

***PITKIN COUNTY
ASSET MANAGEMENT PLAN***



**COUNTY ROADS, EQUIPMENT, FACILITIES, AND LAND
2008**



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**PITKIN COUNTY
ASSET MANAGEMENT PLAN**

2008

COUNTY COMMISIONERS:

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GOALS

The goal of the Pitkin County Asset Management Plan, hereinafter known as the AMP, is to provide specific maintenance and management information to Pitkin County residents and to assist County staff in prioritizing maintenance and setting expectations for County assets. The AMP also establishes certain rules that have the force of law; violations of these rules are punishable as provided for herein and in the Colorado Revised Statutes, as they may be amended from time to time.

DEFINITION OF AN ASSET

Any County owned or maintained road, facility, trail, vehicle, equipment, right-of-way, or property.

OBJECTIVES

1. To communicate asset management policies.
2. To assist in the administration and maintenance of County assets.
3. To clarify maintenance levels of service and apply them to assets.
4. To standardize construction activities.
5. To provide specifications for all aspects of construction.
6. To outline permitting requirements that parties other than the County must satisfy in order to utilize or undertake certain activities that affect County assets.
7. To outline landscaping guidelines for County assets.
8. To provide guidelines for staff to review private development requests.

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Asset Management Plan

Section I includes **road and bridge** management, administration, and maintenance standards. These standards are set forth to provide staff with guidance regarding how to manage certain issues that arise with regard to County assets, including permitting, design, landscape, and maintenance issues. This section also includes certain enforceable rules regarding the public's use of County Assets. **Section II** includes management techniques for the **fleet assets**. Included are policies for vehicle replacement, maintenance, cleaning, and the like. **Section III** addresses facility **management and maintenance**. Buildings, grounds, parking facilities management and maintenance policies and procedures are covered. **Section IV** handles **land management and maintenance**. Policies and guidelines regarding revegetation, noxious weeds and services provided by the land manager are all covered. Also included in this AMP are definitions, permitting fee schedules, current permits, and forms in the Appendix.

The guidelines for County staff set forth in this AMP are meant to be illustrative, not exclusive, descriptions of proper techniques for management of County assets, and shall not be relied upon to establish a standard of care or other determination that a particular technique of asset management is the only technique appropriate under the circumstances. The standards set forth herein shall, however, be utilized as the basis for issuance of permits and any other regulatory provisions set forth in this AMP. This distinction recognizes the fact that certain provisions of this AMP address actions taken by the County in its proprietary capacity (e.g., asset management by staff), while other AMP provisions address actions taken by the County in its regulatory capacity (e.g., permitting and enforcement). Nothing in this AMP shall be construed to create a private right of action of any kind, including without limitation a private right to enforce the provisions of this AMP.

Section I

Road and Bridge Management, Maintenance, and Administration

ROAD MANAGEMENT AND MAINTENANCE

1.01 Road Management

Pitkin County believes that planning, design, and improvement of roadways is an integrated process, interactive with other economic, political and social community processes. Safety and efficiency are concerns in the design, construction and improvement of roadways; however, the preservation or conservation of sites, scenes, open space, and vistas of scientific, historic, aesthetic, or other public interest, and the preservation of recreational

opportunities for the use and enjoyment of local residents and the public in general are also important concerns of the County road system.

The State of Colorado, by statute, CRS 30-11-107 (1) (h) and Section 2 of Title 43, authorizes the County to administer the County road system including, but not limited to, maintenance, layout, alterations, deletions, additions, property acquisition, and traffic regulation. County jurisdiction extends to all public roads within unincorporated areas of Pitkin County other than State or Federal Highways, US Forest Service Roads, and Bureau of Land Management Roads.

The Pitkin County Planning Commission acts as an advisory board to the Board of County Commissioners in matters of route and circulation planning and development standards (C.R.S. 30-28-110 (1)(a), (d)). It conducts public hearings related to proposed new road construction and changes. County staff is responsible for planning for future traffic circulation needs and establishing construction standards. In order to maintain a uniform road development policy throughout the County, the Public Works Department enforces road construction standards, reviews plans, prepares specifications and contracts, and conducts surveys and inspections.

The AMP establishes the design capacity of, and deals with the impact of development on, the County road and bridge system. One purpose of this AMP is to relate increased operations and maintenance costs and capital improvements to increases in growth and traffic volumes. When new roads are proposed or existing roads are subjected to increased use resulting from new development, the AMP shall act as a guide to establish the magnitude and location of the improvements and additional maintenance necessary to alleviate the impacts.

1.02 Road Maintenance

This AMP is intended to provide policy guidance and performance standards for the management and maintenance of the County road system based upon service levels. The County road system is subdivided into four distinct levels of service representing the types of land use that are associated with the area: 1) High, 2) Moderate, 3) Low and 4) Limited. Management and maintenance planning should take into account the level of service designated for a particular section of road prior to initiating any work or improvements.

Three primary objectives inform this AMP's approach to road maintenance: 1) Maintaining the existing integrity of the road system for the use and enjoyment of local residents and the public at large; 2) Defining road user expectations concerning the maintenance and general upkeep of each road within the County system; and 3) Protecting, through the comprehensive management of road usage, the unique character and environmental integrity of the rural and backcountry regions of Pitkin County.

The County maintains the road system based upon the following guidelines:

1. Roads shall be defined into four Areas of Service: High, Moderate, Low and Limited.
2. The maintenance service level shall be the highest in the high service area, and will be reduced accordingly for the moderate, low and limited service areas.

3. Highway Users Tax Fund (HUTF) revenues shall be allocated to roads within the County system based on need, not road mileage.
4. System-wide road rights-of-way shall be adapted, where possible, to accommodate pedestrian, bicycle and equestrian use. In the high service area, this accommodation may take the form of separate paths, trails or ways. In the moderate and low service areas, provisions for equal or mixed use of the road shall be placed and maintained. In the limited service area, the County shall discourage and in some cases restrict vehicular use and favor other forms of travel.
5. The County will take all necessary steps to pursue its rights should private activities, including without limitation operation of private irrigation facilities in violation of § 45-3-303, C.R.S., cause damage to its roads.

1.02.01 SERVICE LEVELS

The areas of service and the general expectations for service in each area can be described as follows:

- A. **HIGH SERVICE AREA:** The high service area includes roads within or adjacent to the more densely developed population areas such as the Aspen/Snowmass metro area or collector roads which are used for commuting to and from these population centers. These roads are built to Class 2-B specifications or better, and they form the primary road system. Roads within the high service area will receive the greatest level of maintenance by the County. Ease of travel by vehicles will be the primary goal of these maintenance efforts. Non-vehicular uses will be accommodated within road rights-of-way in a safe and effective manner, based upon the policies stated above.
- B. **MODERATE SERVICE AREA:** The moderate service area includes roads that allow access to medium-density residential developments and improved subdivisions and may be used as commuting alternatives to Hwy. 82. Roads in this service area serve as the secondary road system. They typically carry less traffic than the high service area roads. Maintenance of roads in the moderate service area will attempt to provide comfortable safe travel. These roads will not receive the priority maintenance of the high service area roads, but will be maintained for safe passage as practicable.
- C. **LOW SERVICE AREA:** The low service area includes roads that allow access to low-density residential, agricultural and public uses but are removed from high travel corridors and population centers. Roads in this service area are usually built to Class 4 specifications or better. These roads typically access low-density developments or popular recreational destinations. Maintenance of the roads in the low service area will attempt to provide access to specified areas, but not necessarily comfortable travel. These roads will not receive maintenance levels as high as those seen in the moderate area of service. Road users can expect the roads in this service area to be passable and adequately maintained at most times. However, the user must accept a reduced ease of travel on these roads because of the policies followed by the County. Snow plowing may not occur in as timely a fashion as seen in the moderate and high service areas. This reduced level of plowing may temporarily limit ease of passage. Motorized

vehicles will share the driving surface with other modes of travel and must accommodate these additional uses.

- D. **LIMITED SERVICE AREA:** These roads provide access to outlying and backcountry areas of the County and are usually located within the Rural and Remote Zoned portions of the County. Roads in this service area are usually built to Class 5-A or 5-B specifications and are not surfaced. Very low design speeds are necessitated by harsh alpine or topographic conditions. These roads can be a part of the Pitkin County/USFS Joint Road System. Roads with this designation access several of the recreational opportunities in the County, and are often considered to be recreational opportunities themselves. Roads within the limited service area will receive the least amount of maintenance. Road users can expect a vigorous experience that requires an additional amount of attention and awareness when traveling. Roads may be restricted to certain forms of travel in some portions of the service area. No plowing of snow will be performed in the limited service area, requiring the user to be prepared to leave the vehicle at designated parking areas and continue travel with other means of transport (other over-the-snow modes of transportation are allowed, however, no snow removal is allowed). Roads may become closed without warning due to acts of nature such as high winds and landslides. Management of the roads will favor forms of travel other than those utilizing motorized vehicles. All of these conditions will require the road user to plan for additional trip time and be prepared for conditions that are not expected in the low, moderate or high service areas.

1.02.02 Road List

The Pitkin County Board of Commissioners adopts an official Pitkin County Road List showing all roads that have been incorporated into the County road system. This list is updated to reflect additions, deletions, and alterations. This list is completed in four parts based on service level. Maps and lists of roads are as follows:

1.03 HIGH SERVICE AREA ROADS

Table 1.03 indicates High Service Area Roads managed and maintained by Pitkin County:

Road Number	Road Name	Miles
2	Emma Road	1.50
3	Redstone Blvd.	1.73
7A	Sopris Creek	1.02
10	Brush Creek Road	2.70
11	Lower Snowmass Creek Rd.	1.80
12	Owl Creek Road	3.76
12B	Airport Frontage Road	1.30
13 (FS 125.1-2)	Lower Maroon Creek Road	2.25
15 (FS 102)	Castle Creek Road	4.46
15F	Music School Road	0.31
17	Upper River Road	3.55
17A	Smith Way	0.35
17B	Gerbaz Way	0.59
19	McLain Flats Road	4.60
20	Red Mountain Road	1.16
65	Willoughby Way	1.06
69	Magnifico Drive	0.21
100	Mountain Laurel Drive	0.87
101	Mountain Laurel Court	0.16
102	West Lupine Drive	0.22
103	East Lupine Drive	0.30
AABC1	100 Street	0.17
AABC2	200 Street	0.24
AABC3	300 Street	0.26
AABC4	400 Street	0.10
AABC5	Baltic Avenue	0.18
	Total Mileage	34.85

1.03.01 MAINTENANCE PRACTICES FOR HIGH SERVICE AREA ROADS

Road maintenance practices are based on the type of vehicles most appropriate for the service area. Road maintenance in high service area roads endeavors to provide the greatest level of service for all vehicles and includes the following operations:

- A. Plowing: Snow plowing shall be provided by the County or others (such as homeowners' associations, contractors, or private individuals) by agreement with the County, to maintain a passable public road, and to provide access to recreational attractions and private residences. Main or collector routes shall take precedence over secondary routes. County policy will be to clear snow from the roadway as soon as it has been determined by staff and avalanche professionals that the area is safe and stabilized for equipment operation.

