

Tahoe Unsurfaced Roads Workshop
UC Cooperative Extension / SAF / TRPA / LWQCB / CGS / USFS

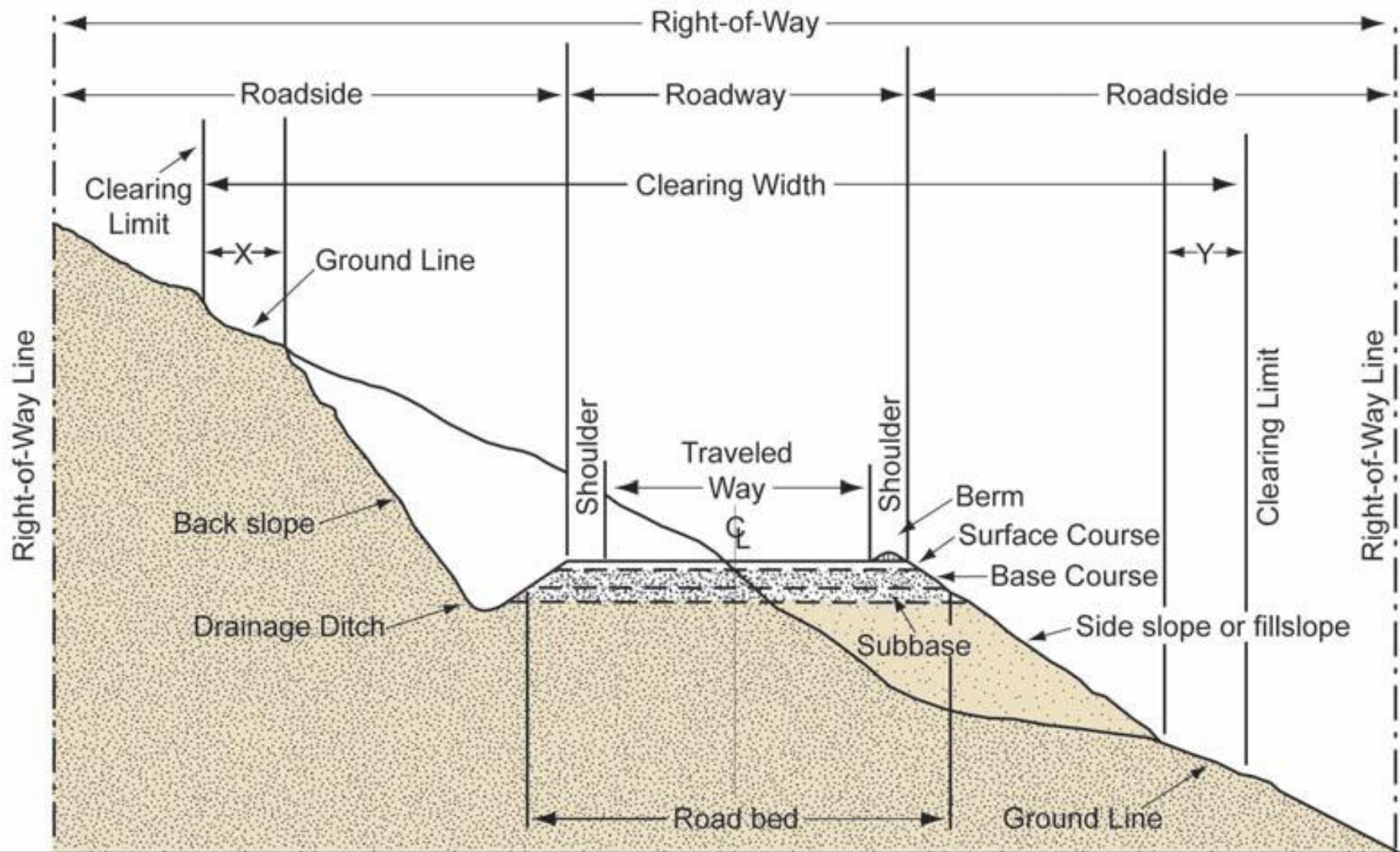
Road Standards, Maintenance Levels, and Road Uses



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Note: Shapes and dimensions will vary to fit local conditions.
 See drawings for typical sections.
 X and Y denote clearing outside of the final design cross section.



