. Shoulder maintenance activities are shoulder blading & scalping, shoulder restoration and widening, along with other surface and shoulder maintenance.

SHOULDER BLADING & SCALPING (Activity P2220)

Description: Correcting problems of pavement edge drop off, rutting and excess material build-up by blading and reshaping of existing shoulder materials. Removing and hauling off excess materials

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

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Use erosion control devices and other erosion control measures, when appropriate.
- ❖ Blade in dry weather, while moisture is still present in the soil and aggregate to minimize dust where possible.
- ❖ Evaluate the width of the blading activity to be performed, and if the site warrants modify the width to reduce disturbance of roadside vegetation (natural roadside filter).
- ❖ Permanently stabilize disturbed soils by covering area with straw, matting and/or seeding to prevent erosion and sedimentation as conditions warrant.
- ❖ Determine if there is an existing barrier or natural feature to protect waterbodies from disturbed materials. If a barrier or natural bench is present, it may not be necessary to use erosion control measures or take further protective actions.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

SHOULDER RESTORATION & WIDENING (Activity P2225)

Description: Restoring sections of shoulders by adding rock, reshaping and compacting suitable materials to appropriate grading and smoothness.

Goal: To repair road 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, and unwanted vegetation. 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 Measures, and Best Management Practices (BMP's):

- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Use erosion control devices and other erosion control measures, when appropriate.
- ❖ Blade in dry weather, but while moisture is still present in soil and aggregate to minimize dust when possible.
- ❖ Permanently stabilize disturbed soils by covering area with straw, matting and/or seeding to prevent erosion and sedimentation as conditions warrant.
- ❖ Care should be taken not to over steepen ditches slopes and channels, or decrease ditch or channel capacity, which could result in slope failure or erosion.
- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

OTHER SURFACE & SHOULDER MAINTENANCE (Activity P2235)

Description: Performing any surface and shoulder related maintenance operation not described by Activities P2220 or P2225

Goal: To repair, preserve or provide routine maintenance on either the road surface or adjacent road shoulder to insure public safety and long term maintenance of road infrastructure while minimizing impacts to water quality and natural habitats.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Permanently stabilize disturbed soils by covering area with straw, matting and/or seeding to prevent erosion and sedimentation as conditions warrant.
- ❖ Use erosion control devices and other erosion control measures, when appropriate.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

SUBGRADE, GRADING AND SLOPE & SLIDE MAINTENANCE ACTIVITIES

Variety of Road Maintenance activities, including excavation work in preparation for road repairs and maintenance, Slide removal work when encountered and clearing and grubbing work prior to road maintenance projects. This group of activities also includes gravel road base placement and grade restoration for repairs and maintenance of the County road system.

DIGOUTS (Activity P2145)

Description: Performing excavation for pavement repairs or other road maintenance activities.

Goal: Maintenance to improve or repair roadways, sidewalks and other transportation infrastructure in a manner that minimizes impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Use erosion control devices and other erosion control measures, when appropriate.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

CLEARING & GRUBBING (Activity P2715)

Description: Clearing and disposing of trees, brush, fencing and all other vegetation as needed in preparation for roadway improvements.

Goal: To remove materials in conflict with planned road maintenance activities while minimizing impacts to water quality and natural resources

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Minimize or prevent damage to vegetation, soil and other natural resources that are to remain on site.
- ❖ Use erosion control devices and other erosion control measures, when appropriate.
- ❖ Dispose of excess or waste material at appropriate sites.

- ❖ Reseed drainage ditches and steep slopes and disturbed areas as appropriate to prevent erosion and sedimentation.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

GRAVEL ROAD BASE PLACEMENT (Activity P2195)

Description: Transporting and placing, compacting suitable base course materials on top of established sub grades in preparation for sub-sequent oil shot and paving operations.

Goal: Building road prism base in preparation for surface installation, maintenance and repair while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Use erosion control devices and other erosion control measures, when appropriate.
- ❖ Compact materials to prevent potential for runoff.
- ❖ Minimize rock from leaving road prism, and clear all excess material from site to limit impacts to ditch lines and waterways, when practicable.
- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

SLIDE REMOVAL (Activity P2244)

Description: Removing landslide and/or rockslide materials from the roadway and restoring a suitable safe passage for traffic.

Goal: To clear earthen slides or large debris from roadways to open County roads, for public and emergency use while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Use erosion control devices and other erosion control measures, when appropriate.

- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Work to restore proper hydraulic function of ditch lines and culverts if they were damaged by the slide event to limit future erosion, siltation or sedimentation, when practicable.
- ❖ Reseed and/or mulch slide area to prevent further erosion and establish native or preferred vegetation communities.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

GRADE RESTORATION (Activity P2240)

Description: Restoring land slip and large depressed areas to suitable grade and alignment for the safe passage of traffic.