Under the Colorado Revised Statutes (CRS), § 42-4-1406(1), —No person shall throw or deposit upon any highway any glass bottle, glass, stones, nails, tacks, wire, cans, or other substance likely to injure any person, animal, or vehicle upon such highway. In furtherance of this section and the County's other powers to regulate County Roads, it shall be unlawful for any person to deposit snow plowed from a private driveway, road or any other source, onto any County road. Pitkin County requires that snow removal contractors and private citizens not plow snow from their driveways, sidewalks, etc. onto County roads.

- B. Mowing: Mowing shall be conducted on a yearly basis where necessary to provide a visible and defined shoulder and for sight line safety. Mowing shall be limited to one swath (maximum five feet) on either side, immediately adjacent to the edge of the shoulder.
- C. Herbicides: Herbicides will be used to control weeds listed on the Pitkin County designated noxious weed list in conjunction with mowing and revegetation as required by the Pitkin County Noxious Weed Management Plan. All herbicide applications will be performed by trained personnel or qualified contractors following all label restrictions and guidelines. The Pitkin County Noxious Weed Management Plan may be obtained from the Public Works Department at 76 Service Center Road, Aspen, CO, or online at: www.aspenpitkin.com/pdfs/depts/64/Weed_mgmt_plan.pdf
- D. Cross Drainage: Cross-drainage should be carried off the driving surface to prevent damage to the road which may be detrimental to proper safety. Cross culverts shall be used to carry drainage under the road. Culverts shall be sized to contain a significant natural drainage event, but the County cannot size for misoperation of private irrigation facilities that may result in damage to County Roads. Cleaning of roadside ditches and road culverts will be completed as needed to ensure proper drainage.
- E. Side Drainage: Drainage channels or ditches should be placed and maintained on the uphill side of roads. Aggressive revegetation of side ditches will allow the ground to stabilize and reduce the need for future maintenance to ditches. Side drainage shall be channeled into defined ditches or curb and gutters. The County cannot size for misoperation of private irrigation facilities that may result in damage to County Roads.
- F. Signage: Pursuant to § 42-4-105, C.R.S., all County roads shall meet the signing requirements of the "Manual on Uniform Traffic Control Devices" or other applicable guidelines as determined by the County Engineer. Class 5 Primitive roads shall be signed at the discretion of the County. Other information signage will be posted to define road names, route numbers, and road service areas as necessary.
- G. Tree/Shrub Trimming and Removal: Where necessary for safety or protection of the traveling public and vehicles, tree branches and shrubs may be trimmed. In rare cases, whole trees or shrubs may be removed, but only when no other method will correct the problem. Tree and shrub trimming should be done judiciously and with proper tools to prevent unsightly scars and damage.
- H. Side Slopes: Where necessary for safety of travel, side slopes may need to be cut back in the course of routine maintenance. Such sloping should be kept to a minimum,

and other techniques, such as embankment (rock walls) and revegetation, should first be pursued to obtain adequate stabilization if physically and financially feasible.

- I. Road Surfacing: The existing road surface normally should be continued. For high service areas, the preferred surface type is chip seal or asphalt.
- J. Parking Areas: Roadside parking is prohibited along all County roads and within any County road right-of-way except as may be authorized by a Revocable Right-of-Way Parking Permit. In an attempt to satisfy needs for the traveling public, public parking areas may be determined and improved on an as-needed basis, provided that adequate right-of-way exists. Parking areas may also be provided within designated nodes.

1.04 MODERATE SERVICE AREA ROADS

Table 1.04 indicates Moderate Service Area Roads managed and maintained by Pitkin County:

Road Number	Road Name	Miles
1	Lower Thompson Creek Road	0.4
4 (FS 105)	Frying Pan Road	12.66
5	Lower Prince Creek Road	1.62
6	West Sopris Creek Road	5.22
7	East Sopris Creek Road	6.02
8	Watson Divide Road	1.92
8A	Jack Gredig Lane	0.5
9	Capitol Creek Road	5
11	Snowmass Creek Road	9.09
15 (FS 102)	Castle Creek Road	6.32
16	Lower River Road	5.03
18 (FS18.1)	Woody Creek Road	9.3
20A	Hunter Creek Toll Road	1.8
37	Upper 7th Street	0.23
169	Glen Eagle Drive	0.56
188A	Twin Ridge Drive	0.14
BCV1	Juniper Hill Road	3.07
BCV2	Sage Brush Lane	0.11
BCV3	Turtle Cove	0.09
BCV4	Daniel Drive	0.11
BCV5	Medicine Bow Road	2.43
BCV6	Upper Ranch Road	0.74
CRP1	Chair Mountain Drive	0.47
CRP2	Crystal Park Drive	0.52
CRP3	Ruby Mountain Drive	0.14
CRP4	Bear Creek Drive Lane	0.13
DKR1	Horseshoe Drive	0.56

Moderate Service Area Roads		
GSM1	Gateway Road	1.49
GSM2	Mule Deer Run	0.11
GSM3	Lighthill Road	0.69
GSM4	Elk Range Drive	0.1
LEC1	Capitol Drive Avenue	0.06
LEC2	Little Elk Creek Drive Avenue	0.47
LEC3	Haystack Lane	0.43
LEC4	Katydid Lane	0.21
LEC5	Driskell Lane	0.15
LEC6	Davidson Lane	0.06
LEC7	Alexander Avenue	0.19
NF1	Sage Way	0.27
NF2	Front Way	0.12
OE1	Apple Drive	0.49
OE2	Cherry Drive Lane	0.06
OE3	Plum Drive Street	0.06
12C	Service Center Road	0.13
12D	Animal Shelter Road	0.12
	Total Mileage	79.39

1.04.01 MAINTENANCE PRACTICES FOR MODERATE SERVICE AREA ROADS

Road maintenance in moderate service area roads will be consistently maintained at a level lower than the high service area roads, and will not allow improvements such as widened shoulders, straightened alignments, or improved sight distance to occur simply to improve ease of travel. Improvements may occur on road segments when warranted by safety reasons. Heavy transport vehicles may be restricted in moderate service area roads. Moderate service area road maintenance practices include the following operations:

- A. Plowing: Snow plowing shall be the same as it is for High Service Area Roads. High Service Level roads shall take precedence over moderate service roads.
- B. Grading: Road grading shall be conducted on a routine basis dependent upon traffic volumes and the integrity of the road surface. Grading shall include the clearing of shoulder areas and the definition of roadside ditches where required. Grading shall do minimal disturbance to roadside vegetation.
- C. Mowing: Mowing shall be conducted only when absolutely necessary to provide adequate sight distance. Mowing shall be limited to one swath (maximum of five feet) on either side of the road.
- D. Herbicides: The herbicide policy for moderate service area roads is the same as for high service area roads.
- E. Dust Control: A minimal level of dust treatment may be used where dust control can be

deemed necessary based on the following factors: dust generation, traffic counts, development impacts, residential proximity to the road way, recreational uses, aggregate loss, maintenance need and available budget,

- F. Cross Drainage: Cross-culverts shall be used to carry drainage under the road. Culverts shall be sized to contain the significant drainage event, but the County cannot size for misoperation of private irrigation facilities that may result in damage to County Roads. Cross road culverts are to be cleaned annually to ensure proper drainage.
- G. Side Drainage: Side drainage shall be the same as specified for high service area roads.
- H. Signage: Signage shall be the same as specified for high service area roads.
- I. Tree/Shrub Trimming and Removal: Tree and shrub trimming and removal shall be the same as specified for high service area roads.
- J. Side Slopes: Side slope maintenance shall be the same as specified for high service area roads.
- K. Road Surfacing: For moderate service areas, the preferred surface type is gravel or chip seal.
- L. Parking Areas: Roadside parking is prohibited along all County roads and policies shall be the same as for High Service Area Roads.

1.05 LOW SERVICE AREA ROADS

Table 1.05 indicates Low Service Area roads managed and maintained by Pitkin County:

Road Number	Road Name	Miles
1	Thompson Creek Road	3.34
3B	Osgood Road	0.27
3D (FS 307.1)	Coal Creek Road	1.3
4A (FS 400.4)	Eagle-Thomasville Road	1.88
4B (FS 501)	Lower Northfork Road	3
5	Upper Prince Creek Road	3.05
6	West Sopris Creek	0.44
9	Upper Capitol Creek Rd	2.49
9A	Elk Creek Road	1.78
11A	Wildcat Way	0.45
11C (FS 119)	Upper Snowmass Creek Road	0.31
14	Summer Road/ Aspen Mt. Rd.	4.5
15A (FS 118)	Lower Midnight Mine Road	0.78
15B (FS 128)	Lower Conundrum Creek	1.12
15C (FS 122)	Taylor Pass-Express Creek	0.2
15G (FS 140.1-3)	Lower Little Annie Road	1.33
21 (FS 131)	Lower Smuggler Mt. Road	0.5
	Total Mileage	27.14

1.05.01 MAINTENANCE PRACTICES FOR LOW SERVICE AREA ROADS

Road maintenance in low service area roads will be a low priority. Basic services will be similar to moderate service area roads, but will be a lower priority than the moderate level of service. Capital road improvements will be made only when warranted by safety reasons. Low service area road maintenance practices include the following operations:

- A. Plowing: Snow plowing shall be the same as it is for High and Moderate Service Area Roads. Plowing shall not be permitted on the road simply to promote vehicular travel into a more remote area. When there is not an approved residence, recreational area, or agricultural purpose to plow the road, plowing shall end at the end of the moderate service area road or at the last approved access on the low service level road.
- B. Grading: Road grading shall be the same as for Moderate Service Area Roads.
- C. Mowing: Mowing shall be the same as for High and Moderate Service Area Roads.
- D. Herbicides: Only noxious weeds will be controlled with herbicides.
- E. Dust Control: A minimal level of dust treatment may be used where dust control can be deemed necessary based on the following factors: dust generation, traffic counts, development impacts, residential proximity to the road way, recreational uses, aggregate loss, maintenance need and available budget.
- F. Cross Drainage: Culverts should be installed when necessary, however, water bars may be cut into the road to assist with drainage problems. Culverts are to be cleaned annually to ensure proper drainage.
- G. Side Drainage: Side drainage shall be maintained the same specified for moderate and high service area roads.
- H. Signage: Signage shall be the same as specified for the moderate and high service area roads.
- I. Tree/Shrub Trimming and Removal: Tree and shrub trimming and removal shall be the same as specified for the moderate and high service area roads.
- J. Side Slopes: Side Slopes shall be the same as specified in the moderate and high service area roads.
- K. Road Surfacing: The preferred road surface is native soils or gravel.
- L. Parking Areas: Roadside parking is prohibited along all County roads and policies

shall be the same as for High Service Area Roads.

1.06 LIMITED SERVICE AREA ROADS

Table 1.15 indicates limited service area roads managed and maintained by Pitkin County: Also included in the limited service areas are roads of the USFS, which are summer maintained by Pitkin County at the direction of the Forest Service.