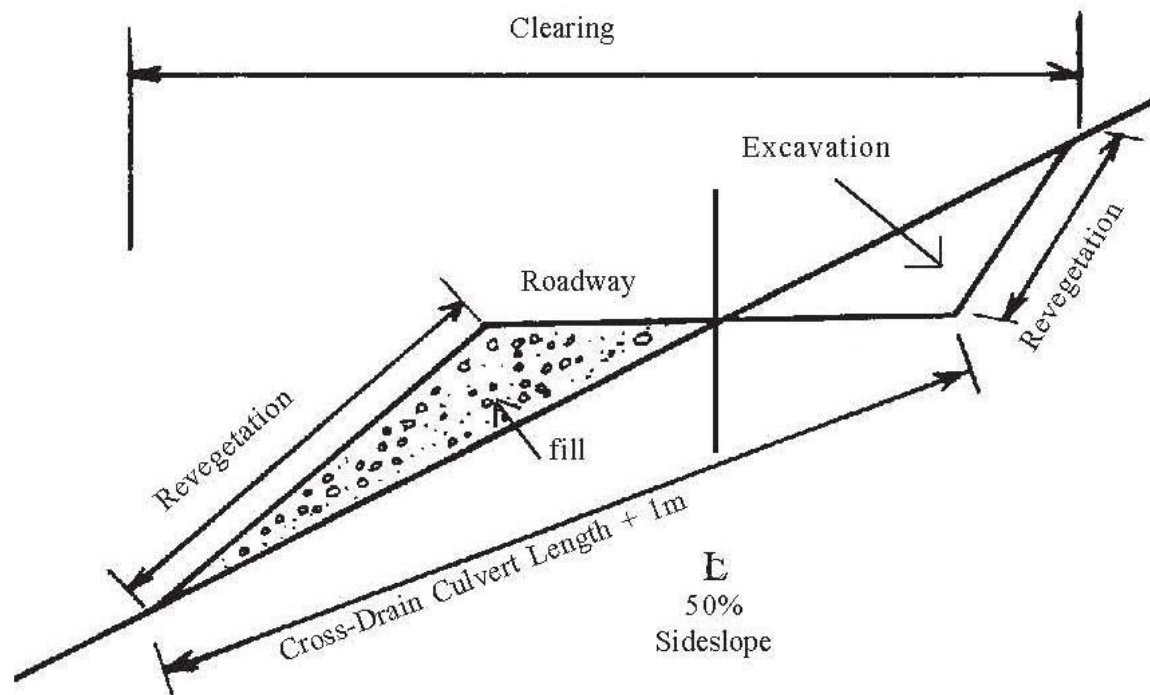
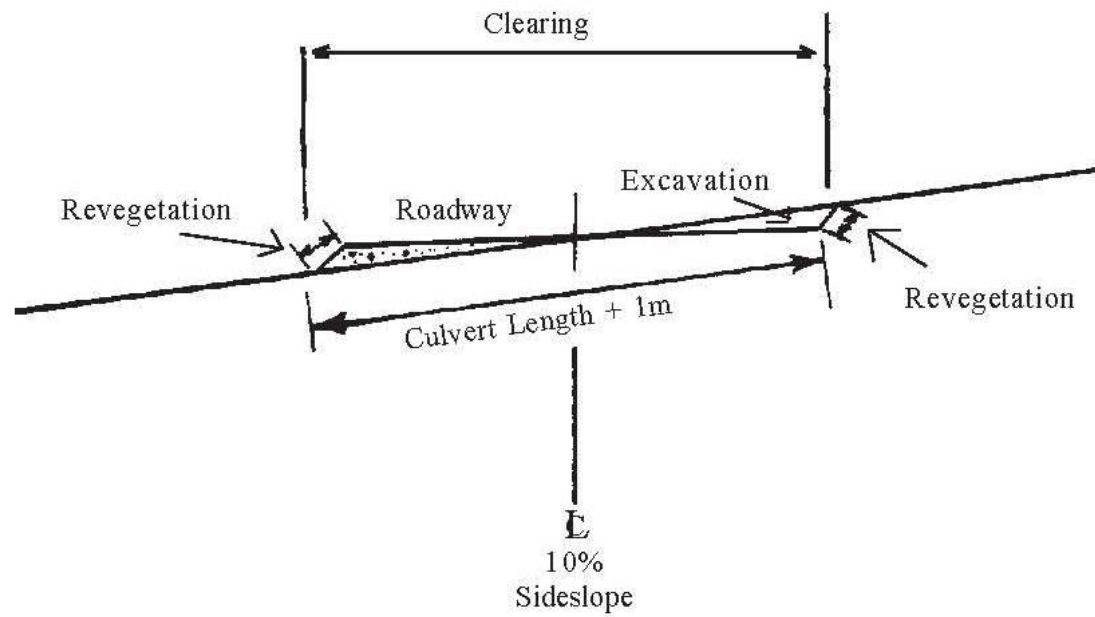
ROAD STANDARDS

- Design Speed
- Road Width
- Maximum Grades
- Curve Radius
- Shoulders?
- Surface Drainage Type
- Surfacing Type

