

ADOT Vegetation Management Guidelines – Prescribed Burning

1.0 Purpose of Prescribed Burning

Prescribed burning is used for removing unwanted plant material or waste such as brush, tumbleweeds, and forest litter to reduce fuel sources for wildfires, or to control brush by non-chemical means. It is also an economic way to dispose of vegetative material when a landfill is far away.

Prescribed burning may be done as a controlled broadcast burn in the right-of-way (ROW), or piles of vegetative waste may be burned either in the ROW or at an ADOT maintenance yard. ADOT uses prescribed burning on a limited scale as a management tool. Due to air quality issues in the Phoenix and Tucson metropolitan areas, prescribed burning is used primarily in the northern regions of the state.



1.0	PURPOSE
2.0	PLANNING
3.0	COORDINATION
4.0	BEST PRACTICES
5.0	EQUIPMENT

Prescribed burns along highway corridors are used mainly for slash (tree) pile disposal, elimination of unwanted plants, destruction of seed beds, and reducing combustible fuels that may start or exacerbate wildfires during the dry season. A side benefit of burning in a grassland biozone is the stimulation of new vegetative growth and the recycling of soil nutrients. Pile burning is more common and entails stacking cut vegetation that is burned when dry. Broadcast burning entails manipulation of fire so that it burns everything within a pre-designated area such as a highway ROW.

2.0 Planning to Burn

Consider the condition of the roadside vegetation and seasonal weather variations, such as temperature and precipitation. Supervisors must also ensure that staff who participate in prescribed burning activities have the appropriate training and personal protective equipment (PPE).

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Vegetation Condition

Burning is effective in the following situations:

- To reduce thatch in fire-adapted grasslands (Plains and Great Basin Grassland; Semidesert Grassland and Chihuahuan Desertscrub)
- To remove accumulated tumbleweeds from roadside areas
- To control woody plants in the recovery zone before they become large
- To dispose of brush piles from the previous year's vegetation clearing (minimum 6 months old so they burn cleanly)
- To clear weed-infested areas as an alternative to herbicide application



Seasonality

The timing of a prescribed fire can have a significant impact on roadside vegetation. Several considerations relative to burning schedules include:

- Burning during hot, dry, windy conditions should be avoided due to wildfire risk.
- Burning during wet conditions should be avoided because excessive smoke can be created.
- Avoid burning during nesting times for local wildlife or critical life cycle periods of pollinators

Frequency

- Burn as infrequently as possible while still accomplishing reduction of fuel loads and weed control.
- Suggested frequency of burning is a minimum of three years between burns and desirably five years.
- Burn sections should be isolated in a patchwork fashion so that refuge areas are nearby for recolonization of the burn area.

Training

All ADOT personnel participating in prescribed burn activities must receive specialized training. Several sources provide training, including federal agencies, the Arizona Division of Forestry and Fire Management (DFFM), and local fire service jurisdictions.

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The Prescribed Fire Manager must complete the following training:

- Firefighter Training (Wildland)
- Introduction to Wildland Fire Behavior
- Introduction to the Incident Command System
- Intermediate Wildland Fire Behavior
- Ignition Operations

In addition, the Prescribed Fire Manager should attend the ADEQ Air Quality Smoke Management meeting and participate in the DFFM and Arizona Division of Emergency Management Annual Wildland Fire Exercise if available.

All other crew members must complete the following training:

- Introduction to Wildland Fire Behavior
- Introduction to the Incident Command System
- Firefighter Training (Wildland) is required for crew members participating in controlled broadcast or pile burning in the ROW, and recommended for crew members participating in ROW tumbleweed and yard pile burning.

The ADOT Emergency Management intranet page contains more information on policies and training: <https://adotnet.az.gov/our-agency/tsmo/traffic-management-group/emergency-management>.

3.0 Activity Coordination

Interagency Coordination

Prescribed burning activities must comply with environmental laws and regulations, which may vary depending on the location and type of burning activities. Compliance with environmental laws requires coordination with District Environmental Coordinators (DEC), and/or Environmental Planning.

