APPENDIX D

Primitive Road Maintenance Guidelines
Middle Gila Canyons Transportation and Travel Management Plan

1. **Transportation Assets:**
   BLM transportation guidance (TN22)\(^1\) provides definitions for transportation routes including roads, primitive roads, and trail, and the maintenance intensity classes for transportation assets. These definitions are used in the Middle Gila Canyons Transportation and Travel Management Plan.

   a. **Road:** A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.

   b. **Primitive Road:** A linear route managed for use by four-wheel drive or high-clearance vehicles. Primitive roads do not normally meet any BLM road design standards.

   c. **Trail:** A linear route managed for human-powered, stock, or off-highway vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.

2. **Maintenance Intensities - Transportation System Assets:**
   BLM Route Maintenance Intensities provide guidance for appropriate “standards of care” to recognized routes within the BLM. Recognized Routes by definition include Roads, Primitive Roads, and Trails carried as Assets within the Bureau of Land Management Facility Asset Management System (FAMS).

   Maintenance Intensities provide consistent objectives and standards for the care and maintenance of BLM routes according to identified management objectives. Maintenance Intensities are consistent with land-use planning management objectives (for example, natural, cultural, recreation setting, and visual).

   Maintenance Intensities provide operational guidance to field personnel on the appropriate intensity, frequency, and type of maintenance activities that should be undertaken to keep the route in acceptable condition and provide guidance for the minimum standards of care for the annual maintenance of a route.

   Maintenance Intensities do not describe route geometry, types of route, types of use, or other physical or managerial characteristics of the route. Those items are addressed as other descriptive attributes to a route.

   Maintenance Intensities provide a range of objectives and standards, from “identification for removal” through frequent and intensive maintenance.

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a. **Level 0 Maintenance Description:** Existing routes that will no longer be maintained or declared as routes. Routes identified as Level 0 are identified for removal from the transportation System entirely.

**Maintenance Objectives:** No planned annual maintenance. Meet identified environmental needs. No preventive maintenance or planned annual maintenance activities

**Maintenance Funds:** No annual maintenance funds

b. **Level 1 Maintenance Description:** Routes where minimal (low-intensity) maintenance is required to protect adjacent lands and resource values. These roads may be impassable for extended periods of time.

**Maintenance Objectives:** Low (Minimal) maintenance intensity. Emphasis is given to maintaining drainage and runoff patterns as needed to protect adjacent lands. Grading, brushing, or slide removal is not performed unless route bed drainage is being adversely affected, causing erosion.

Meet identified resource management objectives. Perform maintenance as necessary to protect adjacent lands and resource values. No preventive maintenance. Planned maintenance activities limited to environmental and resource protection. Route surface and other physical features are not maintained for regular traffic.

**Maintenance Funds:** Maintenance funds provided to address environmental and resource protection requirements. No maintenance funds provided to perform preventive maintenance.

c. **Level 2 RESERVED FOR POSSIBLE FUTURE USE**

d. **Level 3 Maintenance Description:** Routes requiring moderate maintenance because of low-volume use (e.g., seasonally or year-round for commercial, recreational, or administrative access). Maintenance Intensities may not provide year-round access, but are intended to generally provide resources appropriate for keeping the route in use for the majority of the year.

**Maintenance Objectives:** Medium (Moderate) maintenance intensity. Drainage structures will be maintained as needed. Surface maintenance will be conducted to provide a reasonable level of riding comfort at prudent speeds for the route conditions and intended use. Brushing is conducted as needed to improve sight distance when appropriate for management uses. Landslides adversely affecting drainage receive high priority for removal; otherwise, they will be removed on a scheduled basis.

Meet identified environmental needs. Generally maintained for year-round traffic. Perform annual maintenance necessary to protect adjacent lands and resource values.
Perform preventive maintenance as required to generally keep the route in acceptable condition. Planned maintenance activities should include environmental and resource protection efforts, annual route surface. Route surface and other physical features are maintained for regular traffic.

**Maintenance Funds:** Maintenance funds provided to preserve the route in the present condition, perform planned preventive maintenance activities on a scheduled basis, and address environmental and resource protection requirements.

e. **Level 4 RESERVED FOR POSSIBLE FUTURE USE**

f. **Level 5 Maintenance Description:** Routes for high (Maximum) maintenance because of year-round needs, high-volume traffic, or significant use. Also may include routes identified through management objectives as requiring high intensities of maintenance or to be maintained open year-round.