Goal: Maintenance and repair to road infrastructure, improving existing conditions for safety and proper function of roadways while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Use erosion control devices and other erosion control measures, when appropriate.
- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Work to restore proper hydraulic function of ditch lines and culverts if they were damage by the slide event or maintenance activity to prevent erosion, siltation or sedimentation.
- ❖ Reseed drainage ditches, steep slopes and disturbed areas as appropriate to prevent erosion and sedimentation.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

OTHER SLOPE AND SLIDE MAINTENANCE (Activity P2245)

Description: Performing all maintenance operations related to stabilizing slopes and reducing landslide hazards not described by Activity P2244, slide removal.

Goal: Preventative maintenance to reduce safety concerns and preserve the County road system while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Use erosion control devices and other erosion control measures, when appropriate.

- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Work to restore proper hydraulic function of ditch lines and culverts if they were damaged by the slide event or maintenance activity to prevent erosion, siltation or sedimentation.
- ❖ Reseed and/or mulch slide area and steep slopes to prevent further erosion and establish native, or preferred vegetation communities.
- ❖ Insure that vegetation outside the project area is retained to prevent further erosion or slide potential.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

DRAINAGE ACTIVITIES:

Maintenance activities directed towards maintaining permanent water quality structures designed and constructed to treat stormwater runoff from Lane County roads and facilities. These facilities include, stormwater ditches, channel maintenance, sweeping of roadways, catch basin repair and maintenance, culvert installation and repairs along with storm sewer system repairs and maintenance.

SWEEPING – Self Contained Sweepers (Activity P2255)

Description: Removing mud and any other loose materials on surfaced roadways by mechanical sweeping to eliminate traffic hazards, and keep drainage facilities clean. Sweeping activity that recovers materials from maintenance.

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 Measures, and Best Management Practices (BMP's):

- ❖ Minimize dust production when feasible, use water (as needed) to reduce dust.
- ❖ Store and dispose of collected materials at appropriate sites in keeping with local disposal plans. Collected material may be temporarily stored in stable locations.
- ❖ Dispose of waste material at appropriate sites.
- ❖ Remove materials from roadway to prevent contamination in storm sewer system, catch basins and other waterways, when feasible.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

SWEEPING – Pull Brooms / Self Propelled Brooms (Activity P2260)

Description: Removing mud and debris and other loose materials on the paved surface by pull brooms and/or self-propelled broom, routine maintenance sweeping. Sweeping activity that side casts materials without recovery.

Goal: To remove materials such as sanding material, dirt, non-hazardous debris, etc. from the travel lanes and shoulders, while preventing suspended sediment and pollutants from reaching waterbodies so that water quality is not impacted.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Slow the sweeper and broom speed, and change the angle of the broom to prevent sweepings from leaving the improved road shoulders and entering waterways, if the road is parallel to a waterbody that is less than 25 feet from the fog line, when feasible.
- ❖ Maintain vegetation buffers to catch sanding material and other pollutants to protect the water quality of nearby waterbodies where feasible.
- ❖ Remove materials from roadway to prevent contamination into waterways through runoff, when feasible.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

CULVERT CLEANING (Activity P2270)

Description: Clearing culverts and adjacent areas of all dirt and debris as necessary by hand or machinery.

Goal: To restore proper function of water conveyance through culverts by cleaning excess debris, obstructing water flow and design will minimizing impacts to natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Dispose of materials above the ordinary high water line (OHWL) and not in any waterbody or wetland.
- ❖ Perform work at low flow, and divert flow to minimize turbidity, when and where possible.
- ❖ Repair any damage to the culvert that may have occurred during cleaning, such as bent ends, disconnected joints, etc. to restore proper hydraulic function of culvert.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

CULVERT INSTALLATION, REPLACEMENT & REPAIR (Activity P2275)

Description: Installing new culverts or replacing damaged or inadequate existing culverts to restore or improve roadway drainage.

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

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Use erosion control devices and other erosion control measures, when appropriate.
- ❖ Dispose of waste material at appropriate sites.
- ❖ Where feasible mimic natural stream channel conditions inside and outside the culvert (Fish Culverts only)
- ❖ Inspect and clean culverts prior to the rainy season, if possible.
- ❖ Perform work at low flow, and divert flow to minimize turbidity, when and where possible.
- ❖ Minimize or eliminate any jumps created during culvert cleaning that may impact fish passage, where practical (Fish Culverts Only)
- ❖ Repair any damage to the culvert that may have occurred during cleaning, such as bent ends, disconnected joints, etc. to restore proper hydraulic function of culvert.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

DITCH MAINTENANCE – GRADER (Activity P2282)

Description: Cleaning and shaping of roadside ditches with a grader to ensure proper roadside drainage.

Goal: To maintain ditches in a manner that allows for efficient stormwater passage, storage, and infiltration while minimizing impacts to water quality. To maintain ditches designed with stormwater treatment features to function appropriately.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Use erosion control devices and other erosion control measures, when appropriate.
- ❖ Reseed drainage ditches and steep slopes as appropriate to prevent erosion and sedimentation.
- ❖ Perform ditch work in optimum weather to minimize environmental impacts, where feasible.
- ❖ Evaluate and modify existing ditch slopes, where feasible and appropriate, to trap sediment and support development of vegetation.