For controlled broadcast or ROW pile burning, the Prescribed Fire Manager shall:

- Provide a scope of work and submit a maintenance work order request through the DEC for environmental review at least six (6) weeks prior to the burn
- Submit a burn plan to ADEQ 14 days before planned ignition and forward a copy of the ADEQ burn plan to the DEC who can work with the Emergency Coordinator and/or Environmental Planning if necessary to meet the environmental clearance requirements; obtain written approval of the plan from ADEQ (burn permit)
- Contact the county in which the burn is to take place to determine if a burn permit is required
- If the burn is located within a municipal boundary or Tribal Nation, the jurisdiction must be contacted to determine if a burn permit is required
- Submit an ADEQ Daily Burn Form to ADEQ Smoke Management by 2 p.m. of the business day before the date of the planned ignition
- Notify the State Forestry Dispatch Center of the burn (800-309-7081)

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- Notify the Arizona State Land Department and local fire departments prior to ignition and after the burn/fire has been extinguished
- Submit an ADEQ Daily Burn Accomplishment Form to ADEQ Smoke Management by 2 p.m. of the business day following the date of an approved ignition

For tumbleweed burning, the Maintenance Supervisor or designee shall:

- Obtain District permission for the activity
- Consult and complete any documentation and permits with assistance from the DEC
- Notify the State Forestry Dispatch Center of the burn (800-309-7081)
- Follow the terms and conditions in the ADEQ Normal Open Burn Permit and/or county and local permits

For maintenance yard pile burning, the Maintenance Supervisor or designee shall:

- Consult and complete any documentation and permits with assistance from the DEC
- Follow the terms and conditions in the ADEQ Normal Open Burn Permit and/or county and local permits



Tumbleweed burning from gathering tumbleweeds (upper left) through completion of burning (bottom right).

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4.0 Best Practices for Burning

Burning can have far-reaching consequences, so it is important to follow best practices.

- Verify that pre-burn prescription parameters have been met
- For controlled broadcast and right-of-way prescribed fires, establish and discuss LCES before firing: establish lookouts (L), confirm communication (C) methods, define escape (E) routes, and establish safety (S) zones
- In most cases, the paved or milled shoulder of the highway should be used as a safety zone; however, highway travel lanes cannot be identified or used as a safety zone unless the lane is blocked
- Set up safety devices and signs per the current edition of the MUTCD
- Ensure equipment is operational
- Take weather readings; calculate fuel moisture
- Protect traffic signs, milepost/kilometers signs, delineators, guardrails and other highway fixtures
- Apply water to sensitive areas just prior to ignition
- Surfactants or wetting agents may be used with water for wet lines (if approved)
- While burning, a water truck with a minimum of 200 gallons will be present on job location in ADOT yards and a minimum of 1000 gallons for job locations on ADOT ROW for control purposes.
- Brush piles must not be higher than five (5) feet, no longer than 20 feet, and no wider than 20 feet
- When burning maintenance yard piles, do not burn materials most likely to produce toxic smoke such as chemically treated wood, tires, batteries, hazardous waste product, asphalt shingles, asbestos, explosives, or ammunition
- Ensure water trucks are fully functional before igniting fire
- Test fire a small pile and monitor the smoke plume
- Burn out line and set strip fires
- Manage smoke to prevent visibility issues for the traveling public
- Completely extinguish or control fire before leaving site each day
- Remove safety devices and signs



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5.0 Equipment

Vehicles

- Heavy Dump Truck 10 yd
- Grader
- Dozer
- Loader
- Pickup ¾ ton with 200 gallon spray skid
- Truck: Herbicide 3 axle 6 x 4 with 300 gallon spray skid
- Chipper
- 2,500-gallon large spray truck
- Trailer, Large
- Skid steer
- ATV

Hand and Power Tools

- McLeod
- Pulaski
- Combination-tool
- Shovel
- Pitchfork
- Axe
- Chainsaw
- Rake
- Portable or two-way radios

Personal Protective Equipment (PPE) for Controlled Broadcast or Right-of-way Pile Burn

- Nomex pants and shirt
- Hardhat
- Wildland firefighting boots
- Leather gloves
- Goggles or other protective eyewear
- Daypack (optional)
- Face/neck shroud or visor (optional)
- N95 respirator (optional)

Personal Protective Equipment (PPE) for Piled Tumbleweeds or Yard Pile Burning

- Normal work clothing including long work pants with long-sleeved shirt
- Protective footwear
- Leather gloves
- Goggles
- Nomex pants and shirt (optional)
- Hardhat (optional)
- Wildland firefighting boots (optional)
- Face/neck shroud or visor (optional)
- N95 respirator (optional)