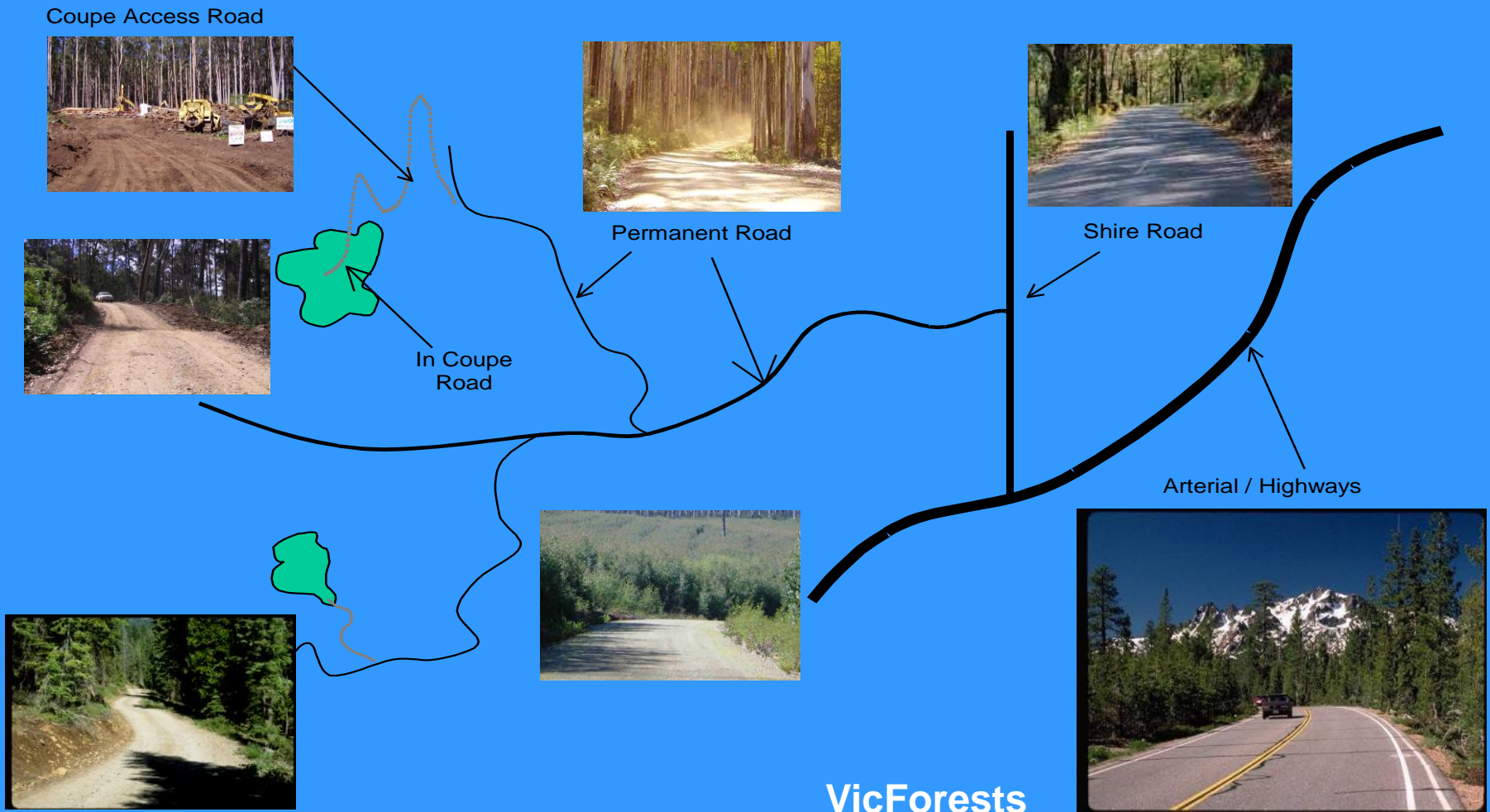


Typical Design Standards for Low-Volume Roads

Aspect of Design	Type of Road	
	Rural Road	Collector Road
Design Speed	35 kph	60 kph
Design Load (AASHTO)	H 15	H 20
Road Width	4.0 m	5.5 m (minimum)
Shoulders	None	0.5 m
Road Grade:		
-Maximum Favorable	15%	12%
-Maximum Adverse	12%	10%
Horizontal Curve Radius	15 m (minimum)	25 m (minimum)
Crown/Shape	Outsloped (5% minimum)	Crown (±3% minimum)
Types of Drainages	Transverse Pipes and Rolling Dips	Pipe Culvert Cross-drains
Riding Surface	Native Soil	±15 cm Gravel




Road Planning



**AASHTO
Guidelines for
Geometric Design
of Very
Low-Volume Local
Roads
($ADT \leq 400$)**

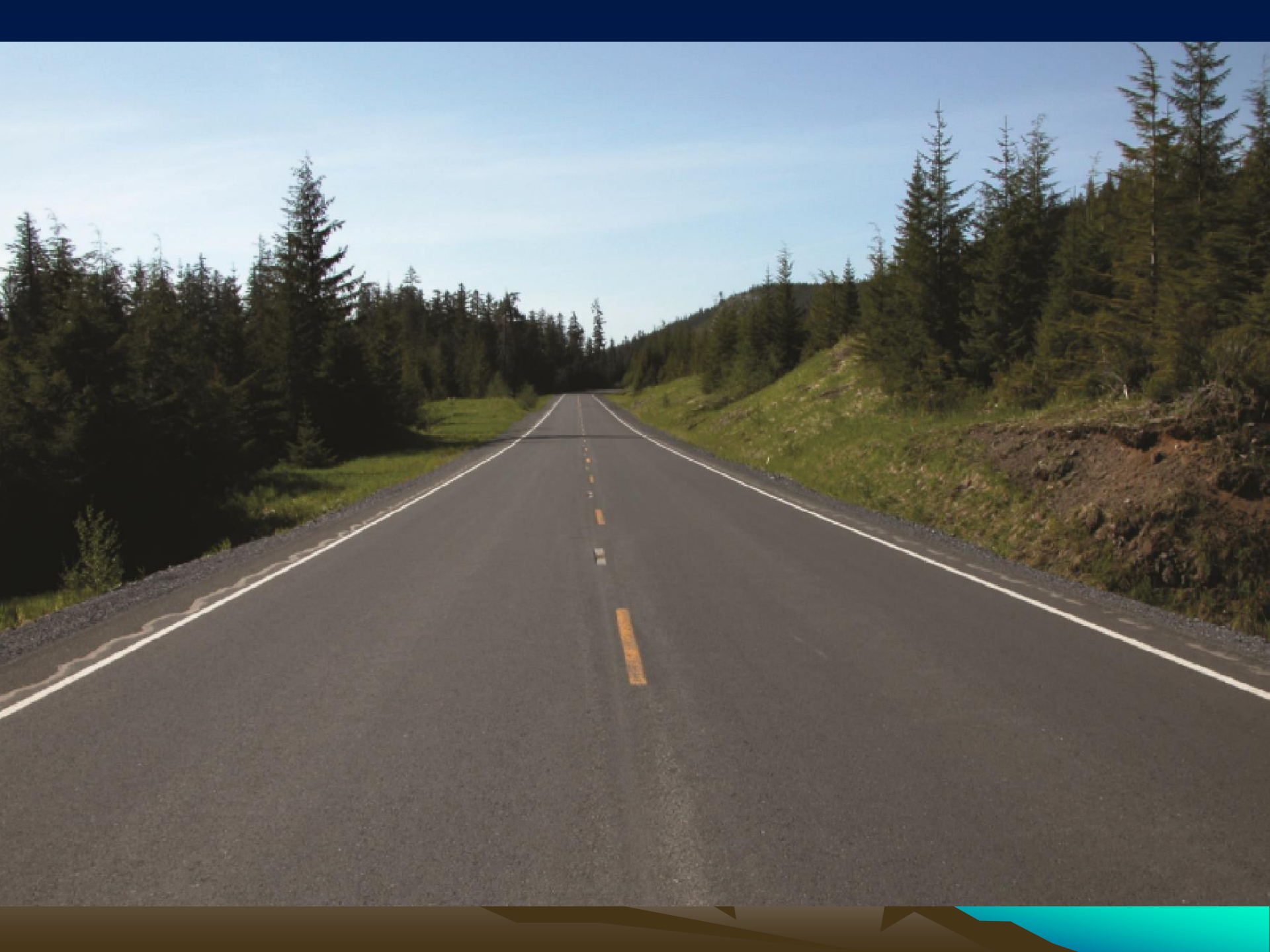
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ROAD MAINTENANCE LEVELS

