

TABLE OF CONTENTS

CHAPTER 11: MAINTENANCE OPERATIONS

11.1 CHAPTER GOALS.....	111
11.2 MAINTENANCE PARTICIPATION IN PLANNING AND DESIGN.....	111
11.3 MAINTENANCE OPERATIONS ON BLM/USFS LANDS.....	111
Annual Highway Maintenance Partnering Meeting.....	111
Environmental Compliance and Documentation for Maintenance Operations.....	112
11.4 ADOT MAINTENANCE OPERATION ACTIVITIES.....	113
Equipment Parking.....	113
Waste Disposal.....	113
Storage and Staging Areas.....	113
Material Sites.....	113
Vegetation Management Activities.....	113
Noxious and Invasive Species.....	114
Selective Tree Removal.....	115
Hazardous (Unsound) Vegetation.....	115
Sight Distance.....	115
Winter Pavement Shading.....	115
Brush Removal for Sight Distance.....	115
Mowing of Shoulders.....	116
Herbicide Use.....	116
Fertilization and Seeding.....	116
Drainage Structures.....	116
Ditch Cleaning and Shoulder Maintenance Activities.....	116
Cut Slope Maintenance.....	117
Unpaved Surfaces.....	117
Bridges.....	117
Fences.....	117
Walls.....	117
Roadside Barriers.....	118
Winter Storm Management Program.....	118
11.5 EMERGENCY PROCEDURES.....	119
Emergency Notification.....	119
Emergency Maintenance Procedures.....	119
11.6 BLM/USFS MAINTENANCE OPERATION ACTIVITIES.....	119
11.7 ADDITIONAL RESOURCES.....	120



CHAPTER 11: MAINTENANCE OPERATIONS

11.1 CHAPTER GOALS

The goals of this chapter include the following:

- Outline opportunities for ADOT maintenance personnel to provide input during the design of proposed highway corridors.
- Describe the Annual Highway Maintenance Partnering Meeting, which will serve to initiate and facilitate effective communication between ADOT maintenance districts and their associated BLM field offices and/or USFS districts.
- Outline routine ADOT maintenance activities and appropriate strategies for accomplishing those activities.
- Describe how ADOT maintenance activities may be best integrated with BLM/USFS resource management concerns.

As defined in this chapter and for the purposes of ADOT maintenance, “existing alignment” refers to the roadway, pavement and structures as well as the Clear Zone as approved at the time of construction and as noted on project records.

11.2 MAINTENANCE PARTICIPATION IN PLANNING AND DESIGN

Personnel that are involved in the maintenance operations and management of new and reconstructed roadways and facilities are involved in the highway development process which provides an opportunity to review and comment on proposed designs. This review should include comments from the ADOT District Maintenance Supervisor, District Environmental Coordinator, the ADOT Natural Resources Management Group Regional Manager, the local BLM office or USFS District Ranger and USFS Engineer. Written comments regarding the plan submittals should be submitted to the ADOT Project Manager for transmittal to the design team.

11.3 MAINTENANCE OPERATIONS ON BLM/USFS LANDS

Annual Highway Maintenance Partnering Meeting

Each ADOT District in coordination with the BLM Field Office(s) or USFS District(s) located within that ADOT District should prepare a draft Annual Maintenance Plan that describes anticipated maintenance activities within that district. Prior to finalizing the Plan, the ADOT District should forward the following information to those offices. Contact information can be found in Chapter 12.

- Descriptions, locations and approximate schedules of proposed routine ADOT maintenance activities on those roads and facilities.
- Descriptions of unplanned/emergency type activities.
- Listing of all non-routine ADOT projects (new construction, pavement preservation, slope erosion repair, rock fall mitigation, etc.)
- Map of ADOT-maintained roads and facilities (such as rest areas, maintenance yards, equipment storage and material sources) that are located within lands managed by BLM/USFS. This map should be color-coded by public agency jurisdiction.