Road Number	Road Name	Miles
1A	No. Thompson Creek Rd.	2.35
1C (FS 305.1)	So. Thompson Creek Rd.	7.38
1D (FS 305.1)	Lake Ridge Road	1.84
1E	Assignment Road	0.50
3A	East Creek Road	1.39
3C	Yellow Creek Road	0.32
4 (FS 105)	Upper Frying Pan Road (after pavement)	14.36
4B (FS 501)	Upper Northfork Road (7.9)	5.29
4I (FS 527)	Ivanhoe Lake Road (2.6)	2.48
4L	Powerline Road	6.24
4M	Diemer Lake Road	1.67
4N	Seller Lake Road	0.78
6A (FS 311)	Dinkle Lake Road	2.80
9D	Nicholson Creek	0.19
13 (FS 125.1-2)	Upper Maroon Creek Road	6.94
15 (FS 102)	Upper Castle Creek Road	1.74
15A (FS 118)	Upper Midnight Mine Road	4.53
15B (FS 128)	Upper Conundrum Cr. Road	0.20
15C (FS 122)	Taylor Pass-Express Creek	4.57
15E (FS 123)	Richmond Hill Road	15.70
15G (FS 140.1-3)	Upper Little Annie road	3.16
15I (FS 102.2)	Pearl Pass	6.10
18D	Bear Creek Road	2.89
18E	Vagneur Road	2.46
20A (FS 130.1-3)	Hunter Creek Toll Road	4.18
20B (FS 130.3A1)	Four Corners Road	1.00
21 (FS 131)	Upper Smuggler Mt. Road	6.50
21A (FS 143&143.2)	Smuggler Cut Off	2.80
22 (FS 130.1-3)	Burnt Hole Road	1.89
23 (FS 106,106.2,107)	Lincoln Creek Road	10.00
Total Mileage		122.25

TOTAL COUNTY ROAD MILEAGE: 264.48 MILES

1.06.01 MAINTENANCE PRACTICES FOR LIMITED SERVICE AREA ROADS

Limited service area roads will be maintained primarily to accept non-vehicular traffic. Only vehicles with higher clearances, and four-wheel or all wheel drive, will travel easily on the

limited service area roads. Vehicles of touring and heavy transport classifications will be limited, and in some cases restricted, from using limited service area roads. Limited service area road maintenance practices include the following operations:

- A. Plowing: The plowing of snow, by the County or others, shall not be undertaken within limited service areas. Access to private properties and approved recreational attractions shall be gained via other means, such as snow cat, snowmobile, cross country skiing, snowshoe, or foot. Parking nodes shall be provided at the border of the limited service area to facilitate this transfer of transportation modes.
- B. Closures/Openings: Selected limited access roads may be closed during the winter season. No plowing of these selected roads will occur. Locking or closing of gates will occur on November 15th and will be reopened no later than May 15th.
- C. Grading: Grading shall be conducted only when absolutely necessary to keep the road open to safe passage for four wheel drive and/or high clearance vehicles, and to maintain adequate drainage. Grading shall not be conducted solely for the convenience of travel. When conducted, grading should be kept within the width of the driving surface, ten to fifteen feet on a one-lane road and twenty to twenty five feet on a two-lane road. Grading must avoid disturbance of roadside vegetation, and be pulled back to avoid trees or unusual sites which have been designated (i.e., scenic pull off, trailheads, etc.). Roads will be inspected at least once a year to determine what maintenance, if any, is needed. Grading or drainage work will only be done by the approval of the Public Works Director or designee.
- D. Mowing: Mowing shall be discouraged as a method of improving sight distance.
- E. Herbicides: The herbicide policy for limited service area roads is the same as for low service area roads.
- F. Dust Control: Dust abatement should be performed through the reduction of traffic. Conventional means of dust abatement, such as salt application, shall not be conducted.
- G. Cross Drainage: When absolutely necessary, drainage swales cut across the road surface shall be used to promote cross drainage. However, cross culverts or lateral drainage improvements may be required for some stream crossings and in areas of extreme water saturation.
- H. Side Drainage: Every attempt shall be made to refrain from placing drainage channels or ditches on roads within limited service areas. However, when a roadside ditch must be placed as the only means of correcting a significant drainage or water saturation problem, the ditch shall be incorporated into the existing roadway rather than placing the ditch on previously undisturbed ground. Roadside obstructions, such as windrows from grading, should be cleared to promote the movement of water off the driving surface.
- I. Signage: Signage shall conform to applicable standards in the latest edition of the MUTCD. Generally signage is to be minimal on this type of roadway.

- J. Tree/Shrub Trimming and Removal: Tree and shrub trimming and removal shall be the same as specified for low, moderate and high service area roads.
- K. Side Slopes: Side slope maintenance shall be the same as specified for low, moderate and high service area roads.
- L. Road Surfacing: For limited service areas, the preferred surface type is dirt or natural surface. The importing of materials for road surfacing shall not occur except in the extreme case when the road is rendered impassable and no other materials exist locally.
- M. Parking Areas: Roadside parking is prohibited along all County roads and policies shall be the same as for High Service Area Roads.

1.07 ROAD MAINTENANCE AGREEMENTS AND SETTLEMENTS

Special circumstances may exist for additional road maintenance agreements and settlements, which are listed below.

A. Intergovernmental Agreements

The County may find it cost effective or necessary to contract with other Governmental entities to provide appropriate level of service during the winter months for snowplow services on County roads. Intergovernmental agreements (IGA's) are contracts signed between two governmental agencies and adopted by Ordinance. An IGA between Pitkin County and Eagle County is in place for efficiency and cost savings reasons to maintain the Eagle and Pitkin County portions of the Frying Pan Road. This IGA is reviewed every two years by Ordinance. Copies of IGA's and Ordinances may be obtained from the Clerk and Recorder's office or by calling Public Works staff to request a copy.

B. Contracts with private individuals/companies

The County may find it cost effective or necessary to require property owners in remote areas of the County to provide their own snowplow services on County roads. This agreement/contract is between Pitkin County and the property owner and the services are at the property owners' expense. Pitkin County contracts with property owners on the upper portion of Capitol Creek Road for road maintenance and snow removal at the property owners' expense. Resolution 99-107 and Contract 99-83 were approved by the Board of County Commissioners. Copies of contracts with private individuals/companies for snowplow services on County roads are available through the Clerk and Recorder's office, or by calling Public Works staff to request a copy.

C. Special road maintenance agreements

The Hunter Creek Toll Road is governed in certain respects by the Hunter Creek Settlement Agreement, recorded along with Pitkin County Resolution 142-2004. This resolution specifies certain road maintenance responsibilities and rights held by both the County and private property owners living along certain areas of the road. Copies of settlements regarding County Roads with private individuals/companies are available through the Clerk and Recorder's office, or by calling Public Works staff to request a copy.

1.08 AMENDMENT AND MODIFICATION OF SERVICE LEVEL

- A.** Request for Modification: The service and maintenance levels established in this AMP may be amended if recommended by staff and approved through ordinance by the Board of County Commissioners (BOCC) in connection with either a specific development application under the Pitkin County Land Use Code or written proposal. If any person or persons owning property accessed, directly or indirectly, by a County road desires a change in the maintenance level and classification of such County road, such person or persons shall submit a written proposal to the Public Works designee, with a copy to Community Development if submitted in connection with a land use application, outlining the current maintenance level, detailing the changes which need to occur, and explaining why the modification needs to take place. County Public Works staff and the requesting applicant shall present said request to the appropriate caucus for review.
- B.** Evaluation: Public Works staff will then evaluate and make a recommendation to the Board of County Commissioners based on the following criteria:
- a) Appropriateness of current service level designation.
 - b) Operational and budgetary impacts.
 - c) Public safety.
 - d) Compatibility with character of surrounding area and zoning.
 - e) Current traffic volumes.
 - f) Impact on traffic volumes and related consequences.
 - g) Environmental impacts.

Staff will present caucus and staff recommendation to the Board of County Commissioners for a service level change decision.

- C.** Cost of Increased Maintenance: If the reason for an increase in maintenance is specifically and uniquely attributable to new development by the proponent, the Board of County Commissioners may determine by specific findings what proportion of the costs of the requested change in maintenance shall be borne by the proponent rather than by the public at large. Determination shall be based upon a proportionate share of the maintenance costs which are incurred in serving the new development and may require the proponent to contract with the County to pay for such increased maintenance as a condition of the County's provision of such maintenance. The costs charged to the proponent must not exceed the proponent's roughly proportionate share of the actual costs incurred in serving the development, but actual costs may include administration and overhead expenses. In the written proposal, the proponent shall identify other property owners who may benefit from the change in maintenance and a recitation of the extent to which other owners are willing to participate in the costs of increased maintenance.

1.09 ACCEPTANCE OF ROADS FOR MAINTENANCE

Dedicated roads within Pitkin County's jurisdiction are accepted for maintenance by ordinance passed by the Board of County Commissioners only after certain requirements have been met. When acceptance has been requested in writing and the minimum requirements have been satisfactorily met, the County Public Works Department will submit a recommendation for

acceptance or non-acceptance to the Board of County Commissioners for final action.

A. Minimum Acceptance Requirements

- (1) Roads will not be accepted before the County Public Works Department approves said roads and recommends acceptance.
- (2) Roads within subdivisions or similar type of development will not be accepted in portions shorter than block lengths, which shall end at intersections or cul-de-sacs.
- (3) Roads will not be accepted unless they meet minimum or modified standards.
- (4) Roads will not be accepted unless they connect to another County-accepted road.
- (5) Roads will not be accepted until all combustible or objectionable material is cleared from the roadside and until all required signs are installed in accordance with County standards.
- (6) All required subsurface utilities shall be installed prior to finishing subgrade. The longitudinal mains shall be located outside the roadway limits. All laterals crossing the roadway shall be installed prior to road acceptance.

B. Subdivision Roads

Acceptance of platted subdivisions by the County, or of a right of way for purposes of public access, does not constitute acceptance of the roads and rights-of-way for maintenance. Until each road is specifically accepted for maintenance by an ordinance passed by the Board of County Commissioners, maintenance and construction is the responsibility of the owners of the land within the subdivision.

C. Change in Service Level

Once a service level and associated maintenance practice has been established for any County road, the service level may be changed only in accordance with the procedures established in Section 1.08.

1.10 ROAD AND EASEMENT VACATIONS

On occasion, vacation of County roads or various easements may become warranted due to particular circumstances or changes in the overall development pattern. The Board of County Commissioners may vacate any County road or any portion of a County road. No road or portion thereof shall be vacated if it will leave a parcel of land without access to a public road as set forth in C.R.S. 43-2-303(2).

The procedure and submission requirements for a road or easement vacation are outlined in the Pitkin County Land Use Code (available from the Pitkin County Community Development Department) and shall be in compliance with and subject to C.R.S. 43-2-301 et seq. together with any amendments thereto.