- Consider the following factors when selecting maintenance levels:
 - 1. Road Management Objectives.
 - 4. User safety.
 - 5. Volume, type, class, of traffic.
 - 6. Surface type.
 - 7. Travel speed.
 - 8. User comfort and convenience.
- 

MAINTENANCE LEVEL 5

- Assigned to roads that provide a high degree of user comfort and convenience. These roads are **normally smooth, double lane, paved facilities**. Some may be aggregate surfaced and dust abated. Manual on Uniform Traffic Control Devices is applicable.
- Have **high traffic volume and speed**.
- **Usually an arterial or collector**, and connect to State or County roads.



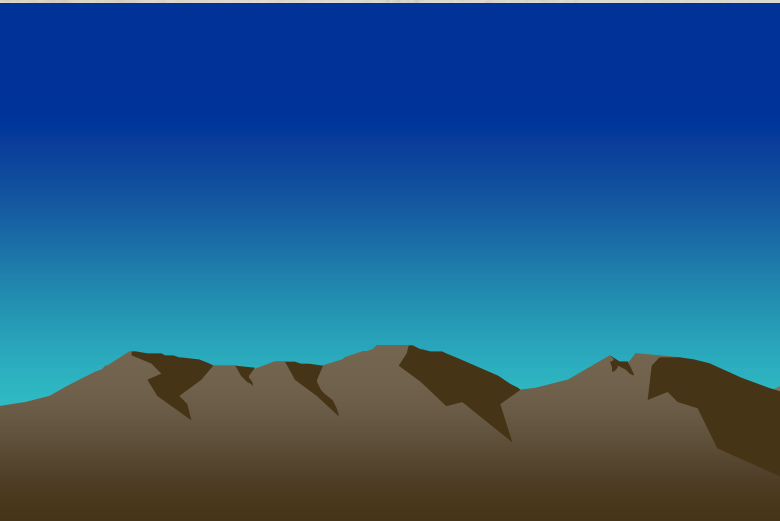












Hong Miao Li, Fuzhou, China

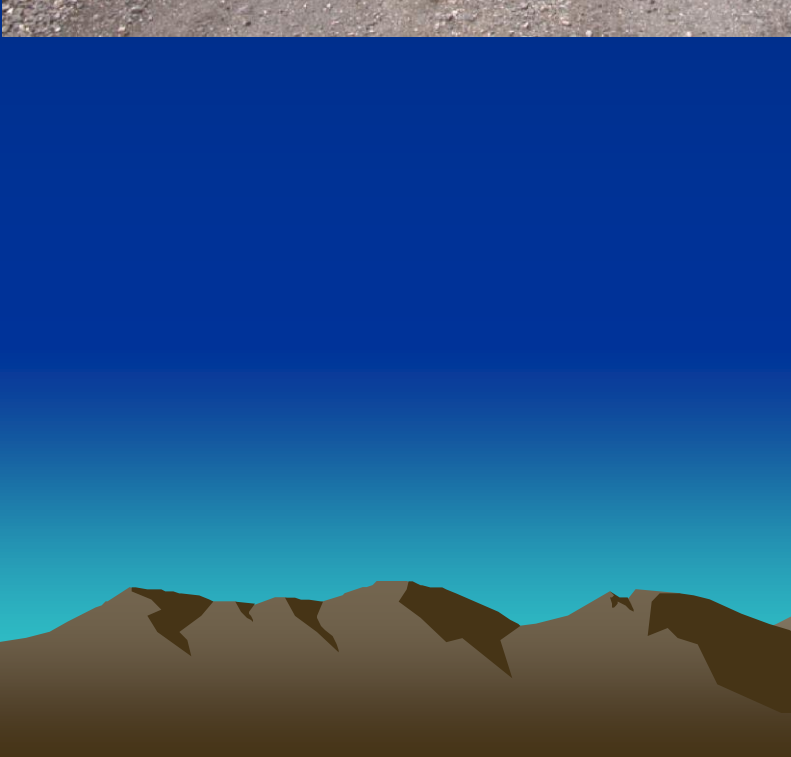
MAINTENANCE LEVEL 4

- Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double lane and aggregate surfaced. However, some roads may be single lane. Some roads may be paved and/or dust abated. Manual on Uniform Traffic Control Devices is applicable.
- Usually are collector roads and often connect to State/County roads.