The draft of the Annual Maintenance Plan shall have a cover letter addressed to the BLM Field Office Manager and/or USFS District Ranger indicating information needed from them for finalizing the Annual Maintenance Plan which may include:

- Threatened and Endangered Species.
- Sensitive habitats.
- Noxious invasive species.
- Archaeological/Cultural sites.
- Types of required environmental reviews.
- Changes to ADOT/BLM/USFS signage.
- BLM/USFS resource management concerns
- Wildfire and Hazard mitigation

The Annual Maintenance Plan will be the basis for the Meeting to be held between ADOT and BLM/USFS. The Meeting will offer personnel from these agencies an opportunity to re-establish working relationships and to review, amend, approve and/or reject proposed maintenance activities. At a minimum, the ADOT Office of Environmental Services Director, ADOT District Engineer, ADOT District Maintenance Engineer, ADOT District Environmental Coordinator, ADOT Maintenance Supervisor, ADOT Maintenance Superintendent, ADOT Natural Resources Regional representative, BLM Field Office Manager/USFS District Ranger,

appropriate USFS and BLM fire management personnel and BLM/USFS Engineer should attend this meeting. The agenda for this meeting should typically be as follows:

- Review of past maintenance performed and lessons learned.
- General review of maintenance activities (routine, non-routine, and unplanned/emergency).
- Review and exchange of sensitive information such as Threatened and Endangered species, archaeological sites and noxious or invasive species, etc. This item should include locations and any recommended protection measures.
- NEPA planning updates.
- Discussion of environmental documentation required for maintenance activities and identification of associated agency responsibilities. Schedule of actions and deliverables should be agreed upon.
- Meeting administration including:
 - Identification or update of agency contact information.
 - Listing of agreed upon items (compliance) and action items (planning).
 - Scheduling of next years meeting and any necessary additional sessions.

Minutes from this meeting should be taken and later distributed by the ADOT district.

Environmental Compliance and Documentation for Maintenance Operations

Each federal public agency approaches the NEPA process and compliance with other resource laws in different ways. For highway projects, generally the funding source used to design, construct or maintain the highway corridor will dictate which agency has responsibility for complying with NEPA and/or other resource laws when applicable. However, the type of a given maintenance activity may also dictate whether a NEPA decision is required and/or which agency is responsible for administration and compliance with other resource laws. The responsible agency will, in turn, determine the standards for addressing these requirements.

Maintenance activities on existing alignments within BLM/USFS lands **do not require additional NEPA documentation**. However, these activities are not excluded from complying with other laws and regulations such as the Native

American Graves Protection and Repatriation Act, the Archaeological Resources Protection Act, the Clean Water Act (402 and 404) and the Endangered Species Act. These maintenance activities include but are not limited to:

- Emergency repairs.
- Restoration of surfacing, shoulders, roadsides.
- Cleaning ditches and cross-drainages.
- Minor (less than 100 feet in length) slope flattening for erosion mitigation, snow removal, sight distance or other safety reasons.
- Controlling brush and roadside vegetation to maintain clear zones, sight distance and to remove hazard trees.
- Slope stabilization and scaling.
- Removal of hazards and other obstructions.
- Preserving and adding traffic control measures to conform with the Manual on Uniform Traffic Control Devices (MUTCD).

Rehabilitation and reconstruction activities on BLM/USFS lands where all activities stay within the existing right of way **do require an additional NEPA decision**. These activities include but are not limited to:

- Minor realignment (e.g. straightening excessive curves).
- Minor widening (e.g. adding a lane and/or shoulder width); adding auxiliary lanes (passing, turning, climbing, parking).
- Major (more than 100 feet in length) slope flattening for erosion mitigation, snow removal, sight distance or other safety reasons, etc.

Maintenance activities that require NEPA clearance and that do not utilize federal funding will be discussed at the Meeting to determine which agency will be responsible for fulfilling these requirements. In general, BLM or USFS will act as the lead federal agency. ADOT's role will typically be that of an applicant or designee. ADOT will address NEPA requirements in accordance with BLM or USFS standards.

Any demolition of load bearing structures requires National Emissions Standards for Hazardous Air Pollutants (NESHAPs) compliance.

Activities that are considered System Preservation or Rehabilitation and utilize federal-aid funding will require appropriate NEPA analysis and documentation and will coordinate with FHWA as

the lead federal agency.

