

ADOT Vegetation Management Guidelines - Revegetation

1.0 Purpose of Revegetation

A healthy cover of native vegetation, established through various revegetation techniques, provides these benefits:

- Helps to stabilize soil and prevent erosion from wind or water.
- Helps to control weeds
- Fills in areas after weed removal or repair of erosion damage
- Contributes to the visual quality of the roadside and natural native plant succession
- Provides habitat for pollinators and other wildlife (in the taller vegetation past the recovery zone)

1.0	PURPOSE
2.0	PLANNING
3.0	COORDINATION
4.0	BEST PRACTICES

Revegetation may be accomplished by seeding, planting of salvaged or nursery-grown plants, or a combination of both. During maintenance activities, seeding is the main revegetation technique outside urban areas. In landscaped areas associated with urban roadways, revegetation with container plantings is done to replace trees, shrubs, and groundcovers that are dead or severely damaged due to disease, lightning, traffic damage, or other problems. In rural areas, containerized or bare root plantings may be planted to replace plants removed for repairs, provide habitat, create a living snow fence, control blowing dust, and/or provide sand abatement.



Benefits of roadside revegetation include soil stabilization, weed control, habitat for pollinators, and improved visual quality.

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2.0 Planning for Revegetation

Seed Mixes

ADOT seed mixes contain both grasses and forbs (broad-leaf annual and perennial plants) that germinate in cool and warm season conditions. It is important to include species of forbs which establish and provide soil cover more quickly than grasses and have long-lived seed that can survive in the soil seed bank until weather conditions are ideal for germination. Established forbs also tend to survive extended drought conditions better than many grass species. Consult ADOT Roadside Development or refer to the Special Provisions for seeding from a recent nearby construction project to establish an appropriate seed mix for maintenance projects.



WHO TO CALL WITH QUESTIONS

District Environmental Coordinator

Design Landscape Architect – ADOT Roadway Engineering

Construction Landscape Architect –ADOT Construction Group

Roadside Development webpage

<https://www.azdot.gov/business/engineering-and-construction/roadway-engineering/roadside-development>

The best timing for container plantings depends on the species and location. Contact an ADOT landscape architect for advice and consult ADOT standard drawings for the species installation. Generally, plants should be planted in the early fall or spring for best results. In the low desert areas, wintertime planting is also feasible for some species. Except in situations where supplemental irrigation is available, summertime planting should be avoided because of the additional stress that high temperatures place on the new transplants.

3.0 Activity Coordination

Intra-agency Coordination

The Maintenance Supervisor will coordinate with the DEC prior to maintenance earthwork in order to prepare a storm water pollution prevention plan if the area is greater than five (5) acres.

The Maintenance Supervisor will also coordinate with the ADOT landscape architect to determine the location of plantings in accordance with recovery area standards, snow fence configuration, prevailing wind direction, and sight distance parameters.

Contact Roadside Development for seeding and site preparation guidelines for hydroseeding, hydromulching, tillage, and broadcast seeding.

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4.0 Best Practices for Revegetation

General

- Refer to the original construction documents to determine what the original landscape plants (in an urban situation) or revegetation practices (in a rural situation) were specified
- Final Record Drawings for completed construction projects are available from ADOT's ROAD Portal (<https://road.azdot.gov/>);
- The ADOT special provisions for seeding in the bid package from a previous construction project - found in the Arizona Information Data Warehouse (<http://aidw.aidw2/>) - can provide guidance on appropriate revegetation techniques
- Install erosion control features, as necessary, prior to commencing revegetation activities
- Stay within the disturbed area and minimize creation of additional access roads to reduce ground disturbance
- Place safety devices and signs prior to revegetation work
- Personnel are required to wear proper personal protective equipment
- Remove safety devices and signs upon completion of work

Tillage

- Till to a minimum depth of six (6) inches
- Follow natural contours
- Avoid tilling soils that are either very dry or saturated
- Leave seedbed in roughened condition
- Till with a chisel plow or ripper bar, with chisels no more than 12 inches apart
- Seed as soon as possible after tilling using site-specific native seed specifications



Tilled seedbed

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Hydroseeding

- Hydroseed with a slurry of seed, fertilizer, mulch, and water, at a rate specified by the Special Provisions or as recommended by the ADOT landscape architect, onto a prepared and roughened site.
- Service the pump and engine as necessary
- Load tank no more than 15 minutes before spraying
- Check pipes and valves after each load
- Spray in even swaths
- Avoid wind drift of hydroseed spray into watercourses or onto roadway, traffic control signs or plants



Hydroseeding

Broadcast Seeding

Broadcast seed with hand held or electric broadcast seeder into prepared seedbed or onto roughened soil surface

- When necessary, add vermiculite as a carrier for fine and fluffy seeds
- Broadcast seed onto roughened soil to prevent seed loss
- Avoid broadcasting onto very dry or saturated soils
- Include dry timed-release fertilizer and other amendments as needed
- Rake or drag seedbed after seeding

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Hydrostraw mulching

- Use weed-free straw
- Apply straw and tackifier by means of hydroseeder to seeded sites in order to provide a mulch cover to a seedbed for germination and erosion control
- Do not use wood fiber for hydromulching. ADOT research shows it prevents moisture penetration to the soil which inhibits germination of seeds.
- Refer to the seeding special provisions for a recent nearby construction project or consult Roadside Development to determine the application rate for straw and tackifier, which varies with the slope.
- Load tank no more than 15 minutes before spraying
- Avoid wind drift of hydromulch spray onto roadway
- Spray in even swaths



Tag for weed-free straw



Hydromulching

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Hydrostraw mulch and tackifier applied to slope

Tacked Straw Mulch and Crimping

- Apply straw and spray a liquid tackifier into a prepared seedbed to provide temporary soil stabilization until germination of seeds
- Use weed-free straw



Roadside revegetation

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Container Plantings – Rural Areas

- Contact an ADOT Landscape Architect – either Roadside Development or Construction - for a planting plan
- Use native plant species
- Excavate holes to the proper depth per ADOT standard drawings for the plant species
- Plant according to accepted standards for the plant species

Container Plantings – Urban Landscapes

- Refer to the original landscape plans for appropriate plant species and placement
- Prepare planting pits
- Add amendments to backfill as needed
- Set trees, shrubs, groundcover at proper depth and backfill per ADOT specifications and details
- Install stakes, guys (for trees) and drip irrigation emitters
- Adjust irrigation schedule to establish new plants
- Clean and rake area

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