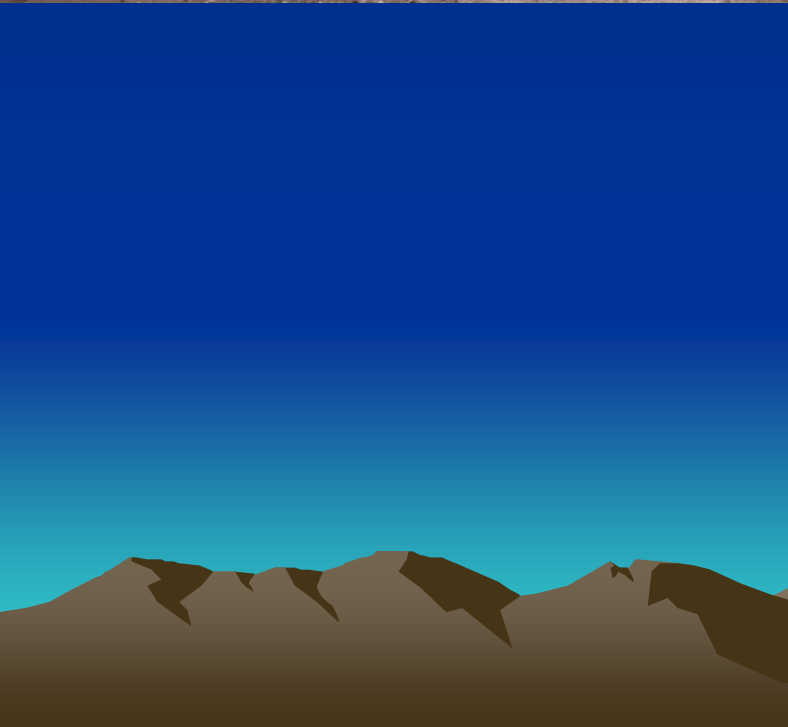
MAINTENANCE LEVEL 3

- Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities. The Manual on Uniform Traffic Control Devices (MUTCD) is applicable.
- Warning signs and traffic control devices are provided to alert motorists of situations that may violate expectations.
- Roads in this maintenance level are typically low speed with single lanes and turnouts.
- Low to moderate traffic volume.
- Often gravel surface. May be native surface.















MAINTENANCE LEVEL 2

- Assigned to roads open for **use by high clearance vehicles**. Passenger car traffic, user comfort, and user convenience are not considerations. Warning signs and traffic control devices are not provided with the exception that some signing, such as W-18-1 “No Traffic Signs,” may be posted at intersections. Motorists should have no expectations of being alerted to potential hazards while driving these roads.
- **Traffic is normally minor**, usually consisting of one or a combination of administrative, permitted, dispersed recreation, or other specialized uses. Log haul may occur at this level.
- **Typically Local roads** that connect to Collectors











MAINTENANCE LEVEL 1

- These are roads that have been placed in storage between intermittent uses. The period of storage must exceed one year. Basic custodial maintenance is performed to prevent damage to adjacent resources and to perpetuate the road for future resource management needs. Emphasis is normally given to maintaining drainage facilities and runoff patterns.
- Planned road deterioration may occur. Appropriate traffic management strategies are "prohibit" and "eliminate" traffic. Entrance is blocked.
- These roads are not shown on motor vehicle use maps. They may have non-motorized uses.

ROADS IN STORAGE











CLOSED ROADS

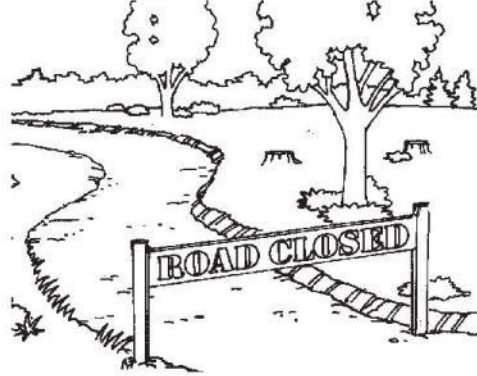


Road Closure and Control

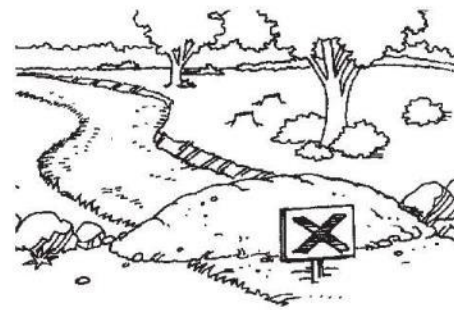


DECOMMISSIONED AND OBLITERATED ROADS





a. Gate Closure (Temporary)

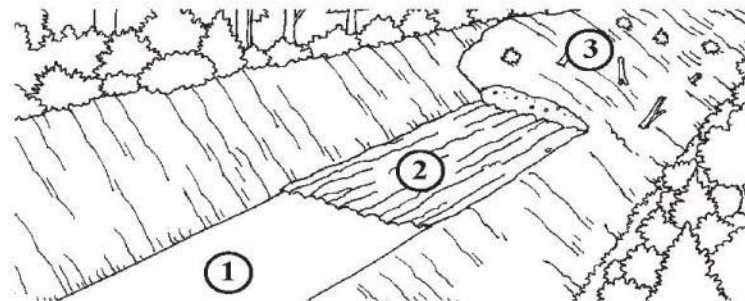


b. Earth Mound or Berm Closure (Temporary)



c. Decommissioning - Permanent Road Closure with Surface Scarification and Seeding for Revegetation, but Keeping Most of Road Template (Shape).