1.11 PROCEDURES TO CONTROL TRAFFIC AND ROAD USE

In addition to those set forth in the Colorado Revised Statutes and elsewhere in this AMP, the following procedures and operations may be used to control traffic and road use on the County road system:

- A. Nodes: Nodes are designed to be used in limited service areas. The node signage will inform the users of change in the level of service, will serve as a parking area and allow users to leave their cars for other forms of transportation, and will signify the end of winter maintenance on the road. The nodes will be established and maintained by the County wherever deemed necessary.
- B. Weight/Size Restrictions: Several roads within the limited, low and moderate service areas are not adequate to carry heavy or oversized vehicles (i.e., dump trucks and fully loaded concrete trucks). Restrictions of oversized vehicles on certain County roads will be posted, and permits must be obtained (Section 1.39) for overweight/oversized transport vehicles.
- C. Restriction of Road Use: When necessary, a County road may be temporarily closed for hazardous conditions, special events, maintenance and repairs, and use of a County road may also be temporarily restricted due to road surface condition and/or other needs, as determined by County staff. The Public Works designee will issue appropriate public notices when such a closure or restrictions occur. Closures or restrictions of a more permanent nature, such as permanent restrictions to motorized vehicle use, shall occur by ordinance, with proper notice to all property owners who access their property by the road proposed to be closed. When a request for closure is made in connection with a land use application, it shall be referred to the Public Works/Transportation Department for processing in accordance with this section.
- D. Temporary Construction Access: Temporary construction access shall only be granted for an access previously approved in land use review (refer to Access Permitting section of this AMP).
- E. Prohibition of Construction and Maintenance on Major County Roads: In order to prevent conflicts with increasing commuter traffic on major County suburban roads, construction and major maintenance will be prohibited during certain times.
- F. Road and Easement Vacations: On occasion, vacation of County roads or various easements may become warranted and approved by the Board of County Commissioners (Section 1.10).
- G. Amendment: When necessary, the Pitkin County Asset Management Plan may be amended as recommended by staff and approved through formal ordinance by the Board of County Commissioners.

1.12 PITKIN COUNTY OPEN SPACE ROAD MANAGEMENT

To best manage the significant use of Smuggler Mountain Road as a Recreational trail, all non-motorized recreational uses including hiking, bicycling, walking, equestrian, and Nordic

skiing uses are subject to the provisions of Title 12 of the Pitkin County Code, including but not limited to open space parking restrictions and specialized management plans. These requirements may be enforced by the Pitkin County Open Space Ranger and her/his designees, or as otherwise provided by Article 6 of Title 12.

1.13 PITKIN COUNTY BRIDGES

Pitkin County uses the State mandated Bridge Inspection and Maintenance Report that is completed biannually. Inspections are performed on each bridge, and capital repair and maintenance recommendations are made. The work is categorized and ranked for items most critical to the safety and the preservation of the integrity of each structure. The work is completed based on the inspection, prioritization and as budget allows. Table 1.13 lists bridges that are maintained by Pitkin County, and are part of the County's infrastructure.

TABLE 1.13 PITKIN COUNTY BRIDGES

Thomasville Bridge Frying Pan River PIT-004-24.8A	Upper Snowmass Creek Bridge (Campground Bridge) Snowmass Creek PIT-011-10.8	Old Snowmass Bridge Roaring Fork River PIT-016-00.1A
Lower Snowmass Creek Bridge Snowmass Creek PIT- 011-01.2A	Maroon Creek Bridge Maroon Creek PIT-013-01.8A	Gerbaz Bridge Roaring Fork River PIT-017-00.2A
North Fork Bridge North Fork/Frying Pan River PIT- 004-26.3A	Castle Creek Bridge (1st) Castle Creek PIT-015-03.5A	Smith Bridge (arch) Roaring Fork River PIT-019-00.3A
Lime Creek Bridge Lime Creek PIT-04A-1.0	Castle Creek Bridge (2nd) Castle Creek PIT-015-09.0 (Restrictions Posted)	Slaughterhouse Bridge Roaring Fork River PIT-019-01.1A
Horseshoe Bend Bridge Frying Pan River PIT-04F-1.0	Midnight Mine Bridge Castle Creek PIT-15A-00.2	Red Mountain Road Bridge Hunter Creek PIT-020-00.2A
Redstone Bridge (Upper) Crystal River PIT-003-00.1	Conundrum Creek Bridge (1st) Castle Creek PIT-015B-002A	Redstone Ranch Acres Bridge Crystal River PIT- 133-05.0A
Redstone Bridge (Lower) Crystal River PIT-003-01.8A	Conundrum Creek Bridge (2nd) Conundrum Creek PIT-015B- 00.5A (Restrictions Posted)	Watson Divide Bridge Snowmass Creek PIT-008- 00.1A
Meredith Bridge Frying Pan River PIT-004-22.0	Music School Bridge Castle Creek PIT-15F-00.3	
Lenado Bridge Woody Creek PIT-18-8.83	Lincoln Creek Bridge Lincoln Creek PIT-23-00.1	

ROAD DESIGN STANDARDS

1.14 DESIGN TRAFFIC VOLUMES

- A. When requested by Community Development or the County Engineer, developers, landowners, etc shall supply a full traffic analysis analyzing current and future traffic generated by such a development. Manuals such as the Highway Capacity Manual, International Traffic Engineers (ITE) Trip Generation Handbook, and ITE Traffic Engineering Manual may be necessary. Large and commercial developments or ones generating amounts of traffic to create greater parking needs, which will create significant traffic volumes, or that may affect traffic patterns shall perform a traffic analysis.
- a. Trip Reductions: When applicable, the applicant can use trip reduction factors as defined in the ITE Trip Generation Handbook.
 - b. Traffic and Parking Management: When a traffic analysis is required, traffic volumes shall be addressed in both terms of average daily traffic and peak hour volumes. In places where there a large seasonal swings in volume, the peak season shall be used in analysis. Future year analysis and specifics regarding how traffic will be managed shall be included in analysis. Parking management shall be addressed in this plan with total parking needs and capacity clearly defined. For all construction projects within Pitkin County that meet certain thresholds, as outlined in the Construction Management Plan (CMP), shall conform to the CMP.

1.15 ROUTE CORRIDOR AND TERRAIN FACTORS

The entire route corridor of a road shall be considered when establishing the terrain factor. The Colorado Department of Transportation considers most County roads in Pitkin County as being in the “Mountainous Terrain” category, however, some roads, such as subdivision roads, may fall entirely in the “Level Terrain” category.

- A. Level Terrain is that condition where road sight distances are generally longer and could be made without construction difficulty or major expense.
- B. Rolling Terrain is that condition where the natural slopes consistently rise above and fall below the road grade line and where occasional steep slopes offer restriction to normal highway horizontal and vertical alignment.
- C. Mountainous Terrain is a condition where longitudinal and transverse changes in the elevation of the ground with respect to the road are abrupt and where the roadbed is obtained by frequent benching or side hill excavation.

Route Corridor should take into account local landforms and vegetation. Where applicable, such as in urban settings, landscaping shall be completed complying with guidance from applicable sections of American Association of State Highway Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets and Roadside Design Guide and conform with Pitkin County’s Revegetation Guidelines.

1.16 DESIGN SPEED

Geometric design features shall be consistent with a design speed selected as appropriate for traffic volumes and conditions.

- A. Low design speeds are generally acceptable for roads with winding alignments in rolling or mountainous terrain or where environmental conditions dictate.
- B. High design speeds are generally acceptable for roads in level terrain or where other environmental conditions are favorable.

It is necessary for designers to recognize conditions where actual operating speeds typically may exceed the design speed; for example, terrain conditions may limit the overall design speed of a roadway section to a select speed but several long tangents may encourage higher speeds. An older facility, like most in Pitkin County may have a highway curve that has a design speed below the general operating speed of the highway. When this occurs, the common practice is to use an advisory speed sign to warn drivers of the lower safe operating speed on the curve. On new and reconstructed facilities, the curve should be designed to appropriate standards as dictated by the AASHTO's *A Policy on Geometric Design of Highways and Streets* (most recent version), the *Colorado Department of Transportation's Design Guide*, or as determined to be prudent by the County Engineer given local topography and other environmental considerations

1.17 GRADES

The length and steepness of grades directly affect the operational characteristics of any road. Recommended maximum grades will be dictated by associated road type (local, arterial, etc) and figures as dictated by the American Association of State Highway and Transportation Officials *A Policy on Geometric Design of Highways and Streets* (most recent version) and the *Colorado Department of Transportation's Design Guide*. These values are not to generally exceed 12% grade. In exceptional circumstances where local topography or other environmental considerations render compliance with the foregoing standards impractical, the County Engineer may approve a variance from said standards when a professional engineer registered in the State of Colorado stamps plans incorporating the variance and warrants that the roadway constructed out of compliance with said standards is nonetheless safe and suitable for its intended purpose and use by the public.

1.18 SIGHT DISTANCE

Sight distances, including but not limited to stopping sight distance, passing sight distance, and decision sight distance shall be determined by equations as dictated by the American Association of State Highway and Transportation Officials *A Policy on Geometric Design of Highways and Streets* (most recent version), the *Colorado Department of Transportation's Design Guide*. In exceptional circumstances where local topography or other environmental considerations render compliance with the foregoing standards impractical, the County Engineer may approve a variance from said standards when a professional engineer registered in the State of Colorado stamps plans incorporating the variance and warrants that the roadway constructed out of compliance with said standards is nonetheless safe and suitable for its intended purpose and use by the public. Type of curvature (vertical sag, vertical crest, horizontal, etc.) shall be considered along with distance of any sight obstruction from the roadway.

1.19 HORIZONTAL ALIGNMENT

Horizontal alignment should provide for safe and continuous operation of vehicles at a uniform design speed for substantial lengths of roadway. Design considerations should be addressed as outlined in the American Association of State Highway and Transportation Officials *A Policy on Geometric Design of Highways and Streets* (most recent version), the *Colorado Department of Transportation's Design Guide*, or as figured prudent by the County Engineer given local topography and other environmental considerations.

1.20 ROAD SURFACE CLASSIFICATION

Road surfaces are classified as follows:

Low: Low type surfaces are those with surface treated earth and those with loose surfaces such as gravel.

Intermediate: Intermediate type pavements are those designed to retain smooth riding qualities and good non-skid properties in all weather under light loads and low traffic volumes.

High: High type pavements are those that retain smooth riding qualities and good non-skid properties in all weather under heavy traffic volumes and loading with little maintenance.

1.21 TRAVELED WAY CROWN

Design of the pavement crown is often a compromise between the need for reasonably steep cross slopes for drainage and relatively flat cross slopes for driver comfort. Pavement super-elevations shall be determined by Section 1.22. Generally, a minimum cross slope of 1.5% should be used. However, further guidance can be found in CDOT Standard Plans – M & S Standards, *A Policy on Geometric Design of Highways and Streets* (most recent version), and the *Colorado Department of Transportation's Design Guide*.

1.22 SUPER-ELEVATION

One of the most important factors to consider in highway safety is the centrifugal force generated when a vehicle traverses a curve. Centrifugal force increases as the velocity of the vehicle and/or the degree of curvature increases.

To overcome the effects of centrifugal force, curves may be super-elevated. It is impossible to balance centrifugal force by super-elevation alone, because for any given curve radius a certain super-elevation is exactly correct for only one driving speed.

CDOT Standard Plans – M & S Standards, *A Policy on Geometric Design of Highways and Streets* (most recent version), and the *Colorado Department of Transportation's Design Guide* should be used in determining rates of super-elevation (both maximum and for any specific curve).