11.4 ADOT MAINTENANCE OPERATION ACTIVITIES

ADOT maintenance operations should minimize impacts to natural and cultural resources using standard work methods identified in the Performance Control System (PeCoS), Best Management Practices (BMPs), and BLM/USFS sensitive resources information and protection measures agreed to at the Meeting. In all cases, ADOT maintenance operations should minimize impacts to natural drainages and associated environments as required by the NPDES and AZPDES. ADOT



Figure 11.1 Maintenance equipment may be parked for short periods at developed pullouts.

should avoid or minimize disturbing soils that will erode into drainages, even those ditches and slopes that are not directly adjacent to streams. Where soils are disturbed, ADOT maintenance personnel should employ BMPs as described in the ADOT Maintenance and Facilities Best Management Practices Manual.

Typical operation activities include the following:

Equipment Parking

All maintenance equipment should be stored or parked overnight in acceptable locations. During routine daily operations, vehicles may be parked for short periods at developed pullouts, *Figure 11.1*, parking areas and other locations specifically agreed upon at the Meeting.

Waste Disposal

For routine maintenance activities undertaken

with maintenance personnel, storage, staging and waste disposal areas should be identified in the project plans or documentation, for review by BLM/USFS. Waste materials should not be sidecast indiscriminately over shoulders, embankments, in drainageways or at retaining wall locations. Existing storage yards and waste disposal areas should be utilized to the fullest extent possible.

Storage and Staging Areas

Areas designated for waste/excess material disposal should be identified during the Meeting. Joint use of BLM/USFS maintenance yards for temporary storage (to expedite efficient moving, storage and/or distribution of materials) should be investigated and reviewed during the Meeting. The potential for reuse and/or placement of waste materials by the BLM/USFS should be coordinated and agreed upon between the agencies.

Material Sites

Refer to Chapter 9

Vegetation Management Activities

ADOT strives to provide the traveling public with safe and aesthetically pleasing highway corridors. Accordingly, ADOT uses a variety of vegetation management techniques such as, mechanical, chemical, manual and cultural such as prescribed fire, in an integrated approach to control vegetation along Arizona highways.

Each BLM/USFS local office should clearly state local policy regarding the removal of vegetation and wildfire mitigation in the ADOT easement; this information will be discussed at the Meeting. The policy should address opportunities and



Figure 11.2 Pennisetum ciliare, Buffelgrass, is a highly flammable invasive species.

requirements for salvage timber sales and timber cruising timeliness associated with removal of trees.

As with any removal of vegetation, visual, environmental and wildfire mitigation should be addressed. Disturbed areas may need to be reseeded.

Noxious and Invasive Species

Noxious and invasive plant species, *Figure 11.2*, pose significant threats to both natural and human environments and highway corridors can act as conduits for the spread of these undesirable species (refer to Chapter 7). Highway maintenance activities should be coordinated to minimize the colonization and establishment of these species. Measures that can minimize the spread of weeds in highway corridors include:

- Learn to recognize noxious and invasive plant species (see end of this chapter for links to websites listing state and federal noxious weeds). At the Meeting, agree to strategies for reporting locations of and treating these plant species.
- Before ground-disturbing maintenance activities begin, inventory and prioritize weed infestations for treatment in project operation areas and along access routes. Control weeds as necessary, as early as possible in the project planning process.
- Locate and use weed-free project staging areas.
- Clean equipment transported from outside of the BLM/USFS district prior to entering the local district. If necessary and in consultation with BLM/USFS, identify site(s) where equipment can be cleaned. All mud and plant debris should be removed and contained as directed in the ADOT *Erosion and Pollution Control Manual*. This practice does not apply to service vehicles traveling frequently in and out of the project area that will remain on the roadway.
- Do not blade or pull roadsides and ditches that are infested with noxious plant species unless doing so is required for public safety or protection of the roadway. If the ditch must be pulled, wherever possible, eradicate weeds prior to maintenance activities. If eradication is not feasible, ensure that the weeds remain on-site. Blade from least infested to most

infested areas. When it is necessary to blade noxious weed-infested roadsides or ditches, schedule activity when seeds or propagules are least likely to be viable and to be spread. Minimize soil surface disturbance and contain bladed material on the infested site.