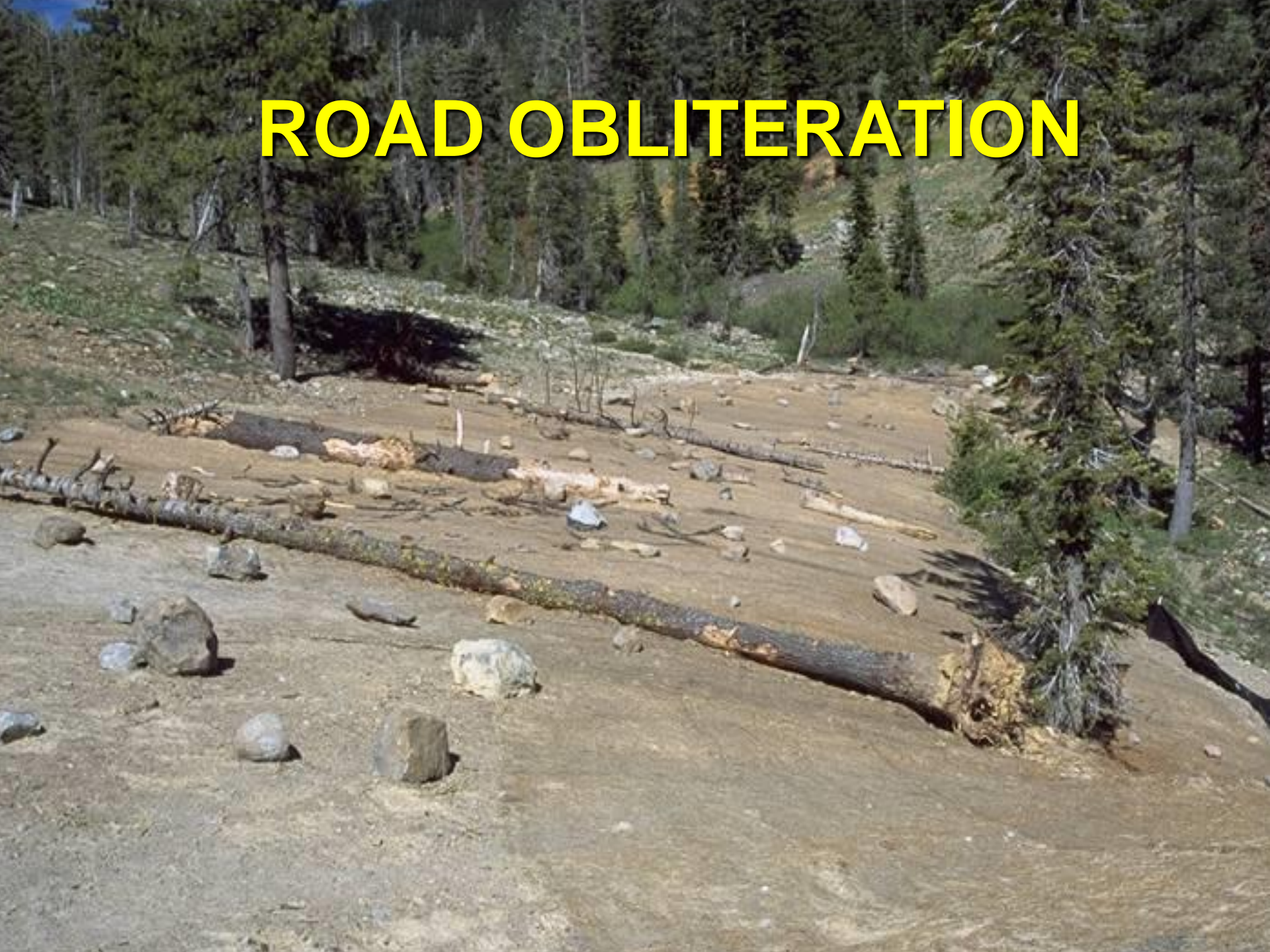
- (1) Road template before obliteration.
- (2) During obliteration, old road is scarified and refilled.
- (3) Final obliteration, with filling and recontouring to the original natural topography, followed by revegetation.