1.23 NUMBER OF LANES

The number of lanes should be sufficient to accommodate the design volume. The majority of roads in Pitkin County will be two lanes. Where more than two lanes are warranted to accommodate design volumes, determinations of design are to be made as indicated in CDOT Standard Plans – M & S Standards, *A Policy on Geometric Design of Highways and Streets* (most recent version), and the *Colorado Department of Transportation's Design Guide*. Under

special conditions as approved by the Planning and Zoning Commission and the Board of County Commissioners, sections of one lane road may be approved if the entire road falls under the "Country Access" standard. Roads with one-lane sections will not be accepted by the County for right-of-way or maintenance and must meet the following:

- (a) That section which is one lane must have its entire length visible from both ends of the two-lane portion.
- (b) All "Country Access" standards for surface sight distance, curve radii, shoulder, ditch, etc., must be met. Minimum width of a one-lane road shall be 10.0 feet.
- (c) The driving surface will be at least 10 feet wide with turnouts at 500+ foot intervals. Turnouts will be 10 feet wide and 50 feet long.
- (d) Guardrail will be installed along the entire substandard section, except in areas of flat, open terrain where no roadside obstacles or steep hillsides exist. Areas to be without guardrail must be proposed by the applicant, designed by a registered professional engineer, and approved by the County Engineer or his representative.

These standards (along with section 1.35) shall only be used with prior approval from the County Engineer and Community Development Designee.

1.24 WIDTH OF SURFACING, SHOULDER AND ROADWAY

The dimensions of a typical cross section depend upon a number of features that vary with the type of roadway. Default geometric design standards should be identified with reference to *A Policy on Geometric Design of Highways and Streets* (most recent version), the *Colorado Department of Transportation's Design Guide* and any other applicable standards as determined by the County. Class of roadway, local topography and environment shall all be included in design decisions.

1.25 BICYCLE LANES

Bicycle lanes should be constructed in accordance with the Standards and Specifications contained in the Open Space and Trails Management and Design Guidelines (available at the Open Space & Trails Department) or the American Association of State Highway and Transportation Officials Guide for the Development of Bicycle Facilities (available at the Open Space & Trails Department), as determined most appropriate by the Open Space designee.

1.26 GUARDRAIL

Guardrail should be used on roads with steep side hills and cuts, on bridge approaches and along switchbacks. In mountainous terrain with a minimum 2-foot shoulder, the graded width of the shoulder in cuts may be decreased 2 feet if guardrail is installed. Guardrail shall not be closer than 2 feet to the driving surface. Guardrails shall be of a non-shiny material and shall meet the standards in the latest edition of the Colorado Department of Transportation M-Standards. Further design standards can be found in the *AASHTO Roadside Design Guide* and other applicable standard setting publications.

1.27 SWITCHBACKS

Switchbacks are not considered a good roadway design solution for gaining elevation. When used, no switchback shall have a tangent less than 1/4 mile from the last switchback. This is especially important on hillsides steeper than 20% where visually switchbacks create a heavy impact. On horizontal curves less than 150 feet, grades on switchbacks shall be reduced to zero percent at the apex of the vertical curve. (Note: The horizontal curve shall not begin prior to the end of the vertical curve for these purposes).

1.28 RIGHT-OF-WAY WIDTH

The procurement of right-of-way to widths that will accommodate construction, utilities, adequate drainage and proper maintenance of the road is the most important aspect of the overall design. Wide rights-of-way permit the construction of gentle slopes, resulting in more safety and easier maintenance. The procurement of sufficient rights-of-way at the time of initial construction or improvement permits the widening of the roadway at reasonable costs as traffic increases.

The minimum right-of-way for all new roads shall be thirty feet (30'), however sixty feet (60') is preferred.

1.29 VERTICAL CLEARANCE

Vertical clearance at underpasses, power lines, streetlights, etc., shall be at least twenty feet (20') over the entire roadway width, including shoulders.

1.30 HORIZONTAL CLEARANCES TO OBSTRUCTIONS

Horizontal clear zones shall be dictated by all applicable standards as set forth in the *AASHTO Roadside Design Guide, A Policy on Geometric Design of Highways and Streets* (most recent version), and the *Colorado Department of Transportation's Design Guide* and any other applicable standards.

1.31 INTERSECTION DESIGN

The location of intersections should be carefully selected to avoid steep approach grades and to ensure that there is adequate approach sight distance to the intersection. An intersection should not be located on a short crest vertical curve, just beyond a short crest vertical curve, or on a sharp horizontal curve. Where there is no practical alternate to such a location, the approach sight distance on each leg should be flattened and horizontal or vertical curves lengthened to provide additional sight distance. There should be sufficient sight distance to permit a passenger vehicle on the minor leg of the intersection to cross the traveled way without requiring the through approaching traffic to slow down. As a general rule, there should be a minimum of 6 to 7 seconds available to the driver crossing the through lanes. On this basis, the suggested corner sight distance for each design speed would be as calculated using the site triangle method. Minimum sight distances shall be calculated using applicable standards from *A Policy on Geometric Design of Highways and Streets* (most recent version), and the *Colorado Department of Transportation's Design Guide*.

Intersections should be designed with a corner radius of the pavement or surfacing that is adequate for the larger vehicles anticipated; usually, a minimum edge radius of 50 feet is applicable. Where turning volumes are significant, consideration should be given to speed-change lanes and channelization.

Intersection legs that will operate under STOP control preferably should be at right angles.

1.32 MODIFICATION OF ROAD CLASSIFICATIONS AND DESIGN STANDARDS

A. County roads have been separated into five classes (and two sub-classes) for administrative and design purposes. The road cross sectioning identified on the following pages is meant to portray guidelines that may be modified by environmental, topographic, safety, and geographic conditions.

In certain circumstances it may make sense to allow for modifications to the design standards to allow for reasonable variances which provide significant benefits without decreasing safety and causing greater environmental impacts.

B. An applicant other than the County who wishes to modify the design standards shall submit in writing, by a registered professional engineer, a proposal outlining what standards are wished to be waived, including an explanation why those modifications must take place. The proposal shall also include an analysis of the cost and benefits of compliance with the standards as well as the cost and benefits of the proposed modifications to the standards. Any such request shall be reviewed based on the following criteria:

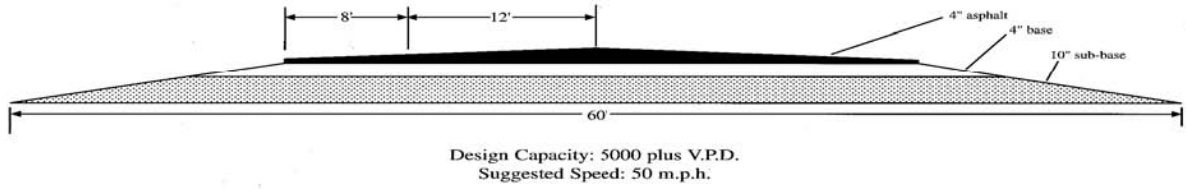
1. Shall be in harmony and compatible with the character of the surrounding areas, neighborhood and zoning;
2. Shall be consistent with the AMP;
3. Shall not result in an over-intensive use of land;
4. Shall not have adverse effect on community capital improvement programs;
5. Shall not require a level of community facilities and services greater than that which is available;
6. Shall not result in undue traffic congestion or traffic hazards;
7. Shall not cause significant air, water, or noise pollution;
8. Shall be adequately landscaped, buffered, and screened;
9. Shall not otherwise be detrimental to the health, safety, or welfare of the present or future residents or the public;
10. Shall not have significant environmental and visual impacts;
11. Shall not compromise emergency response.

The County Engineer and the Community Development Director shall have the authority to approve modifications to driveway standards unless such a modification is in association with other Land Use Review applications which require Planning Commission or Board of County Commissioner approval. All other requests for modifications shall be submitted to the County

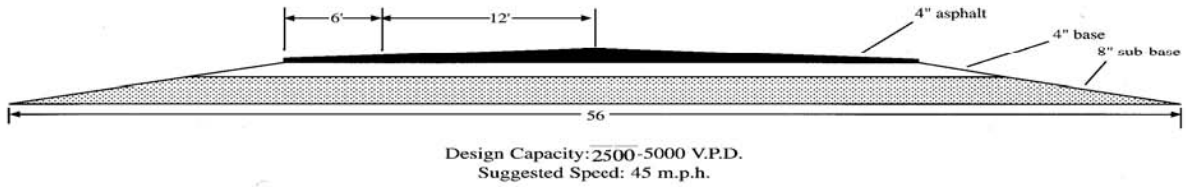
Engineer. The County Engineer and the Community Development Director shall review the request and make recommendations to the Board of County Commissioners, and modifications shall be authorized by resolution of the Board of County Commissioners.