- ❖ Dispose of collected ditching material above Ordinary High Water Line (OHWL) and not in any waterbody or wetland.
- ❖ Dispose of waste material at appropriate sites.
- ❖ Near riparian corridors, determine if there is an existing barrier or natural bench to protect waterbodies from fallback materials.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

DITCH MAINTENANCE – GRADALL (Activity P2280)

Description: Cleaning and shaping of roadside ditches with a Gradall to ensure proper roadside drainage.

Goal: To maintain ditches in a manner that allows for efficient stormwater passage, storage, and infiltration while minimizing impacts to water quality. To maintain ditches designed with stormwater treatment features to function appropriately.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Use erosion control devices and other erosion control measures, when appropriate.
- ❖ Reseed drainage ditches and steep slopes as appropriate to prevent erosion and sedimentation.
- ❖ Perform ditch work in optimum weather to minimize environmental impacts, where feasible.
- ❖ Evaluate and modify existing ditch slopes, where feasible and appropriate, to trap sediment and support development of vegetation.
- ❖ Dispose of collected ditching material above Ordinary High Water Line (OHWL) and not in any waterbody or wetland.
- ❖ Dispose of waste material at appropriate sites.
- ❖ Near riparian corridors, determine if there is an existing barrier or natural bench to protect waterbodies from fallback materials.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

STORM SEWER CLEANING (Activity P2285)

Description: Cleaning storm sewer lines, to remove accumulated debris by the appropriate equipment to insure that we provide proper drainage function of storm sewer lines.

Goal: Activity is done to restore function and to clean water conveyance systems (storm sewer) to provide adequate water flow through the storm sewer system while minimizing impacts to water quality, aquatic species, and aquatic habitat.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Clean regularly to reduce amounts of pollutants, trash, and debris both in storm drain system and receiving waters.
- ❖ Document incidents of illegal discharge.
- ❖ Sweep roadways frequently to clear debris, trash, vegetation and other materials before they reach storm sewer system to reduce contamination of waterways.
- ❖ Dispose of waste material at appropriate sites.
- ❖ The discharge of Vector truck sediment, associated with County storm sewer maintenance, including the liquid portion (and rinse water) must be at a location adequate to contain sediment and liquid to prevent discharge to a waterway.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

CATCH BASIN CLEANING (Activity P2290)

Description: Cleaning catch basins, to remove accumulated debris by hand or appropriate equipment to provide proper drainage and function.

Goal: Activity is done to clear catch basin of obstructions preventing adequate drainage and obstructions to restore proper drainage and water flow while minimizing impacts to water quality, aquatic species, and aquatic habitat.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Use catch basin filters to collect sediment and debris, when appropriate.
- ❖ Maintain existing "No Dumping, Drains to River" signs and place additional signs as needed.
- ❖ Document incidents of illegal discharge.
- ❖ Sweep roadways frequently to clear debris, trash, vegetation and other materials before they reach or clog catch basins to reduce contamination of waterways.

- ❖ Dispose of catch basin materials collected at appropriate locations. Review Lane County Roadwaste Management Guide, Appendix B.
- ❖ The discharge of Vector truck sediment, associated with County catch basin maintenance, including the liquid portion (and rinse water) must be at a location adequate to contain sediment and liquid to prevent discharge to a waterway.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

DRAINAGE FACILITY INSTALLATION, REPLACEMENT & REPAIR (Activity P2295)

Description: Performing any betterment work for the purpose of improving roadway facility drainage and any drainage related maintenance operations. This activity is used for adding catch basins, and/or modifying catch basins.

Goal: To restore or improve function or prevent failure of drainage structure(s) while minimizing impacts to water quality, aquatic species, and aquatic habitat.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Dispose of waste material at appropriate sites.
- ❖ Use erosion control devices and other erosion control measures, when appropriate.
- ❖ Dispose of waste material at appropriate sites.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

LEAF REMOVAL (Activity P2315)

Description: Performing leaf pickup on County and City roads during the Fall and early Winter seasons.

Goal: To remove leaves that have fallen onto the roadway to improve safety and drainage while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Identify and implement practices that will optimize the opportunities for reuse, to reduce waste from maintenance activity.
- ❖ Appropriately dispose of materials that could be contaminated.
- ❖ Remove leaves from catch basins and curb lines to maintain adequate drainage and reduce pollutants from entering waterways and storm sewer system.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

VEGETATION ACTIVITIES:

Road maintenance activities related to Lane County's Integrated Vegetation Management Program. All of Lane County's Vegetation maintenance activities are directed at preserving and maintaining the Lane County road system, while mitigating hazards and reducing other risks to the public user. These activities include, brush mowing, grass mowing, tree pruning, tree removal, urban vegetation maintenance and invasive plant management.

