Average Annual Cost for Road Maintenance by Operational Maintenance Level

Assumptions:

1 Include only annual maintenance activities. Deferred maintenance needed to bring the road up to standard should not included.
2 Drainage is the main consideration for maintenance.
3 As the maintenance level increases attention to user comfort and safety increases accordingly.
4 Forest Service Policy set forth in manuals and handbooks is followed.
5 Guidelines for Road maintenance Levels by SDTDC 2011 used as reference.
6 Planning and inspection for maintenance should not included.
7 Enter cost to complete the entire task described(i.e: cost to replace the number of road signs listed, cost to remove the number of hazardous trees listed). Do not divide the

Description of Work	**ML 1: Road is in storage and is in a stable condition.** No potential exists for resource damage when vehicular traffic is eliminated. Maintain physical closure device (berm/boulders/slash) and drainage and signs. Road Maintenance cycle for ML1 roads is **10 years**.	**Cost per Mile to complete Description of Work for ML 1 roads**	**ML 2: High clearance vehicle use.** Passenger car traffic, user comfort, and user convenience are not considered; low traffic volume and low speed; drainage structures are dips; surface smoothness is not considered; and very few signs. Outsloped single lane road without a ditch. Brush to maintain access and drainage. Spot blade to maintain drainage. Clean/Repair structures (cattleguard, gate) and signs. Road Maintenance cycle for ML2 roads is **5 years**.	**Cost per Mile to complete Description of Work for ML 2 roads**	**ML 3: Passenger car use.** Maintain surface to provide travel by prudent drivers in standard passenger cars. Some surface roughness is tolerated. User comfort and convenience is a low priority. Replace the base course and surfacing where needed; single lane with turnouts; low speeds with low to moderate traffic volume; drainage structures include ditch, culverts and dips. Surface blade to maintain template and drainage. Surface is compact, crowned or sloped to drain without segregation of surface materials; no ruts or rills; suitable material is recovered and incorported; unsuitable material is removed. Ditches and culverts function efficiently. Clean/Repair structures (cattleguard, gate) and signs. Spot Surface with aggregate. Road Maintenance cycle for ML3 roads is **3 years.**	**Cost per Mile to complete Description of Work for ML 3 roads**	**ML 4: Passenger car use.** Provide moderate degree of user comfort and convenience; moderate speeds and traffic volume; drainage structures are culverts; and double lane aggregate surface with a ditch. Brush to maintain sight distance. Surface blade free of washboard, potholes, or other irregularities. Surface is smooth, compact, crowned or sloped to drain without segregation of surface materials; no ruts or rills; suitable material is recovered and incorported; unsuitable material is removed. Abate dust as needed. Shoulders are shaped to provide a smooth transition to traveled way and drain efficiently. Ditches and culverts function efficiently. Clean/Repair structures (cattleguard, gate) and signs. Spot Surface with aggregate. Patch and crack sealing. Road Maintenance cycle for ML4 roads is primarily **3 years.**	**Cost per Mile to complete Description of Work for ML 4 roads**	**ML 5: Passenger car use.** Provide high degree of user comfort and convenience; highest traffic volume and speeds; drainage structures are culverts; and double lane paved surface. Brush to maintain access and drainage. Surface Repair include pothole patching, crack sealing, chip sealing and removal of unsuitable material. Shoulders are shaped to provide a smooth transition to traveled way and drain efficiently. Ditches and culverts function efficiently. Clean/Repair structures (cattleguard, gate) and signs. Paint pavement markings. Road Maintenance cycle for ML5 roads is **every year**.	**Cost per Mile to complete Description of Work for ML 5 roads**
Blading	Not applicable	-	2 passes with motor grader/every 5 years	$310	once every year	$310	twice every year	$310	Not applicable	-
Ditching/Shoulders	Not applicable	-	Not applicable		once every year	$1,500	once every year	$1,500	once every year	$1,500
Brushing/mowing	once every 10 years	$250	once every 5 years	$250	once every 3 years	$250	once every 3 years	$250	once every year	$250
Clean/repair all drainage structures (bridge: channel drift)	once every 10 years	$2,250	once every 5 years	$2,250	once every 3 years	$2,250	once every 3 years	$2,250	once every 3 years	$2,250
Clean/Repair Structures (road: gates, grates, cattleguards) (bridge: deck flowlines and drains)	once every 10 years	$750	once every 5 years	$750	once every 3 years	$750	once every 3 years	$750	once every 3 years	$750
Hazardous Tree Removal	Not applicable	-	once every 5 years	$250	once every 3 years	$250	once every 3 years	$250	once every year or as needed	$250
Dust Abatement	Not applicable	-	Not applicable	-	Not applicable	-	as needed		Not applicable	-
Paint pavement markings	Not applicable	-	Not applicable	-	Not applicable	-	paint pavement markings every 6 years	$1,000	paint pavement markings every 3 years	$1,000
Repair asphalt - patching, potholing, crack sealing	Not applicable	-	Not applicable	-	Not applicable	-	every year	$300	every year	$300
Resurface asphalt - asphalt overlay or chip seal	Not applicable	-	Not applicable	-	Not applicable	-	once every 10 years	$2,000	once every 10 years	$100,000
Sign Maintenance/Replacement	Replace 1 per road/10 years	$200	Replace 1 per road/10 years	$200	Replace 1 per road every 3 years	$200	Replace 2 per road every 3 years	$400	Replace 2 per road every 3 years	$400
Spot Surfacing	Not applicable	-	Not applicable	-	150 tons/100 cy every 3 year 2-3 inch depth for 1/5 mile	$2,000	600 ton/400 cyevery 3 years 2-3 inch depth for 1/2 mile	$8,000	Not applicable	-
Cost to Maintain/Mile		$3,450		$3,910		$11,130		$15,034		$14,067
Mtce Cycle		**10**		**5**		**3**		**2**		**1**
Annual Cost/Mile		$345		$782		$3,710		$7,517		$14,067