**Maintenance Objectives:** High (Maximum) maintenance intensity. The entire route will be maintained at least annually. Problems will be repaired as discovered. These routes may be closed or have limited access because of weather conditions but are generally intended for year-round use.

Meet identified environmental needs. Generally maintained for year-round traffic. Perform annual maintenance necessary to protect adjacent lands and resource values. Perform preventive maintenance as required to generally keep the route in acceptable condition. Planned maintenance activities should include environmental and resource protection efforts, annual route surface. Route surface and other physical features are maintained for regular traffic.

**Maintenance Funds:** Maintenance funds provided to preserve the route in the present condition, perform planned preventive maintenance activities on a scheduled basis, and address environmental and resource protection requirements.

3. **Proposed Primitive Road Maintenance Guidelines:**
The road and trail network in the planning area includes a wide range of route conditions and characteristics that are important to recreational users, the type of vehicle, the type of use and overall experience of visitors. They vary greatly in grade, width, roughness, alignment, clearance and overall use-ability ranging from passenger cars, light trucks, to stock 4WD high clearance vehicle, to routes requiring use of all terrain vehicles only, or other OHVs with extremely capable equipment and driving skill.

The proposed primitive road maintenance guidelines include three classes depending on the functional characteristics and use of a route: A- Semi-Primitive Road, B- Primitive Road, and C- Extreme Primitive Road as described below.

The maintenance guideline classes characterize the physical condition of the transportation routes, the driving experience, the maintenance and construction costs, travel times, vehicle
usability, environmental impacts, and right-of-way needs associated with the different types of motorized routes.

The proposed guidelines can be applied to an existing route to determine its character, and can also be applied to describe the planned or desired condition of a route given its intended purpose.

A. Typical Road:

Figure A. Typical Road: Typically a main access route from federal/state highways to portal staging area on public lands. Road standards are in accordance to ASHTTO standards for low volume roads\(^2\), or applicable county road standards.

- Functional class: ‘Collector’, ‘Local’ or ‘Resource’.
- Maintenance intensity: Level 5.
- Traffic type includes all vehicle types (passenger car, motor home, trailer towing vehicles, heavy trucks and equipment).
- Traffic volume varies depending on time of year, type of route and location. Engineering analysis required when volume at daily traffic levels of 150 to 250 vehicles.
- Speed: 35 MPH or higher.
- Cut and Fill Banks: Graded 3:1, or at angle of repose depending on soil conditions. Allow natural revegetation outside ditch.
- Travel way width: 24’, two lanes (plus 1:3 ditch one or both sides).
- Curves and alignment: Open broad curves, rolling vertical curves; large radius over 200 ft., per engineering analysis

i. Driving surface: Asphalt or aggregate pavement, depending on engineering analysis.

j. Grades: Flat to moderate, 12% max.

k. Drainage: Open or confined by berms, waterbars and turnout ditches at intervals depending on natural drainage patterns and soil type. Low water crossings typically, with culverts if necessary.

l. Vegetation clearance: Side clearance 4’ from edge of roadway, 16’ overhead clearance.

Construction/maintenance: Access by standard road maintenance equipment (motor grader, water truck, backhoe and 12-20 yd dump truck).  

Supplement BLM road standards in BLM H-9130 by adopting ASHTO road standards for low volume roads for maintenance and construction related to resource extraction and recreational traffic over 100 ADT. These standards would be applied if/when road improvement projects on the designated main access roads.

B. Typical Class A-Semi-Primitive Road:

Figure B. Typical Class A-Semi-Primitive Road: Typically a main access route from portal areas into back country, two way travel, driving for pleasure, sightseeing opportunities, general sportman access, connecting access points and destinations.