MECHANICAL BRUSH MOWING (Activity P2330)

Description: Mechanical brush mowing for roadside safety and clearance. Mechanical operations utilizing a reticulating mower head

Goal: To remove conflict vegetation that obstructs drainage, sight distance or inhibits other safety concerns while minimizing impacts to aquatic habitat, wildlife and other natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Only brush within 20 feet (on either side) of and under all bridge structures will be removed. All other brush not within LCPW's clear zones will be left in its current condition, unless the brush interferes with sight distance, shades the structure, or the brush is a noxious weed (e.g. scotch broom). Mapping of sensitive resource areas may lead to additional areas not being brushed.
- ❖ LCPW maintenance actions will limit mowing to no more than eight feet off edge of pavement in significant resource areas, unless needed to maintain proper functioning of highway features (e.g. drainage).
- ❖ Cut brush, in riparian areas, will be left in place where doing so does not interfere with sight distance, create safety issues, cause fire hazards, involve noxious weeds or the proper functioning of highway features (e.g. drainage).
- ❖ Limit mowing heights to a level that does not bare ground areas damaging native vegetation, increasing erosion potential or provide habitat for noxious and invasive species, when feasible
- ❖ Prevent debris and vegetative materials created from mowing activity from entering waterways, streams, wetlands and rivers, when appropriate.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

BRUSHING MANUAL (Activity P2335)

Description: Non-Mechanical brush and vegetation removal

Goal: To remove conflict vegetation (non-mechanical) that obstructs drainage, sight distance or inhibits other safety concerns while minimizing impacts to aquatic habitat, wildlife and other natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's)

- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Do not fuel equipment or tools near any waterway or on any vegetated material to reduce the likelihood of damage or contamination.
- ❖ Promote the establishment of native, preferred vegetation during maintenance activities, when appropriate.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

WEED CONTROL AND MANAGEMENT (Activity P2336)

Description: Noxious and Invasive plant control, projects focused on the management or eradication of County and State listed Noxious weed species

Goal: To establish native plant communities while reducing or eliminating the establishment of County, State and federally listed noxious weed species, improving the health of aquatic habitats and native plant communities.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Clean Mowing equipment and tractors when feasible to reduce the spread of noxious and invasive plant species.
- ❖ Areas disturbed through maintenance activities shall be reseeded with native grasses and Forbs to establish native plant communities and reduce the establishment of noxious weeds and invasive plant species, when feasible.
- ❖ When practicable, noxious weeds should be removed or abated to prevent the further establishment and spread of these species within the County rights-of-way.
- ❖ Maintenance crews shall be trained on the identification of invasive plant species to assist in identifying known locations of invasive and noxious weed species.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

URBAN VEGETATION MANAGEMENT (Activity P2338)

Description: Vegetation projects for urban landscapes within defined Urban Growth Boundaries. Landscape planter maintenance and other urban beautification and maintenance projects

Goal: To maintain vegetation in defined urban areas to reduce safety concerns related to sight distance, obstructions, or hazards while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Do not fuel tools or equipment near waterways, storm drains or other points that could have the potential to impact water quality or waterways.
- ❖ Remove all debris created from maintenance activity and properly dispose of materials.
- ❖ Avoid damage to vegetation and trees that are not in conflict with maintenance goals.
- ❖ Follow standards set forth by the International Society of Arboriculture (ISA) in all tree pruning work.
- ❖ Promote the establishment of native, preferred vegetation during maintenance activities.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State, when feasible.

SAFETY STRIP MOWING (Activity P2340)

Description: Roadside Grass mowing for safety and clearance. The first mowing cycle of the season.

Goal: Mowing of roadside grass and vegetation within the fore slope of County rights-of-way to reduce fire risk, improve roadside visibility and improve drainage while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Limit mowing heights to a level that does not bare ground areas, damaging native vegetation, increasing erosion potential or provide habitat for noxious and invasive species, when feasible.
- ❖ Avoid mowing in Critical Habitat Areas. Restricted time periods and regulations can be viewed in Appendix C, and in Lane County's Integrated Vegetation Management Plan.
- ❖ Clean Mowing equipment and tractors when feasible to reduce the spread of noxious and invasive plant species.
- ❖ When mowing in riparian areas avoid mowing native habitat and shade components of the waterway to minimize impacts to aquatic habitat and natural resources.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Prevent debris and vegetative materials created from mowing activity from entering waterways, streams, wetlands and rivers, when appropriate.

FIELD MOWING (Activity P2345)

Description: Mowing of County land parcels and properties.

Goal: To promote the health and safety of County parcels, reduce fire risk and manage noxious weed and invasive plant species while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Avoid mowing parcels/fields when saturated or after heavy rains to avoid rutting and damage to established vegetation.
- ❖ Limit mowing heights to a level that does not bare ground areas, damaging native vegetation, increasing erosion potential or provide habitat for noxious and invasive species.
- ❖ Prevent debris and vegetative materials created from mowing activity from entering waterways, streams, wetlands and rivers, when appropriate.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Clean Mowing equipment and tractors when feasible to reduce the spread of noxious and invasive plant species.

TOP TRIMMING (Activity P2346)

Description: Tree pruning and maintenance for roadside safety and clearance needs.