- Avoid acquiring water for dust abatement where access to the water is through weed-infested sites.
- If operating in areas infested with weeds, clean all equipment before leaving the project site as described above.
- Maintenance personnel need to inspect, remove, and properly dispose of weed seed and plant parts found on their clothing and equipment. Proper disposal means bagging the seeds and plant parts and incinerating them.
- Inspect material sources on site, and ensure that they are weed-free before use and transport. Treat weed-infested sources for eradication: strip and stockpile contaminated material for proper disposal. Inspect and document the area where material from treated weed-infested sources is used, annually for at least three years after project completion, to ensure that any noxious and invasive plant species transported to the site are promptly



Figure 11.3 Selective tree removal needs to be discussed at the annual partnering meeting.

- detected and controlled.
- Maintain stockpiled material in a weed-free condition.
- In heavily forested environments, retain shade to the extent possible to suppress noxious and invasive plant species and prevent their establishment and growth.
- Where maintenance activities disturb soil,



Figure 11.4 Shading on pavement in the winter results in icy conditions.

salvage weed-free topsoil and seed disturbed areas with native vegetation species in order to minimize opportunities for weed establishment (refer to Chapter 7).

- Where soils are disturbed in weed-infested areas, document and inspect these areas for at least three growing seasons and provide follow-up maintenance as required.

Selective Tree Removal

Maintenance crews routinely remove hazardous vegetation within the clear zone of the highway. Therefore, these activities should be discussed at the Meeting, including appropriate means by which trees will be removed (e.g. felling, cutting, chipping, debris disposal) Figure 11.3, and any necessary mitigation.

Hazardous (Unsound) Vegetation

Hazardous vegetation within transportation corridors may be removed for safety and wildfire mitigation purposes, including clear zones and other areas within the rights-of-way. American Association of State Highway Transportation Officials (AASHTO) guidelines on hazardous obstructions and clear zones are followed.

Hazardous vegetation within the rights-of-way should be jointly identified by ADOT and BLM/USFS. However, timely removal of unsound trees is both necessary and important to protect the safety of the traveling public. Should specific trees become unsound before an agency agreement, trees will be removed and appropriate personnel will be notified.

Winter Pavement Shading

Shading of pavement during the winter months

may result in prolonged icy conditions on highways, Figure 11.4. Winter shading problems should be assessed in the field by a multi-agency review team, and problem areas documented. Impacts of alternatives, including de-icing agents and associated costs, should be evaluated, and a course of action determined. A clearing plan will be prepared for any areas requiring vegetation removal and be reviewed at the Meeting.

As with any removal of vegetation, visual and other environmental considerations should be addressed. Disturbed areas may need to be reseeded.

Sight Distance

Standards for calculating sight distances are drawn from AASHTO and the *ADOT Roadway Design Guidelines*. These documents should be referenced to evaluate sight distance requirements along existing roadways where vegetation has grown in the shoulder area.

Clearing plans should be prepared for any areas requiring vegetation removal and should be reviewed at the Meeting. Potential sight distance problems should be assessed in the field by a multi-agency review team.

Visual impacts of tree removal and pruning should also be considered for any vegetation removed from the ADOT easement and should also be discussed during the Meeting. Techniques such as feathering the edges of clearing lines and varying the sizes of open spaces can help reduce visual impacts. Refer to USFS publication "Landscape Aesthetics A Handbook for Scenery Management".

If pruning or tree removal is necessary, branches



Figure 11.5 A boom axe used to remove trees and brush.

should be pruned back to the trunk and tree stumps cut flush to the ground line, ground in place or disposed of properly. If trees are removed from the ADOT easement, the log skid marks and any other disturbed areas should be reseeded at the next appropriate season.

Requirements for brush removal for sight distance should correspond to those for tree removal. Brush removal should be considered in areas where significant hazards exist and when adequate resources are available to remove all stumps and reseed if necessary.

Flail mowing machines should not be used to remove trees and brush. A boom axe, Figure 11.5, operated from the road shoulder is preferable.

Mowing of Shoulders

Mowing may be utilized to control vegetation within recovery areas and other areas that need to remain open for visibility or other considerations. Mowing should be limited to areas where plant stems/trunks are no larger than two inches in diameter. ADOT should consider local fire conditions and restrictions before mowing and follow agency policy.