PITKIN COUNTY ROAD STANDARDS AND SPECIFICATIONS

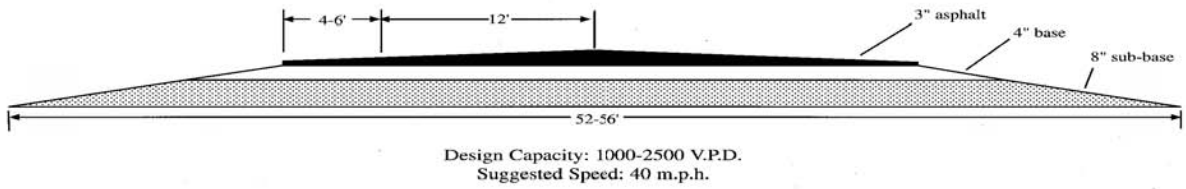
Class I: Arterial



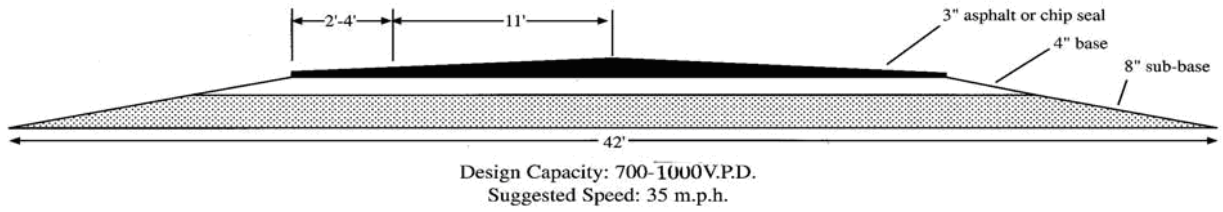
Class II-A: Main Collector



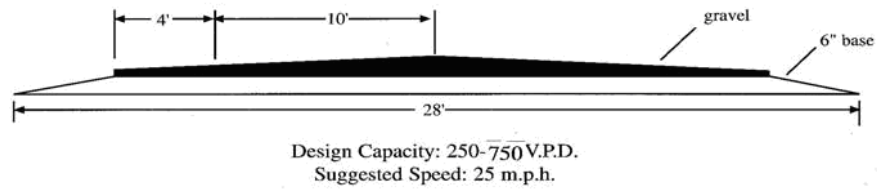
Class II-B: Collector



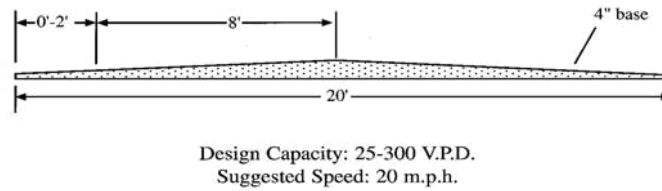
Class III: Local Access



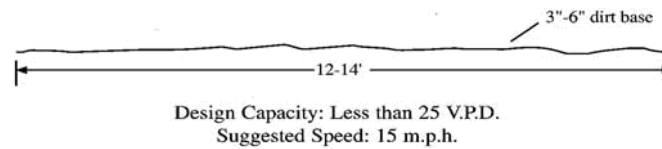
Class IV: Rural Access



Class V-A: Country Access



Class V-B: Primitive



1.33 ROAD DEVELOPMENT IN THE FLOODPLAIN

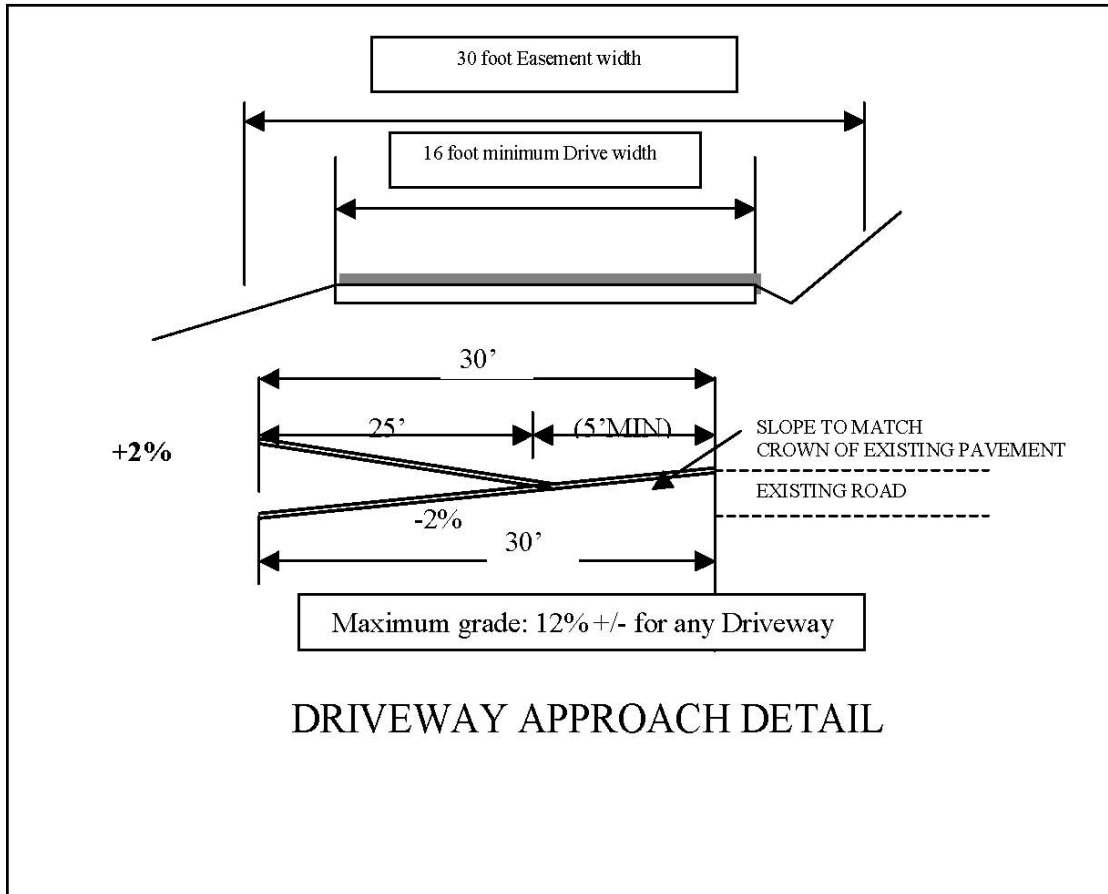
A Floodplain Development Permit and an Access Development Permit shall be required submittals for all retaining structures, driveways or roads in the 100-year Floodplain. All roads shall be constructed above the base flood elevation. The constructed fill in the floodplain will have sufficient drainage devices so as to pass the 100-year flood with minimal impoundment. The development within the floodplain shall be consistent with the Pitkin County Land Use Code, 7-20-40.

Driveways may be overtopped by a ten-year flood or greater if all floodwaters have a velocity of 3 f.p.s. or less (3 f.p.s. or less is considered standing water with little ability to erode).

1.34 ACCESS DESIGN STANDARDS

Accesses are roads that generally serve fewer than 5 residential units and have a low volume of traffic. Roads built to the access standards will not be eligible for inclusion or acceptance into the County Road System. New accesses or ones with major modifications shall be designed by a registered, professional Engineer as outlined in the ACCESS PERMIT section of this AMP.

Table 1.34
Minimum Access Standards



Width	16'	Unless one-lane as per applicable standards
No. of Lanes	2	Same as above
Max. % of Grade	12%	Variations may be approved due to conditions
Approach Grade	2%	Grade required for 30' approach to intersection (See typical section)
Minimum curve radius	50' @ C/L	Radius at centerline of drive
Pullouts (10'x50' minimum)	500' +/-	Recommended distance, may be greater with approval from Fire Marshall
Surface Treatment	Minimum graded dirt	All weather gravel surface

1.35 DESIGN IN THE FLOODPLAIN

The design of all roads, culverts, and bridges shall accommodate a 100-year flood event.

Applicant shall submit a Floodplain Development Permit and an Access Driveway Development Permit for all retaining structures, driveways, or roads in the 100- year Floodplain.

All roads shall be constructed above the base flood elevation. The constructed fill in the floodplain will have sufficient drainage devices so as to pass the 100-year flood with minimal impoundment. The development within the floodplain shall be consistent with the Pitkin County Land Use Code, Article 3, Section 3-80-40.

Driveways may be overtopped by a ten-year flood or greater if all floodwaters have a velocity of 3 f.p.s. or less (3 f.p.s. or less is considered standing water with little ability to erode).

1.36 CULVERT DESIGN

Culverts shall be sized to pass the 100-year flood. In determining culvert size the following formula should be considered.

$P(Q)=$ Probability of the flow being equaled or exceeded from wither snowmelt or rainfall flooding

$P(QS)=$ Probability of that flow being equaled or exceeded due to snow melt flooding.

$P(QR)=$ Probability of that flow being equaled or exceeded due to rainfall flooding.

Complete engineering calculations shall be submitted for review for all culverts placed in live streams. Floodplain permit and/or an Access Driveway Development Permit are required for all culvert placements. A 1041 Hazard Review is required when flows are in excess of 3 c.f.s. An 18-inch culvert will be the minimum size culvert to be placed under any road as culverts smaller than that are easily blocked by debris. Minimum length of any culvert in the public right-of-way will be 20 feet to minimize the ends from being crushed. Minimum bedding material over the top of the culvert and under the culvert shall be 12 inches. Minimum side bedding shall be 12 inches either side of culvert.

1.37 BRIDGES

1.37.01 Existing Bridges

Since highway geometric and roadway improvements encourage higher speeds and attract larger vehicles to the highway, it is important that existing substandard structures also be improved correspondingly. Because of their high cost, reasonably adequate bridges and culverts that meet tolerable criteria should be retained.

Where an existing highway is to be reconstructed, an existing bridge which fits the proposed alignment and profile may remain in place when its structural capacity in terms of design loading and clear roadway width are at least equal to the values shown for the applicable traffic volumes under clear roadway widths for new and reconstructed bridges.

1.37.02 NEW OR REBUILT BRIDGE DESIGN

New or rebuild bridges shall be sized to pass the 100-year flood. In determining bridge design the following formula should be considered:

$P(Q)$ = Probability of the flow being equaled or exceeded from wither snowmelt or rainfall flooding

$P(QS)$ = Probability of that flow being equaled or exceeded due to snow melt or rainfall flooding.

$P(QR)$ = Probability of that flow being equaled or exceeded due to rainfall flooding.

A minimum of 18" of freeboard shall be allowed. It is recommended that the design engineer consider an additional 12" to 18" for freeboard to pass debris of the 100-year flood. The minimum design loading for all new and rebuild bridges shall be H-15. Where traffic volumes are 700 ADT or greater, the minimum design loading shall be HS-20. A registered professional engineer shall design all bridges. A Floodplain Development Permit or an Access Driveway Development Permit is required for all bridge construction or rebuilding. AASHTO and CDOT standards shall be used for all bridge design within Pitkin County. All design criteria is subject to review by the County Engineer and possibly the Pitkin County Community Development department. Persons wishing to install a bridge within Pitkin County on a private road or driveway shall submit an Access Control Permit. All bridge plans shall be stamped by a Professional Engineer registered in the State of Colorado.

Notes:

- (1) Where the approach roadway is surfaced for the full crown width, that surfaced width should be carried across structures.
- (2) On highways with a current ADT over 1,000, bridges with a total length over 100 feet may be constructed with a minimum clear roadway width of the surfacing width plus six feet.

1.38 ROAD STANDARDS FOR ROADS AND ACCESSES LOCATED IN AREAS ZONED RURAL AND REMOTE

The following road standards have been developed for access to County approved development in areas zoned rural and remote. The goal of the standards is to allow roads to be constructed in remote areas with the least amount of environmental impact. The standards have been developed in conjunction with the United States Forest Service (USFS) and their road standards developed for private roads constructed on National Forest System Lands. These standards shall be as follows:

1.38.01 GENERAL

Plans for construction of the road shall be signed and/or stamped by a Colorado registered professional engineer. The plans should include: topographical site plan, road cross-section, drainage structures, retainage walls and bridge structures.

1.38.02 DESIGN CRITERIA

These standards (along with section 1.23) shall only be used with prior approval from the County Engineer and Community Development Designee.

Design Speed: 10 miles per hour

Drainage: Roads with grades 8% and less should maintain an out-slope of 2% and utilize rolling dips and/or culverts. Roads with grades exceeding 8% should maintain an out-slope of 2% and utilize culverts or other drainage structures. An energy dissipater must be used in most soil conditions with grades exceeding 8%. Approach to an existing County road shall be constructed to slope away from the existing County road at a 2 % grade for at least 5 feet.

PERMITTING REQUIREMENTS

Appropriate Permits as identified in this AMP are required for any and all work done within County rights-of-way or other property by persons or entities other than Pitkin County. Permits must be made available to County personnel at the work site on demand. Permits are also required for certain actions addressed within this AMP that may affect County roads or rights of way. The permitting requirements contained in this AMP do not apply to work done by Pitkin County, including without limitation its departments, agents, consultants, and contractors.

1.39 ACCESS PERMIT

1.39.01 PURPOSE

The purpose of these requirements is to establish engineering, inspection and permitting policies by which an approved access may be allowed.

1.39.02 PERMIT REQUIRED

No person shall begin work on a proposed access, or make substantial improvements to an existing access or private road, except as specifically exempt in subsections A-C, below, without first obtaining an approved Access Permit from the County. A separate permit will be required for each access point proposed. An Access Permit shall be required even in cases where the access does not directly enter a County road. This is to assure compliance with County standards.