Goal: To maintain tree limbs for clearance over roadways, promote tree health and assist with road maintenance activities while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Adhere to International Society of Arboriculture (ISA) standards when performing pruning maintenance, when practicable.
- ❖ When fueling saws and equipment stay away from vegetated areas to reduce likelihood of damage and contamination of waterways.
- ❖ Tree pruning should be directed at both tree health and maintenance needs, when feasible and safe.
- ❖ Avoid damage to other vegetation and trees that are not in conflict with maintenance goals.
- ❖ All trees should be inspected for active bird prior to maintenance work, in accordance with the Migratory Bird Treaty Act (MTBA) during nesting season, Appendix G.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

FULL WIDTH MOWING (Activity P2347)

Description: The second mowing cycle of the season, directed at mowing the entire County right-of-way

Goal: Mowing of roadside grass and vegetation within the entire County rights-of-way to reduce fire risk, improve roadside visibility and improve drainage while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Prevent exposing bare soil when mowing to reduce the potential for erosion, adjust mower decks to a height that minimizes bare ground exposure, when feasible.
- ❖ Avoid mowing in Critical Habitat Areas. Restricted time periods and regulations can be viewed in Appendix C, and in Lane County's Integrated Vegetation Management Plan.
- ❖ Clean Mowing equipment and tractors when feasible to reduce the spread of noxious and invasive plant species.
- ❖ When mowing in riparian areas avoid mowing native habitat and shade components of the waterway to eliminate impacts to aquatic habitat and natural resources.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Prevent debris and vegetative materials created from mowing activity from entering waterways, streams, wetlands and rivers, when appropriate.

SEEDING AND MULCHING (Activity P2355)

Description: Projects that involve grass seeding, straw blowing, mulching, hydro-seeding for erosion control or permit requirements

Goal: To prevent erosion, siltation and/or sedimentation by seeding or mulching while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Where appropriate and practical, place barriers in site-specific locations along stream routes or direct drainage routes, to prevent mulch or seed materials from entering waterways.
- ❖ Where appropriate, LCPW will permanently stabilize disturbed soils using BMPs (seeding, plants, etc.).
- ❖ Use only native or non-invasive seed and mulch materials to improve natural site conditions and prevent establishment of noxious and invasive plant species.
- ❖ Use of erosion control methods in a timely manner, including seeding and mulching specific areas with non-invasive species.

- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ When fueling saws and equipment stay away from vegetated areas to reduce likelihood of damage and contamination of waterways.

GUARDRAIL VEGETATION MAINTENANCE (Activity P2360)

Description: Vegetation work for guardrail maintenance, preservation and clearance around guardrails

Goal: To preserve and protect Lane County’s guardrail system from encroachment of vegetation and reduce conflicts and safety concerns for road users, including bicyclists. Reducing vegetation along guardrails improves habitat by reducing noxious weed species and promoting water quality by improving the vegetation filter strip adjacent to the roadway

Minimization & Avoidance Measures, and Best Management Practices (BMP’s):

- ❖ Prevent mulched materials and debris from maintenance activities from entering waterways, when feasible.
- ❖ Preserve native shrub and tree species when practicable and are not a safety issue.
- ❖ When fueling saws and equipment stay away from vegetated areas to reduce likelihood of damage and contamination of waterways.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

STUMP GRINDING (Activity P2362)

Description: Mechanical grinder removal of tree stumps or other woody vegetation

Goal: To remove stumps that hinder routine road maintenance along with preventing future maintenance from re-sprouting, while minimizing impacts to waterways and natural resources

Minimization & Avoidance Measures, and Best Management Practices (BMP’s):

- ❖ Install containment devices, such as fencing to prevent debris and chipped material from entering waterways when appropriate.
- ❖ Clean debris and material from tracks to prevent sediments and other material from entering waterways or impacting other natural resources, when feasible. Cleaning may also assist in reducing the spread of noxious and invasive weed species.
- ❖ When fueling saws and equipment stay away from vegetated areas to reduce likelihood of damage and contamination of waterways.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

TREE REMOVAL (Activity P2365)

Description: Removal of hazard trees or other trees for roadside safety and maintenance needs.

Goal: To abate hazards through tree removal(s) when necessary while minimizing impacts to aquatic habitat, wildlife and other natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ LCPW maintenance will maintain shade trees along streams and rivers, unless those trees are danger trees (as determined by Vegetation Management Coordinator and/or appropriate resource agency), could potentially impact bridge structures, or could impact line of sight. If trees provide shade or bank stabilization within 50 feet of streams and are determined to be danger trees that must be removed.
- ❖ Tree removals should be scheduled during the non-regulated nesting season in accordance with the Migratory Bird Treaty Act (MTBA), Appendix G, when practicable.
- ❖ If removing trees during the nesting season, measure shall be taken to check for nest sites prior to removal, through tree knocking and/or visual inspections. If nest sites are located trees shall not be removed unless deemed a safety risk and coordinated with the Oregon Department of Fish and Wildlife (ODFW).
- ❖ Any large woody material that can be left on site that benefits natural habitats or aquatic systems should be left in place, when safe and practicable.
- ❖ When removing mature trees (over 12-inch (30cm) dbh) in riparian areas, LCPW will replant two seedling/cuttings for every tree removed. LCPW will coordinate with ODFW and/or the Environmental Engineering Specialist on species and location of seedling/cuttings to be replanted within the same watershed.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ When fueling saws and equipment stay away from vegetated areas to reduce likelihood of damage and contamination of waterways.