Herbicide Use

The USFS publication, *Environmental Assessment for Management of Noxious Weeds and Hazardous Vegetation on Public Roads on National Forest Lands in Arizona*, regulates ADOT's herbicide use on USFS lands and provides a list of approved herbicides. The associated Memorandum of Understanding provides a strategy for ADOT-USFS coordination regarding the presence of invasive plants and hazardous vegetation and planned activities to control and/or remove this vegetation. All ADOT chemical herbicide application activities on roads crossing NF lands are subject to the terms and conditions detailed in the Environmental Assessment (EA) and accompanying MOU (a website link to the EA is listed at the conclusion of this chapter).

Herbicide use on BLM land is limited to those chemicals approved by BLM. ADOT districts will need to complete a Pesticide Use Proposal (PUP) and contact the appropriate BLM representative for approval prior to application.

Fertilization and Seeding

Plantings and seed applications should incorporate low solubility and slow release fertilizers in order to reduce the transport of nutrients into waterways.

Seed should be tested and mulches certified to meet the BLM/USFS "Weed Free" requirements (refer to Chapter 7). Seed mixes should be composed of species that are indigenous to the project area.

Drainage Structures

Drainage structures should be reviewed during the annual joint field review by both ADOT and BLM/USFS. Where structures are not functioning as designed, determine the scope of work required and if immediate action is required.

- If the proposed work is outside the scope of normal maintenance efforts or will impact visual, environmental, and/or cultural resources, include the proposed work in the next Meeting.
- If immediate action is required, repair the facility to its original designed condition.
- When repairing existing drainage structures:
 - Ensure that temporary erosion control measures are taken in order to address concentrated water flows (refer to Chapter 8).
 - Clearly mark limits of disturbance: maintenance activities should minimize changes to natural stream channel dynamics and minimize removal of native riparian vegetation.
 - Maintenance activities that require disturbing natural stream channels may require a 404 permit from the Corps of Engineers (in addition meeting other regulatory reviews as discussed above).
- If both ADOT and BLM/USFS determine that



Figure 11.6 Cleaning of ditches below slopes includes cleaning the occasional build-up of rock fall.

the structure is inadequate and substantial redesign and construction are required, include the proposed work in the next Meeting.

Ditch Cleaning and Shoulder Maintenance Activities

For traffic safety, smooth transitions must be maintained between the edge of the pavement and the adjacent road ditch or shoulder material. This requires occasional build-up or grading of the shoulders and cleaning of ditches below cut slopes, *Figure 11.6*.

- In order to reduce disturbance to existing vegetation, utilize an appropriately sized front loader.
- If a grader is used, take care to avoid removal of existing vegetation along the shoulder or ditch. If possible, material should only be removed from the ditches and shoulders to the point of existing plant bases.
- The limits of clearing should not exceed the original designed recovery zone.
- Any activities requiring the removal of plant cover should be reseeded.
- As described earlier in this chapter, dispose of waste material derived from routine maintenance activities in approved designated areas.
- In areas requiring shoulder build-up, consider using waste materials removed from nearby areas, such as drainages and shoulders. If none is available, use material from approved material source sites only (refer to Chapter 9).

Cut Slope Maintenance

- Rock Cuts: Rock outcroppings that interfere with sight distance or the turning radii of longer vehicles should be identified and reviewed at

the Meeting.

- Soil Cuts: Cuts slopes that are badly eroding may be identified for installation of erosion control devices. If non-routine work is required, these slopes may be identified and reviewed at the Meeting.

Unpaved Surfaces

There are a small number of unpaved roads, *Figure 11.7*, on BLM/USFS lands that are maintained by ADOT.

- Maintenance practices for unpaved roads include installation of BMPs, grading, dust control and repair or improvement to the drainage structures.
- Environmental documentation may be required for maintenance activities such as surfacing.
- Consider new materials and techniques such as plant-resin-based soil stabilizers in environmentally sensitive locations.
- Paving of unimproved surfaces should be evaluated as a project, taking into consideration the environmental and social benefits.