The following activities are exempt and do not require an Access Permit:

- A. Minor or insubstantial maintenance to an existing legal access. Such work may include: grading, oiling or otherwise maintaining the existing driving surface, cleaning road side ditches or cross culverts, and placing or repairing fencing or gates that are required as a part of the access. What constitutes minor or insubstantial maintenance shall be determined on a case-by-case basis and will depend on the proposed work's impact (including both physical impacts and impacts on traffic volume, safety, and other matters affecting the proper functioning of a County asset) on County rights-of-way or other affected assets.
- B. Any work required within an existing access to place underground utilities. (Note that an Earthmoving Permit may be required if threshold volumes of excavated materials are exceeded).
- C. Any work required within an existing access to repair or maintain irrigation ditches or impoundments.

The following activities may obtain approval through a Temporary Access Permit::

- A. Any access needed temporarily for non-residential purposes (e.g., drill for water, access to show property, construction activities) may qualify for a temporary access permit. **TEMPORARY ACCESS PERMITS SHALL ONLY BE GRANTED FOR AN ACCESS PREVIOUSLY APPROVED IN SUBDIVISION OR SITE PLAN REVIEW.** Temporary Access Permit applications shall be submitted to the County Community Development Department for review and approval prior to execution by Public Works. An access permitted through a Temporary Access Permit may only be in place for a limited time

not to exceed 6 months from issuance of permit and the access site must be reclaimed and returned to its original condition when the Temporary Access Permit expires. If the applicant desires to convert a temporary access into a permanent access, a normal Access Development Permit must be obtained before a Building Permit will issue. All permanent access regulations also apply to Temporary Access Permits. Under no circumstances shall a Temporary Access Permit be issued for an access providing service to a residential property; such use requires prior issuance of a normal Access Permit.

1.39.03 ACCESS PERMIT APPLICATION PROCESS

The Pitkin County Access Permit application is available at the Community Development Office, the Public Works Office or online at www.aspenpitkin.com. Completed applications, along with relevant attachments, shall be submitted first to the Community Development Department for review for compliance with the Pitkin County Land Use Code and conditions of prior approvals. The application will then be forwarded to the Public Works Department for approval.

1.39.04 PLANS AND SPECIFICATIONS

All accesses must conform to the design standards set forth in this AMP (see sections 1.14 through 1.35).

Applicants are advised to meet with County staff prior to submittal to assure the site is compatible with all applicable land use and development standards. Two (2) sets of complete plans and specifications demonstrating compliance with the County's design standards shall be submitted with the Access Permit Application. These plans and specifications shall be prepared by a Registered Professional Engineer and shall show the following:

- A. All applicable land use approvals and plats
- B. Site vicinity map
- C. Site plan showing the location of the access on the property and the road to be accessed. The site plan shall show all existing and proposed 2 foot contours.
- D. Access plan and profile
- E. Drainage and erosion control plan addressing proposed access and county or private road
- F. Construction Management Plan
- G. Revegetation Plan
- H. Approval from the Fire Marshall
- I. Map or letters from utility companies detailing utility placement in the area proposed for access
- J. Parcel and/or ownership maps and applicable easements (and, if necessary, authorization pursuant to § 1.39.06)
- K. Signing and striping plans (if applicable)
- L. Traffic Control Plan and applicable methods of handling traffic (if applicable)

1.39.05 SUPPLEMENTAL REPORTS

Supplemental reports and data (geology, soils, traffic impacts, existing traffic counts, etc.) may be required depending on the nature of the site and the scope of the proposed access. Supplemental reports must be prepared by qualified professionals in the relevant field.

Recommendations included in such reports approved by the County Engineer and Community Development may be incorporated into the access plan and made a condition of approval.

1.39.06 AUTHORIZATION

The applicant shall submit proof that it has authority or permission to conduct work required to place the proposed access on the site(s) proposed. This documentation shall be submitted with the application for permit. The approval of an access development permit does not imply or grant any further development rights.

1.39.07 HAZARDOUS OR HARMFUL CONDITIONS

Whenever the County determines that an existing access has become a hazard to public health, safety or welfare, the owner of the property utilizing the access, upon receipt of written notice from the County shall, within the period specified therein, repair or eliminate such access so as to eliminate the hazard and be in conformance with the requirements contained herein. This shall be a condition of all permits and shall constitute a continuing obligation that runs with the land.

The developer of any new or improved access point shall provide acceleration and/or deceleration lanes or left turn lanes when the volume of traffic entering or leaving the access causes significant impacts to the capacity or safety of traffic on the main line roadway or may cause increases in traffic delays and congestion. All improvements shall be constructed to applicable design standards identified in this AMP.

1.39.08 COMPLIANCE WITH PLANS AND REQUIREMENTS

All permits issued hereunder shall be deemed as a matter of law to require the applicant (including without limitation all of his or her agents, contractors or employees of any kind) to carry out the proposed work in compliance with all applicable statutory and regulatory requirements, and in full accordance with the plans and specifications approved in connection with the Access Permit. If the County Engineer determines that actual conditions present on-site do not conform to those stated in the permit or the approved plans or specifications, the County may issue a stop-work order until the applicant obtains approval for a revised access plan that conforms to the existing conditions and satisfies all applicable requirements. Modifications of previously-approved Access Permits or plans shall not be valid until approved in writing by the County Engineer. Bonds or letters of credit may be required to secure these obligations before an Access Permit or modification thereto will be issued.

Approvals which affect basic tract design or land use may require approval by the County Community Development Department in addition to approvals required by Public Works.

1.39.09 PROTECTION OF UTILITIES

During work on the access, the applicant shall be responsible for the prevention of damage to public or private utilities or services. This responsibility is not confined to the limits of the work.

1.39.10 PROTECTION OF ADJACENT PROPERTY

The applicant is responsible for the prevention of damage to adjacent property, and no person shall excavate or fill on land sufficiently close to the property line to endanger any adjoining public street or any adjacent property.

1.39.11 REVEGETATION

The applicant shall be responsible for complete revegetation of the access site. Said revegetation shall conform to the adopted Pitkin County Revegetation Guidelines (see Appendix). Unless otherwise approved by a Public Works designee, revegetation of the site shall be accomplished by reseeding with a native grass mix comparable to those described within the Pitkin County Revegetation Guidelines. The applicant may be required to submit to the Public Works designee a signed statement certifying that the seed furnished is from a lot that has been tested by a recognized laboratory for seed testing within six (6) months prior to the date of delivery. Seed which has become wet, moldy, or otherwise damaged in transit or in storage will not be acceptable. Seed types and amount of pure live seed required per acre shall be in conformance with the surrounding native grasses. The Public Works designee may review the proposed seed mix or its compatibility with the surrounding vegetation and approve it before use.

The applicant shall also be responsible for assuring that the areas to be revegetated will grow and take root to the soils on the disturbed areas. This will include any watering and noxious weed control needed to insure or otherwise promote this growth. To guarantee the revegetation, the developer will be required to provide a bond, letter of credit, or other financial assurance, which will be held for a minimum of two (2) years, as more fully described in Section 1.39.14. The assurance monies will be equal to the costs of revegetation, and will be returned to the applicant when it is determined by the Pitkin County Land Manager that the revegetation of the disturbed areas at the access site has been successfully completed.

If within a two-year period from the revegetation effort a successful stand of native grasses at the access site has not been accomplished, the County may, at its discretion, retain any or all of the assurance monies necessary in order to attempt revegetation of the grounds. A successful stand of native grasses is defined as being at a 75% germination rate and/or having vegetation cover equal to or greater than the surrounding vegetation cover. The success of the revegetation at the access site will be measured at the end of the summer growing season by the Public Works designee who will approve or reject it between that time and the end of the two-year assurance period.

1.39.12 ACCESS PERMIT LIMITATIONS AND CONDITIONS

- A. General. The issuance of an Access Permit shall constitute an authorization for only that work (no more and no less) which is described or illustrated on the approved plan or application for the permit. The issuance of other required permits to the applicant shall not relieve it of the responsibility for securing an Access Permit.
- B. Jurisdiction of Other Agencies. Permits issued shall not relieve the applicant of the responsibility for securing required permits for work to be done under regulation of any other code, department, or governing agency.
- C. Time Limits. All of the work authorized by the permit shall be fully performed and completed within the time limit specified. If no time limit is specified, the work shall be completed within 1 year after the date the permit is issued. If the work cannot be completed within the specified time, a request for an extension of time setting forth the reasons for the requested extension shall be presented in writing for review and approval by Community Development and the County Engineer.
- D. Storm Drainage. All persons performing any work under an Access Development Permit shall put into effect all necessary precautions and conform to all applicable

standards to prevent storm drainage.

- E. Traffic Control Plan. In the case of any work that may affect the traveling public, the applicant shall submit a traffic control plan that complies with the standards set forth by this AMP, the most recent applicable Colorado Department of Transportation standards, and the latest edition of the Manual of Uniform Traffic Control Devices.

1.39.13 DENIAL OF ACCESS PERMIT

A permit will not be issued in any case where the work proposed by the applicant will not comply with the requirements contained herein, or if the proposed work is not consistent with land use or development policies currently adopted by the County. If it can be shown to the satisfaction of the County that compliance with requirements and conditions can be obtained by the construction of retaining structures, drainage devices, or by other means, the permit may be issued with the condition that such work be performed. As a general policy, the County does not allow more than one access per property.

1.39.14 FINANCIAL SECURITY AND BONDING

Letters of credit or other financial assurances may be required by the County for work conducted under an approved Access Permit. This financial assurance will be required where, in the discretion of the County Engineer or his/her representative, it would be necessary to guarantee enforcement of applicable requirements, including landscaping or earthmoving on steep slopes. Payment and Performance Bond, letter of credit or cash payment for an amount set by the County Engineer or his/her representative shall be provided and secured unto the County, and, if the work authorized by the permit is not completed as specified, any security shall be in default and the County shall recover on the security, provided notice of non-compliance is given in writing to the developer by the County Engineer or his/her representative. The surety executing any bond or deposit shall continue to be firmly bound under a continuing obligation for the payment of all necessary costs and expenses that may be incurred or expended by Pitkin County in causing any unsatisfactory work to be corrected or any unfinished work to be completed. In the event of default, the County shall have the right to go onto the premises to perform the required work. In the case of a cash deposit, said deposit or any unused portion thereof shall be refunded. Other securities other than a bond, such as cash payment or letters of credit, must obtain approval by the County Attorney's Office prior to permit issuance.

1.39.15 ACCESS CONSTRUCTION STANDARDS AND SPECIFICATIONS

Unless another section of this AMP provides otherwise, the most recent edition of the Colorado Department of Transportation's *Standard Specifications for Road and Bridge Construction* shall govern all Access construction practices. Variations from the CDOT *Standard Specifications* may be granted by the County Engineer and Community Development when site-specific conditions make application of the *Standard Specifications* impractical or unnecessary. The determination of whether or not a variance is justified shall rest in the sound discretion of the County Engineer and Community Development based on all factors present at the site. Such a variance shall only be granted through a signed writing executed by the County Engineer.