BRIDGE AND STRUCTURE MAINTENANCE:

Maintenance that encompasses the preservation, repair and improvements of Lane County's bridge system infrastructure, guardrail system and channel restoration. These activities are directed at the long term preservation and cost effective maintenance of these systems while minimizing impacts to aquatic systems, natural and cultural resources and fish habitat.

BRIDGE REPAIRS (Activity P2370)

Description: Performing any repair as required to preserve an existing bridge's serviceability and structural integrity.

Goal: To maintain and repair the structural integrity along County roadways in a manner that minimizes impacts to natural resources, fish habitat and water quality.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ If stream channel is impacted, where feasible, mimic natural stream channel conditions upstream and downstream of bridge.
- ❖ Minimize or eliminate jumps created during bridge cleaning or repair that may impact fish passage, where practical; repair any modifications to the bridge that aid fish passage, such as weirs or baffles
- ❖ Review the Migratory Bird Treaty Act (MTBA) requirements in Appendix G.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Restore all disturbed areas to equal or better condition. This can be accomplished through reseeded of disturbed sites, re-planting of vegetation, mulching of disturbed soils with straw or erosion control materials.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

BRIDGE CLEANING (Activity P2375)

Description: Cleaning of all accumulated dirt and debris from decks, drains, expansion joints, bearing seats and wherever else necessary to keep the bridge in safe serviceable condition.

Goal: To maintain and preserve bridges along County roadways in a manner that minimizes impacts to natural resources, fish habitat and water quality.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Remove debris from bridge decks in a manner that minimizes material entering waterbodies. Preferred methods may include removal of larger debris from bridge decks with a sweeper or shovel. Other material may be scraped by hand before being collected, removed (prior to pressure washing). Collected materials will be disposed of in a way that prevents debris and waste from entering waterbodies, streams, rivers, etc. Review Roadwaste Management chart, Appendix B. for references to proper disposal.
- ❖ Follow Bridge washing guidelines in Appendix J, when feasible.
- ❖ Implement adequate measures to ensure that paint and other hazardous material does not enter the waters of the State. Any material which does not fall into the water will be removed (if possible) in the least destructive way possible, or left in place if this is safe and would be less destructive to fish habitat and water quality.
- ❖ Review Appendix G on the Migratory Bird Treaty Act (MBTA).
- ❖ Where feasible mimic natural stream channel conditions inside and outside of the bridge.
- ❖ Temporarily block deck drains and scuppers over streams when pressure washing, sandblasting, or scraping structures, to route water off decking and into vegetative filters or other established filtration systems.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Dispose of waste material at appropriate sites.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.

CHANNEL MAINTENANCE (Activity P2300)

Description: Cleaning and removing material from the channel adjacent to and around piers that constrict and/or adversely affect the flow beneath the bridge or threaten its structural integrity and to restore channel to pre-existing condition.

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

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Attempt to utilize bioengineering solutions during replacement of significant sections of riprap within channels, wherever appropriate.
- ❖ Remove any excess material associated with the maintenance activity and deposit above the Ordinary High Water Line (OHWL).
- ❖ Perform work that is below Ordinary High Water Line (OHWL) during the ODFW in-water work period, or as negotiated with ODFW through permitting or waiver application.
- ❖ Stabilize maintenance materials and exposed soils in a timely manner. Stabilization of materials may include spreading and reseeding, covering with matting, straw or other appropriate erosion control material to prevent erosion and sedimentation.
- ❖ Use appropriate rock sources to maximize safety, operation, and habitat function as guided by permit or design specifications.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Dispose of waste material at appropriate sites.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.

GUARDRAIL REPAIR (Activity P2380)

Description: Repairing existing guardrail by replacing damaged sections and posts and restoring proper grade and alignment.

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

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ In unstable situations, areas downslope from guardrail replacement will be protected with erosion control measures (silt fences and other appropriate devices) where appropriate to minimize additional sediment loadings into aquatic systems.

- ❖ Remove all debris and other material created by maintenance activity from site to prevent possible contamination of waterways and natural resources, when feasible.
- ❖ Reseed areas with steep slopes or at risk of erosion to prevent siltation or sedimentation into waterways, when appropriate.
- ❖ Dispose of waste material at appropriate sites.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.

GUARDRAIL INSTALLATION (Activity P2385)

Description: Installing guardrail in new location for improved traffic safety.

Goal: Improving, repairing and installing guardrails features that guide and direct traffic in a safe manner and minimizes the impacts to natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ In unstable situations, areas downslope from guardrail replacement will be protected with erosion control measures (silt fences and other appropriate devices) where appropriate to minimize additional sediment loadings into aquatic systems.
- ❖ Remove all debris and other material created by maintenance activity from site to prevent possible contamination of waterways and natural resources
- ❖ Reseed areas with steep slopes or at risk of erosion to prevent siltation or sedimentation into waterways, when appropriate.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Dispose of waste material at appropriate sites.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.