Bridges

As discussed in Chapter 5, access for bridge maintenance should be considered during the design process. In order to minimize disturbances to riparian environments, consider performing bridge maintenance from the bridge deck utilizing mechanical lifts. If work in the stream channel is required, clearly mark limits of disturbance: maintenance activities should minimize changes to natural stream channel dynamics and minimize removal of native riparian vegetation.

Fences

Fences are installed along easement lines to control



Figure 11.7 Maintenance of unpaved roads include installation of BMPs.



Figure 11.8 Non-specular steel roadside barrier.

access by vehicles, pedestrians and livestock. ADOT District Maintenance is typically responsible for the maintenance of all easement fences. When damaged by BLM/USFS activities such as logging, fuel wood sales, controlled burns and wildland fires BLM or USFS should repair easement fences to the original or better condition.

Walls

Walls and related structures should be checked regularly for bulges, cracks, settling, or other problems. Where maintenance is required, disturbances to adjacent slopes should be minimized. Maintenance vehicle access should be carefully reviewed prior to onset of work. Waste materials should be hauled to designated waste disposal areas. Disturbed areas should be reviewed for re-seeding.

Roadside Barriers

When required, non-standard roadside barriers (such as non-specular steel, *Figure 11.8*) will be replaced with similar materials. The ADOT districts stockpile non-standard barriers for that purpose. If agreed to at the Meeting and if the district exhausts its inventory of non-standard barriers, any damaged barrier will be repaired with the current standard



Figure 11.9 Snow removal should ensure inert materials do not interfere with drainage structures as the snow melts.

barrier. This standard barrier may be scheduled for replacement by non-standard barrier.

Winter Storm Management Program

It is ADOT's responsibility to keep roads safe and operational during adverse winter weather. ADOT employs various techniques to control snow and ice including snow removal, application of anti-icing/de-icing and abrasive materials, reduction

of shade over travelways and installation of snow fences. Techniques used and amount of material applied vary with storm intensity, season, location, temperatures, etc.

Consistent with the ADOT Winter Storm Management Operations Manual and as a part of the Meeting, ADOT should supply BLM/USFS with annual winter storm management plans that include proposed activities and materials.

Snow Removal

Snow removal operations and route priorities are identified in district-specific snow guidelines. When blading snow to the side of the travelway, ensure that cinders and other inert materials that are also plowed to do not interfere with drainage structures as the snow melts, *Figure 11.9*.

Application of Anti-icing/De-icing and Abrasive Materials

The application of anti-icing/de-icing and abrasive materials may occur prior to, during, and/or after a storm event to prevent ice from bonding to pavement or provide additional traction to snow-covered surfaces. ADOT has a general statewide schedule for application of anti-icing, de-icing, and abrasive materials. This schedule provides



Figure 11.10 Properly located native vegetation can minimize snowdrift.

recommendations for types of materials to be applied based on local soil regimes, water quality and other related factors. Those materials utilized most frequently by ADOT include Sodium Chloride, Magnesium Chloride, Calcium Chloride, Calcium Magnesium Acetate, cinders and sand. Ethylglycol may NOT be used within USFS boundaries.

Shade Reduction

Flattening of slopes and removal of trees and other shade producing structures are long-term options to reduce maintenance expense and improve inclement weather driving conditions.

Snowdrift Control

Since snowdrift is typically a problem in open areas, aesthetics should be considered when selecting the necessary control measures. Properly located native vegetation, *Figure 11.10*, and/or snow fences can both serve as windbreaks to control snowdrift. Color and materials should be reviewed for man-made windbreaks, which should be removed during the off-season.

11.5 EMERGENCY PROCEDURES**Emergency Notification**

Each ADOT District Maintenance Supervisor and BLM/USFS staff should maintain an emergency contact listing for notification in the event of emergency events. Coordination of activities and repairs should be discussed and agreed upon to restore the system to the original state as soon as possible.

Emergency Maintenance Procedures

Maintenance procedures that are required as a result of emergencies or natural disasters generally need to begin immediately after the incident. In order to maintain traffic, protect resources or populations, operations are often implemented in the field without extensive plans or documentation. Emergency relief funding can be offered to agencies to repair damaged facilities. Projects implemented under these circumstances are categorically excluded under NEPA.