d. Road Obliteration



ROAD OBLITERATION







OTHER ROAD CLOSURE OR CONTROL

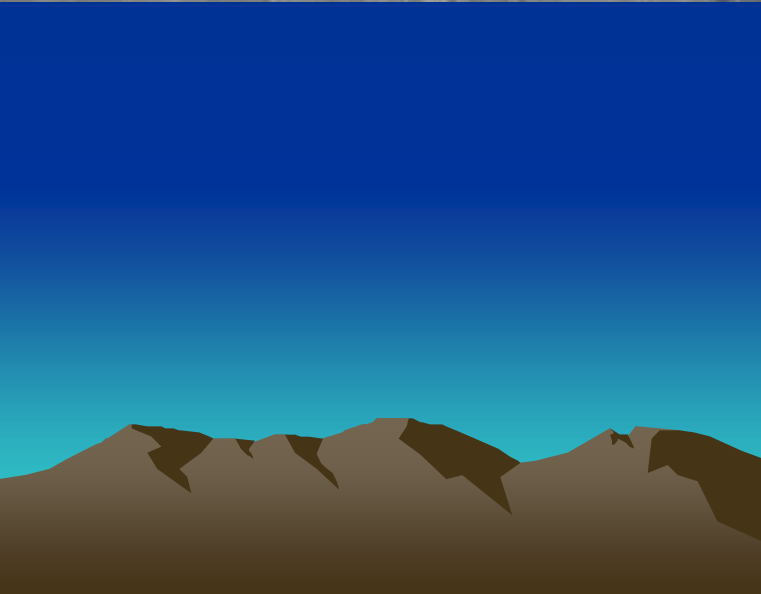




TOUGH ROADS





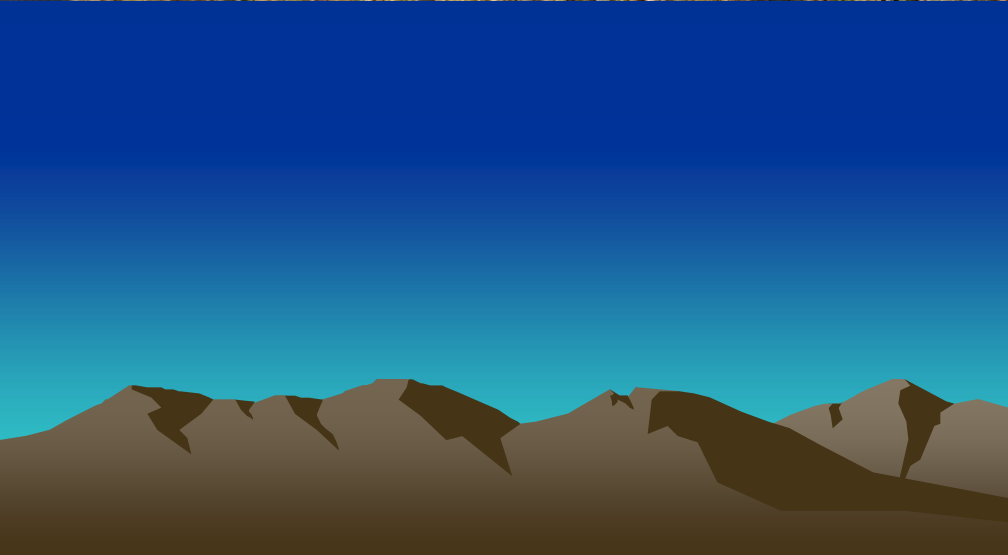


DANGEROUS/NARROW ROADS













TWO LANE TO ONE LANE





SLOW - SINGLE LANE
ROAD WITH TURNOUTS

TRAILERS and RV's
NOT RECOMMENDED