COVERED BRIDGE REPAIR (Activity P2390)

Description: Performing any repair as required to preserve the service ability and structural integrity, this would also include fumigating wood elements.

Goal: To maintain and Preserve Lane County's historic covered bridges in a manner that is safe and minimizes impacts to water quality, fish species, and aquatic habitat.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Remove debris from bridge decks in a manner that minimizes material entering waterbodies. Preferred methods may include removal of larger debris from bridge decks with a sweeper or shovel. Other material may be scraped by hand before being collected, removed (prior to pressure washing). Collected materials will be disposed of in a way that prevents debris and waste from entering waterbodies, streams, rivers, etc. Follow Bridge washing guidelines in Appendix J.
- ❖ Implement adequate measures to ensure that paint and other hazardous material does not enter the waters of the State. Any material which does not fall into the water will be removed (if possible) in the least destructive way possible, or left in place if this is safe and would be less destructive to fish habitat and water quality.
- ❖ Review Appendix G on the Migratory Bird Treaty Act (MBTA).
- ❖ Where feasible mimic natural stream channel conditions inside and outside of the bridge.
- ❖ Temporarily block deck drains and scuppers over streams when pressure washing, sandblasting, or scraping structures, to route water off decking and into vegetative filters or other established filtration systems.
- ❖ Dispose of waste material at appropriate sites.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.

GUARDRAIL UPGRADE (Activity P2395)

Description: Replacing entire continuous sections that are outdated and/or improperly aligned to provide for improved traffic safety.

Goal: Improving and updating old or outdated guardrail features that direct traffic in a manner that is safe and minimizes impacts to natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ In unstable situations, areas downslope from guardrail replacement will be protected with erosion control measures (silt fences and other appropriate devices) where appropriate to minimize additional sediment loadings into aquatic systems.
- ❖ Remove all debris and other material created by maintenance activity from site to prevent possible contamination of waterways and natural resources
- ❖ Reseed areas with steep slopes or at risk of erosion to prevent siltation or sedimentation into waterways, when appropriate.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Dispose of waste material at appropriate sites.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.

SNOW AND ICE CONTROL ACTIVITIES

Includes removal of snow, ice and slush from roadways, ramps, interchanges, bridges and road shoulders on Lane County roadways. These activities are performed during the winter months for safety purposes and emergency access.

WINTER SANDING & SWEEPING (Activity P2405)

Description: Applying sand or other suitable abrasives at either spot or continuous locations as necessary to reduce traffic hazards resulting from frost and/or ice conditions. This activity also covers the sweeping of sanding materials.

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. This also includes the sweeping and removal of sanding material from roadways while preserving water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Carefully review the use of sanding material in the following areas; those where there is a danger of siltation in lakes, streams and rivers.
- ❖ Store sanding material in a manner to minimize any contamination of surface or groundwater. Covered storage of sanding material is preferred.
- ❖ Keep accurate application records including, when, where and quantity of sand materials applied.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Dispose of waste material at appropriate sites.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.

WINTER SNOW REMOVAL (Activity P2410)

Description: Blading or plowing snow and slush from roadways to reduce traffic hazards during and after snow storms.

Goal: To remove snow and ice roadway to improve safety for County roads during winter months. This activity is performed for safety purposes while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Reducing plowing speed in sensitive areas.

- ❖ Stopping sidecast sweeping within 50 feet of structures over water, where structurally possible.
- ❖ Modifying blade angles or blower hoppers in sensitive areas.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Dispose of waste material at appropriate sites.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.

WINTER CHEMICAL ANTI-ICING (P2415)

Description: Spraying de-icers onto the roadway to prevent ice from forming on the road surface to improve safety

Goal: To provide a reasonably safe roadway surface for the travelling public during winter conditions. The use of anti-icing and deicing chemicals is helpful in reducing the need for sanding materials. Reducing the use of sanding material will also reduce sanding related impacts to air quality, water quality and aquatic habitat.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Keep accurate applications records of when, where and quantity of chemical applied.
- ❖ Routinely inspect equipment, including nozzles and storage tanks, and slip in tanks for damage. Promptly repair or replace all damaged equipment.
- ❖ Store deicing chemicals in a manner to minimize any contamination of surface or groundwater.
- ❖ Carefully review the use of deicing chemicals in the following areas; those where there is a danger of contamination in lakes, streams and rivers.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Dispose of waste material at appropriate sites.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.

MISCELLANEOUS MAINTENANCE ACTIVITIES

Road maintenance activities considered outside of routine maintenance, either because of the seasonal nature and/or indirect relation to road infrastructure maintenance and preservation.

STORM CLEAN-UP (Activity P2310)

Description: This code should be used for debris removal activities related to storm clean-up, for floods, wind storms. This would include tree pruning, tree removal, debris clean-up, road clearing, road inventories, and any other storm related activity.