Repairs should be prioritized according to a predetermined set of criteria, such as the repair of major structures on the main route, repair of a structures on secondary routes, repair of a drainage systems, revegetation work, etc.

As directed in the Federal-Aid Highway Emergency Relief Program, emergency repairs and maintenance operations should focus on restoring features to their pre-incident state with the least impacts to the area. Features that were not existent prior to the incident should not be added

immediately after an incident with emergency funds. For instance, an undersized culvert should not be upgraded to a bridge following the incident. However, the Program allows consideration of a reasonable level of improvement to make the roadway less susceptible to damage in the future. Therefore, for the example cited above, while a bridge should not replace a damaged pipe (a total change of function), a larger pipe might be an appropriate consideration in making the repairs.

11.6 BLM/USFS MAINTENANCE OPERATION ACTIVITIES

BLM/USFS activities requiring coordination with ADOT District Highway Traffic Division and ADOT District Maintenance Operations include the following and should be reviewed at the Meeting:

- Slash burning and other controlled burns (including back-burning for fire breaks).
- Care must be taken to avoid damage to highway structures such as guardrail, fence and fence supports and signs.
- Logging across highways.
- Temporary road access to highways.
- Maintenance of minor roads intersecting with highways.

Minor BLM/USFS roads provide access to recreational areas, private property, and businesses. Where the vertical alignment of an unpaved minor road slopes toward the highway, storm water runoff can damage highway earthwork and carry sediment and debris onto the road surface, creating a potential driving hazard. Vehicles entering the highway may track unacceptable quantities of mud and debris onto the highway. Therefore, BLM/USFS need to maintain the approaches of these minor roads. Consider surfacing the road with sufficient aggregate to dislodge the mud and debris from wheels before the vehicles enter the highway.

11.7 ADDITIONAL RESOURCES

ADOT Performance Control System (PeCoS)
transport.az.gov/maintenance-performance-guidelines

ADOT Storm Water Program website (including link to Maintenance and Facilities Best Management Practices Manual and Erosion and Pollution Control Manual):
azdot.gov/business/environmental-services-and-planning/water-quality/manuals

State Noxious Weed Lists (R3-4-244 and R3-4-245):
plants.usda.gov/java/noxious?rptType=State&statefips=04

Federal Noxious Weed List:
plants.usda.gov/java/noxious?rptType=Federal

Report 341, Integrated Roadside Vegetation Management, National Cooperative Highway Research Program:
https://books.google.com/books?id=HIE8Kx_8-3UC&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false

Arizona Wildlands Invasive Plant Working Group (AZ-WIPWG): Invasive Non-Native Plants That Threaten Wildlands in Arizona:
swvma.org/wp-content/uploads/Invasive-Non-Native-Plants-that-Threaten-Wildlands-in-Arizona.pdf

AASHTO:
transportation.org/

Roadway Design Guidelines:
azdot.gov/docs/default-source/business/roadway-design-guidelines.pdf

USFS publication “Landscape Aesthetics, A Handbook for Scenery Management”:
<https://www.nrc.gov/docs/ML1224/ML12241A377.pdf>

Environmental Assessment for Management of Noxious Weeds and Hazardous Vegetation on Public Roads on National Forest System Lands in Arizona:
fs.usda.gov/main/r3/landmanagement/projects

Forest Service Pesticide Use Proposal Form and instructions (FS 2100-2):
fs.usda.gov/detail/tonto/landmanagement/resourcemanagement/?cid=fsbdev3_018789

BLM Vegetation Management EIS:
blm.gov/programs/natural-resources

Bureau of Land Management Pesticide Use Proposal Form:
[BLM_Pesticide-Use-Proposal-Form.doc](https://blm.gov/programs/natural-resources/BLM_Pesticide-Use-Proposal-Form.doc)

ADOT Winter Storm Management Environmental Overview and Operations Manual:
azdot.gov/business/environmental-services-and-planning/programs/winter-storm-management

Federal-Aid Highway Emergency Relief Program
fhwa.dot.gov/programadmin/erelief.cfm

Phoenix Interagency Fire Center:
Phone 480.457.1551
az-phc.com/