SAFETY SIGNS

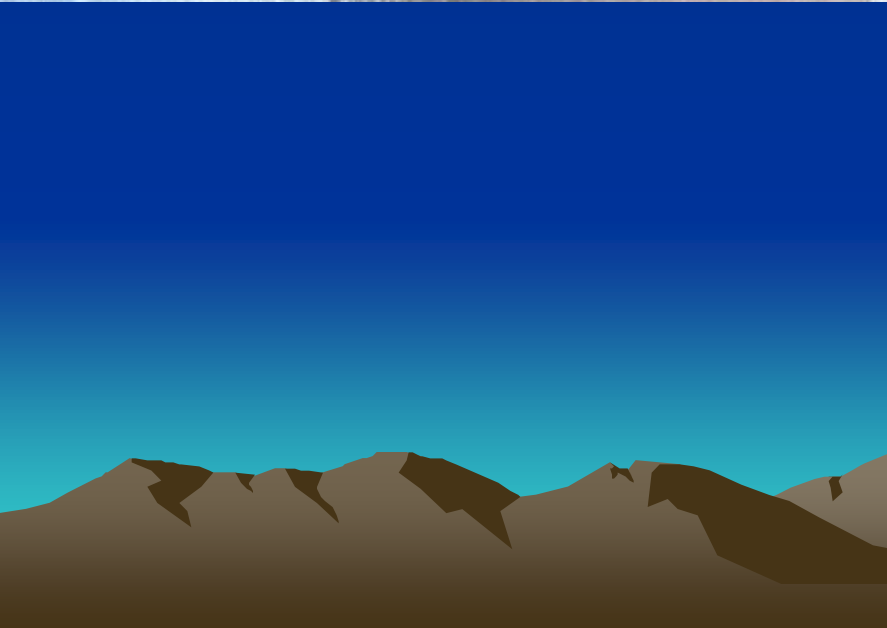


WIERD ROADS









BAD ROADS









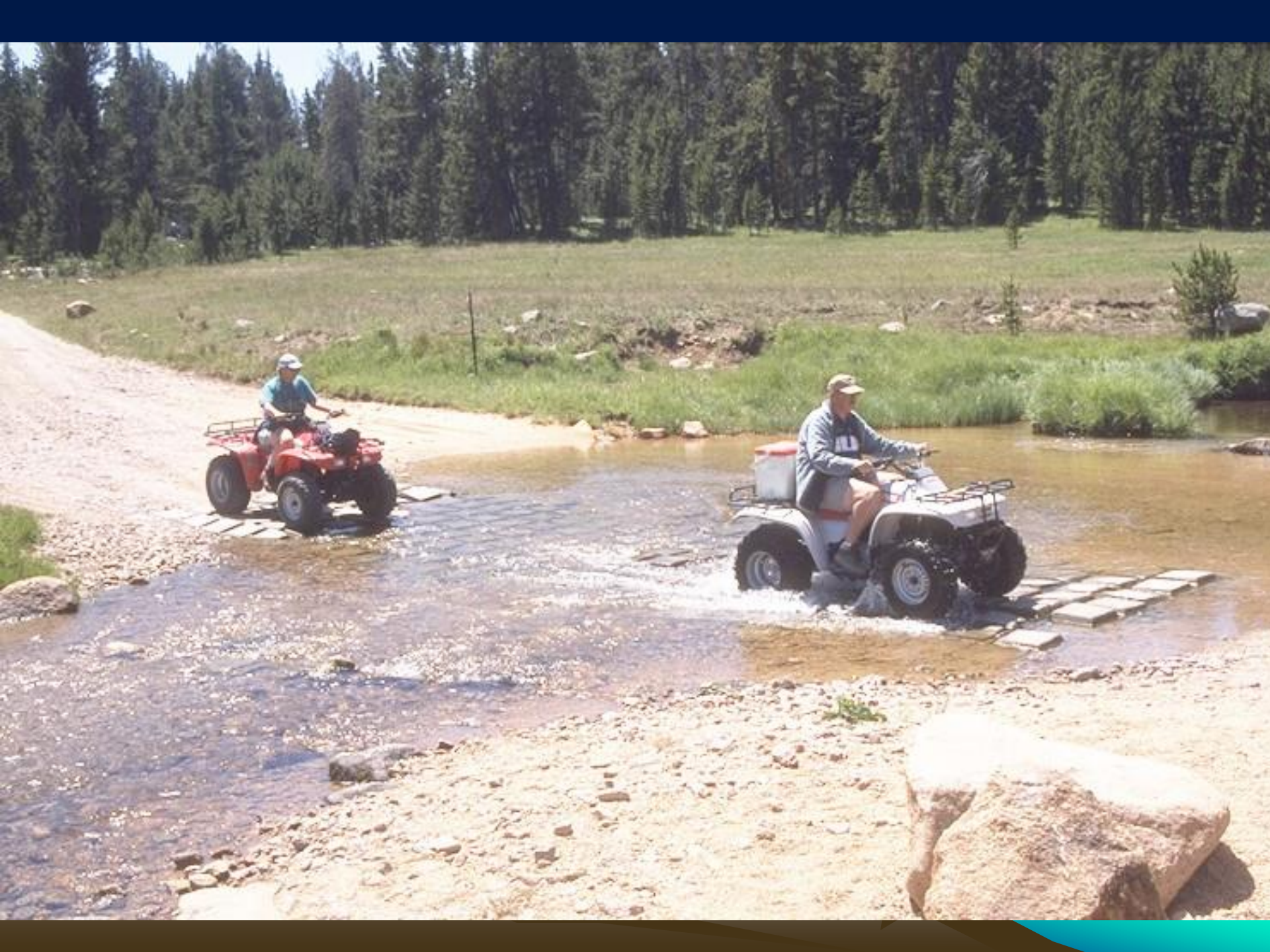
NORMAL USES





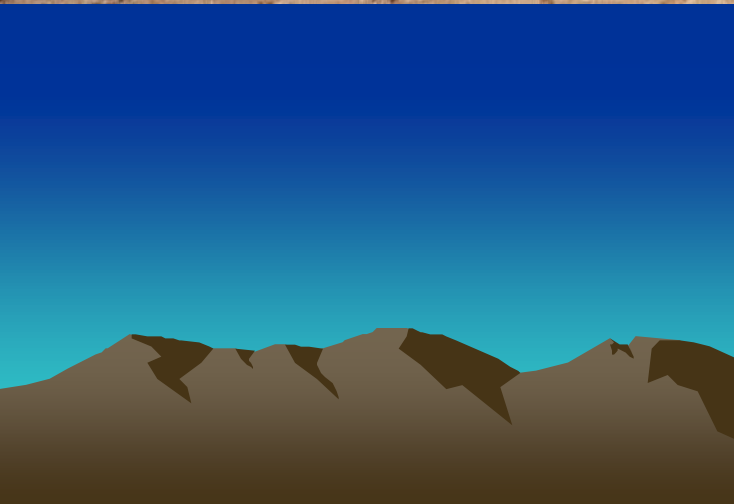


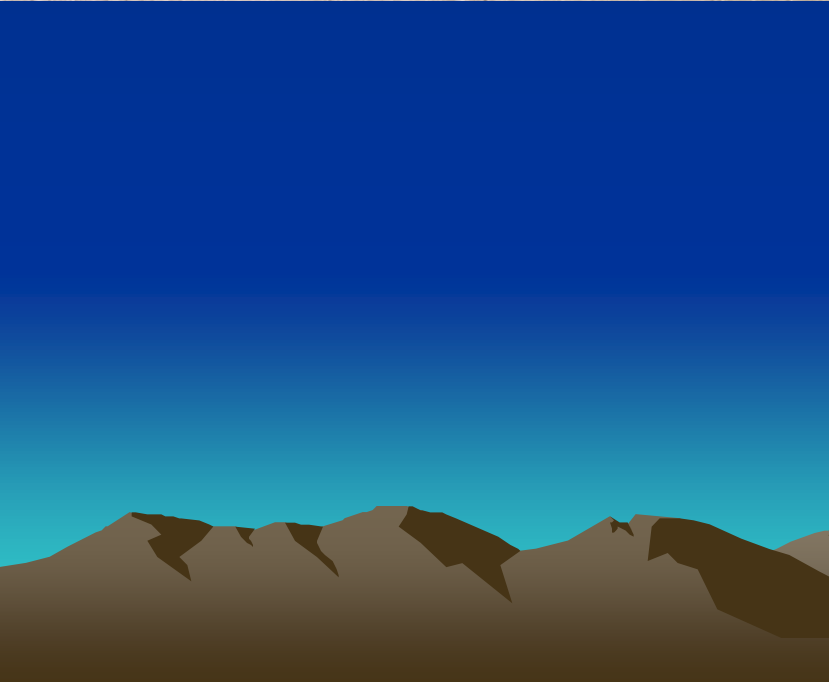














BORING ROAD



ATYPICAL USES

















**Thank
you**