Goal: To restore and manage the transportation system in the event of natural or weather related emergencies, while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Repair any damage to fishery or water resources caused by Lane County Public Works, Road Maintenance Division maintenance responses to the emergency.
- ❖ Avoid and or minimize additional impacts to waterways, fish habitat and other natural resources when feasible.
- ❖ Identify and plan for slide debris and vegetation disposal sites as appropriate. Appropriate sites for long and short term material disposal should be identified and cleared for any potential wetland, sensitive species and archeological/cultural impacts.
- ❖ Provide, whenever possible, adequate erosion control and bank stabilization necessary to keep material from entering waterways.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.
- ❖ Dispose of waste material at appropriate sites.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.

GARBAGE AND LITTER REMOVAL (Activity P2705)

Description: Gathering and disposing of all debris and litter within the right-of-way to prevent unsightly conditions, damage to mowing equipment and obstructions to roadway drainage. Utilizes Manual and Mechanical means.

Goal: Removal of public waste, debris and hazardous materials from the County Right-of-way to reduce safety risks, improve overall road aesthetics and eliminate obstacles for routine road maintenance activities while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Practice good housekeeping to insure garbage and other debris/materials do not enter waterways.
- ❖ If hazardous materials are identified contact appropriate staff and insure hazmat response is notified of the material, providing location, quantity and other descriptions.
- ❖ Contact Lane County Waste Management Department for cleanup of materials of a non-hazardous nature, including tires, furniture, garbage, etc.
- ❖ Properly dispose of all collected roadside garbage and litter, at either the Lane County Public Works office or in partnering with Lane County Waste Management Division.
- ❖ Insure all safety precautions and PPE requirements are followed when performing garbage and litter removal activities.

DEAD ANIMAL REMOVAL (P2320)

Description: Removing and/or properly disposing of dead animals from the roadway surface (and right-of-way as is practical) to eliminate traffic hazards.

Goal: To remove reported sites of dead animals within the County right-of-way when feasible and practicable to prevent human health risks and road hazards, while minimizing impacts to water quality and natural resources.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Dispose of all dead animals at appropriate disposal sites, as feasible
- ❖ In lieu of removing a dead animal from the roadside because of decomposing or other restrictions, apply Lime to reduce odor and health risks.
- ❖ Do not leave a dead animal(s) in a roadside ditch, to prevent potential contamination of adjacent waterways. Move animal to area outside of flow line.

Pavement Marking and Surface Painting

Road maintenance activities that include marking for traffic safety and delineation of traffic control markings on County roadways. Activities include; striping, stenciling and pavement markings.

Striping (Activity P2725)

Description: Striping is the method used in the application of water based paint to the pavement surface, in order to maintain roads where paint is fading and after chipseal and overlay applications. This includes the application of reflective glass beads on top of the paint.

Goal: Striping of resurfaced roads and maintenance of existing painted traffic and fog lines on roadways, in order to ensure the necessary traffic markings (striped lines) on the roads are visible, reflective, and in good condition to maximize safety for the motoring public.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ Roads are painted on dry surfaces and in good weather conditions to insure both adequate paint adhesion to the road surface, and to prevent runoff into waterways or storm sewers.
- ❖ Paint and striper vehicle clean-up is done in a controlled containment area, where any residual materials are disposed of properly.
- ❖ During striping operations, a follow vehicle is equipped with spill containment to prevent contaminants or potential spills from entering waterways.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Use environmentally sensitive cleaning agents for tools and equipment.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

Stenciling (Activity P2755)

Description: Using water based paint, stenciling is the method for installation, maintenance, repair and replacement of all traffic markings on roadways. This includes curbs, stop bars, railroad crossings, traffic lines, arrows, bike lanes, crosswalks, etc.

Goal: Maintain all traffic marking on roadways in order to insure the roads are clearly marked, visible, reflective and in good condition to maximize safety for the motoring public.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ When grinding and removing old paint, care is taken to keep the loosened materials contained, and prevent any materials from entering storm water catch basins or waterways.
- ❖ Apply paint only to dry surfaces and in good weather conditions to prevent runoff or debris from entering storm drains or waterways
- ❖ Paint and striping vehicle clean-up is done in a controlled containment area, where any residual materials are disposed of properly.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Use environmentally sensitive cleaning agents for tools and equipment.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

Pavement Markings (Activity P2760)

Description: Using thermoplastic pavement marking is the preferred method used in installation, maintenance, repair and replacement of all traffic markings. These include stop bars, railroad crossings, traffic lines, arrows, bike lanes, crosswalks, etc.

Goal: Pavement marking is the application and maintenance of all painted thermoplastic traffic markings on roadways, in order to insure the roads are clearly marked, visible, reflective and in good working condition to maximize safety for the motoring public.

Minimization & Avoidance Measures, and Best Management Practices (BMP's):

- ❖ When removing old thermoplastic pavement marking, care should be taken to insure loosened materials are contained to prevent materials from entering storm drains and waterways.
- ❖ Prevent materials or debris from entering waterways, ditches or storm drains. Use appropriate measures to prevent waste and/or materials from entering these facilities when practicable.
- ❖ Dispose of excess or waste material at appropriate sites.
- ❖ Use environmentally sensitive cleaning agents for tools and equipment.
- ❖ Maintain spill kits and equipment to insure any leaks or spills are prevented from entering any waters of the State.