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3 Typical BLM Force Account construction equipment currently used for road maintenance.
a. Functional class: ‘Local’ or ‘Resource’.
b. Maintenance intensity: Level 3.
c. Traffic type predominantly high clearance vehicles, may require 4WD, not maintained for travel trailer or passenger car access.
d. Traffic volume varies depending on time of year, type of route and location. ADT 50 to 150 vehicles during peak times (fall-winter-spring weekends, holidays).
e. Speed: 25 MPH.
f. Cut and Fill Banks: At angle of repose depending on soil conditions. Allow natural revegetation.
g. Travel way width: 14’ with turnouts or spot widening.
h. Curves and alignment: Tight vertical and horizontal curves common, radius <35’
i. Driving surface: Roughness <6", loose or compacted base. Composition natural soil (bedrock, stone/cobble, gravel, sand or silt, depending on soil type).
j. Grades: moderate to steep grades depending on topography (12% to 18%).
k. Drainage: Open or confined by berms, waterbars and turnout ditches at intervals depending natural drainage patterns and soil type. Low water crossings typically, with culverts in spots.
l. Vegetation clearance: Minimal (14’ to 18’) side clearance, 12’ overhead clearance. Plant growth up to edge of travelway.
m. Construction/maintenance: Access by small equipment (small dozer D4, backhoe and 12CY dump truck)⁴.

⁴ Typical BLM Force Account construction equipment currently used for road maintenance.
C. **Typical Class B-Primitive Road:**

- **Figure C.** Typical Class B-Primitive Road: arrow single lane recreational and other traffic by 4WD and OHV related to general administrative and recreational access, driving for pleasure, sightseeing opportunities. Not intended to accommodate passenger cars, but two may be passable by wheel drive high clearance standard vehicles. May be improved to semi-primitive road guidelines to meet temporary, or changing access needs.

  - c. Traffic type predominantly high clearance 4WD vehicles, and OHVs (ATV, UTV, motorcycle).
  - d. Traffic volume varies depending on time of year, type of route and location. ADT 50 to 150 vehicles during peak times (fall-winter-spring weekends, holidays, and events).
  - e. Speed: 15 MPH.
  - f. Cut and Fill Banks: At angle of repose depending on soil conditions. Allow natural revegetation.
  - g. Travel way width: 10’ with turnouts or spot widening.
  - h. Curves and alignment: Tight horizontal and vertical curves common, radius <25’,
  - i. Driving surface: Roughness < 6”, loose or compacted base. Composition natural soil (bedrock, stone/cobble, gravel, sand or silt, depending on soil type).
  - j. Grades: moderate to steep grades depending on topography (12% to 18%).
k. Drainage: Open or confined by berms, waterbars and turnout ditches at intervals depending on natural drainage patterns and soil type. Low water crossings typically, with culverts in spots.
l. Vegetation clearance: Minimal (10 to 12 ft.) side clearance. 9’ overhead. Plant growth up to edge of travelway or ditch.
m. Construction/maintenance: Access by small equipment (small dozer D4, mini excavator, Sweco)

D. Typical Class C-Extreme Primitive Road:

![Figure D. Typical Class C-Primitive Road: Narrow single lane recreational OHV traffic related to driving for challenge and skill, extreme sport 4WD opportunities. Passing turnouts or spot widening as needed; special equipment and skill requirements, use restrictions.]

- b. Maintenance intensity: Level 1 - 3.
- c. Traffic type: Limited to high clearance 4WD vehicles and OHVs with special equipment requirements (4WD, ATV, UTV, trials motorcycle).
- d. Traffic volume varies depending on time of year, type of route and location. ADT < 25 during peak times (fall-winter-spring weekends, holidays, events).
- e. Speed: Under 1 MPH.
f. Cut and Fill Banks: At angle of repose depending on soil conditions. Allow natural revegetation.
g. Travel way width: 10’ with turnouts or spot widening.
h. Curves and alignment: Sharp horizontal and vertical curves common, radius <25’.
i. Driving surface: Roughness >36", loose or compacted base, bedrock, vertical drop-offs or ledges, boulders. Composition natural soil (bedrock, stone/cobble, gravel, sand).
j. Grades: steep to extreme grades 100% for short ledge climbs.
k. Drainage: Open or confined by drainage banks, route may be in ditch/channel.
l. Vegetation clearance: Minimal (H: 9’ x V: 9’). Plant growth up to edge of travelway.
m. Construction/maintenance: Limited access by small equipment (small dozer D4, excavator, Sweco)