1.39.16 SUPERVISED INSPECTION REQUIRED

All Access work other than routine maintenance shall be performed under the supervision of a qualified and registered professional civil engineer at the Applicant's expense and shall be

designated as "supervised work". For supervised work, it shall be the responsibility of the Applicant's engineer to supervise and coordinate all site inspection and testing during working operations. If the engineer finds that the work is not being done in accordance with either the applicable Access Permit or accepted construction practices, he/she shall immediately send a written notice of the nonconformity and of the recommended corrective measures to the person in charge of the work and to the County Engineer or his/her designee.

1.39.17 REGULAR ACCESS WORK INSPECTION

The County Engineer or his/her designee shall have the right to enter the premises to inspect work undertaken pursuant to an Access Permit at any time. Inspection may include but need not be limited to preparation of surface for fills, retaining walls, drainage devices, and any and all other matters set forth in the Access Permit or the applicable plans and specifications for the work (including, without limitation, the CDOT *Standard Specifications*). The County Engineer or his/her designee may require soil borings, compaction or other tests at the applicant's expense if an inspection discloses that such tests may be necessary to ensure public health, safety or welfare. Tests shall be taken at locations designated by the County Engineer or his/her designee and shall be performed by an independent testing firm approved by the County. Certified copies of the test data are to be furnished upon request to the County Engineer or his/her designee. The applicant shall inform the County Engineer or his/her designee at least one (1) day in advance of each pre-scheduled inspection regarding the status of the work and its compliance with the applicable Access Permit and all applicable plans and specifications. Final approval of work conducted pursuant to an Access Permit shall not be given until all work, including installation of all drainage structures and their protective devices, has been satisfactorily completed in accordance with all Permit requirements and all applicable plans and specifications, and all required data or reports have been submitted.

1.39.18 FINAL REPORTS

Upon completion of the work, the following reports or data may be required:

- A. A report from the applicant's engineer certifying that all work has been completed in conformance with the approved plans and applicable requirements, accompanied by "as-built" plans of the completed work
- B. Soils and/or geology reports
- C. Cross-sections
- D. Other reports as required depending on applicable site conditions

The release of any bond or security posted by the applicant may be conditioned upon the submittal of the final report or reports.

1.39.20 LIABILITY

Neither the issuance of a permit nor compliance with the provisions hereof or with any conditions imposed in the permit issued hereunder shall relieve the applicant from the full responsibility for any damage whatsoever to other persons or property, nor impose any liability upon any official, appointee, or employee of Pitkin County for damage to persons or property.

1.39.22 FEE SCHEDULE (See Appendix A)

1.40 RIGHT-OF-WAY WORK PERMITS

1.40.01 PURPOSE

The purpose of these requirements is to establish engineering, inspection and permitting policies governing Right-of-Way Work Permits. A Right-of-Way Work Permit confers a limited license to conduct activities within a County-owned asset.

1.40.02 PERMIT REQUIRED

Any person, business, utility, or agency, including without limitation contractors, developers, owners, and governmental agencies (other than Pitkin County itself and all of its departments, agents, and instrumentalities), who proposes to perform work within any County property or right-of-way (hereinafter, "Applicant"), must first obtain a Right-of-Way Work Permit from the Public Works Department in accordance with the requirements of this section 1.40. "County property or right-of-way" as used herein includes, without limitation, roads and their surrounding rights-of-way, bridges, trails and their surrounding rights-of-way, and any other County-owned land or open space of any kind.

A Right-of-Way Work Permit application must be submitted to Public Works at least 7 days prior to the planned commencement of construction; Applicants are advised, however, to submit applications well in advance of scheduled work as County workload or the necessity for certain studies may preclude issuance of permits within a 7-day time frame.

Right-of-Way Work Permits expire 30 days from the date of issue and must be renewed in advance if work will not be complete within that 30-day time frame.

Right-of-Way Work Permit applications are available at Public Works or online at www.aspenpitkin.com. Completed applications shall be submitted to the Public Works Department, 76 Service Center Road, Aspen, CO, 81611.

1.40.03 APPLICATION CONTENTS

An application for a Right-of Way Work Permit shall include, at a minimum, documentation addressing the following:

- A. All required land-use approvals (if applicable), including copies of relevant approval documents.
- B. Site vicinity map and site plan accurately detailing the location of the work.
- C. Construction plans and specifications. All plans shall conform to the design standards set forth in this AMP.
- D. Schedule of proposed work.
- E. Drainage and erosion control plan addressing proposed work.
- F. Construction Management Plan (if work is in conjunction with a development permit issued by Community Development).
- G. Revegetation Plan.
- H. Map or letters from utility companies detailing utility placement (if applicable).
- I. Signing and striping plans (if applicable).
- J. Traffic Control Plan and applicable methods of handling traffic (if applicable).
- K. Confirmation that asphalt patches shall conform to standards as per drawings in the Appendix.

1.40.04 GENERAL POLICIES

Right-of-Way work shall not create safety hazards or maintenance problems; render portions of rights-of-way infeasible for future road improvement; obstruct major floodways; or otherwise impair in any long-term way the affected County Asset. Lateral installations shall be placed outside the roadbed within the "borrow pit" area and transverse installations shall be "jacked" or bored under the road in lieu of trenching whenever possible.

- A. Utility Plans. All utilities shall be installed in accordance with plans and specifications previously approved by the utility owner. Plans for main installations must bear the name, seal, and signature of a registered engineer responsible for their preparation where applicable. The alignment of all utilities within a County right-of-way is subject to approval by the Public Works designee. No permit shall be issued for installations partially on private property without proof of an established easement available for such purposes.
- B. Underground Utilities. All road level accesses (e.g., manholes, vaults) to utilities, where permitted, shall be of heavy-duty construction, capable of safely supporting anticipated maintenance equipment and vehicular traffic, and shall conform to the finished grade of the road. All underground utilities within public right-of way shall be placed at least 24 inches below ground or culvert and suitably marked with a durable marker post showing the depth and offset at least every 1000 feet and at points where the installation first enters and leaves the right-of-way.
- C. Water Table. Where the possibility exists of lowering the surrounding water table and thereby adversely affecting wells and vegetation dependent on the water table elevation in the area, suitable seep plugs shall be installed in the trench at a minimum of 500-foot intervals or as necessary to ensure that the water table will not be harmed. Appropriate engineering reports may be required to demonstrate that the water table will not be harmed by relevant work.
- D. Above-Ground Utilities All above ground utilities shall be located and installed so as not to cause unnecessary obstruction to pedestrian and vehicular traffic or damage to the utility itself that could be harmful to the general public. The minimum overhead clearance shall be 20 feet. Poles and/or other above-ground structures shall be placed so as to neither be in conflict with a pedestrian walkway nor be set less than 10 feet from the shoulder of any County road (or such greater distance as provided for by the current Roadside Design Guide). In no case will a pole be permitted within 11 feet of the traveled way.
- E. Utilities in Major Floodways All utilities within or adjacent to major floodways must be located and installed in a manner that will prevent future scenic, environmental, or property damage, including without limitation land erosion, water pollution, or flood diversions. Work within any floodway requires a Floodplain Development Permit along with a Right-Of-Way Work Permit.

1.40.05 ROAD CLOSURE

In general, road closures are not permitted unless justified on the basis of overall benefit to the general public. When road closures are permitted, the applicant must adhere to the following procedures.

- A. Closure must be explicitly specified on the approved permit.
- B. Roads may be closed only between the hours of 9:00 a.m. and 3:00 p.m.

- C. The roadway must be capable of being re-opened for emergency equipment at all times during construction. Verify the road closures specified on the permit with the Public Works designee at least one week in advance of closure.
- D. Notify the appropriate fire protection district, hospital and ambulance district, school district, and sheriff's office of the exact location, date, and time traffic will be impeded one week in advance of road closure.
- E. Place a "Public Safety Announcement" in the local newspapers to inform the public of the road closure.
- F. Supply and maintain all necessary traffic control devices and personnel.
- G. Where closures of more than one day are approved, a suitable detour must be provided and be adequately marked and signed to accommodate night traffic.

1.40.06 SUPPLEMENTAL REPORTS

Public Works may require the Applicant to provide supplemental reports or data (e.g., geology, soils, traffic impacts, existing traffic counts) to determine whether or not a Right-of-Way Work Permit may properly be issued. Supplemental reports must be prepared by qualified professionals approved by Public Works. Recommendations included in such reports that are approved by the County Engineer shall be incorporated into the plans and considered a condition and requirement of the Permit.

1.40.07 SAFETY AND PUBLIC CONVENIENCE

The applicant shall at all times conduct his/her work to assure the least possible obstruction and hazard to the traveling public. The safety and convenience of the general public and the residents along the road and the protection of persons and property shall be provided for at all times. Approved traffic control shall be utilized, as outlined by the Applicant's submittals or otherwise required in the Permit, to assure the safety and convenience of the public. Depending on the nature of the work, traffic control methods may include traffic control supervisors, flaggers, and approved traffic control devices. The applicant's operations are to conform to the applicable requirements established by the Industrial Commission of Colorado and the Occupational Safety and Health Act (OSHA).

1.40.08 PROTECTION OF UTILITIES

During work on the project, the Applicant shall be responsible for the prevention of damage to all public or private utilities or services. This responsibility is not confined to the limits of the work.

1.40.09 PROTECTION OF ADJACENT PROPERTY

The applicant is responsible for the prevention of damage to adjacent property, and no person shall excavate or fill on land sufficiently close to the property line to endanger any adjoining public street or any adjacent property.

1.40.10 REVEGETATION

The applicant shall be responsible for complete revegetation of the affected site. Said revegetation shall conform to the adopted Pitkin County Revegetation Guidelines (see Appendix). Unless otherwise approved by a Public Works designee, revegetation of the site shall be accomplished by reseeding with a native grass mix comparable to those described within the Pitkin County Revegetation Guidelines. The applicant may be required to submit to the Public Works designee a signed statement certifying that the seed furnished is from a lot

that has been tested by a recognized laboratory for seed testing within six (6) months prior to the date of delivery. Seed which has become wet, moldy, or otherwise damaged in transit or in storage will not be acceptable. Seed types and amount of pure live seed required per acre shall be in conformance with the surrounding native grasses. The Public Works designee may review the proposed seed mix or its compatibility with the surrounding vegetation and approve it before use.

The applicant shall also be responsible for assuring that the areas to be revegetated will grow and take root to the soils on the disturbed areas. This will include any watering and noxious weed control needed to insure or otherwise promote this growth. To guarantee the revegetation, the developer will be required to provide a bond, letter of credit, or other financial assurance, which will be held for a minimum of two (2) years, as more fully described in Section 1.40.18. The assurance monies will be equal to the costs of revegetation, and will be returned to the applicant when it is determined by the Pitkin County Land Manager that the revegetation of the disturbed areas at the site has been successfully completed.

If within a two-year period from the revegetation effort a successful stand of native grasses at the site has not been accomplished, the County may, at its discretion, retain any or all of the assurance monies necessary in order to attempt revegetation of the grounds. A successful stand of native grasses is defined as being at a 75% germination rate and/or having vegetation cover equal to or greater than the surrounding vegetation cover. The success of the revegetation at the access site will be measured at the end of the summer growing season by the Public Works designee who will approve or reject it between that time and the end of the two-year assurance period.

1.40.11 COMPLIANCE WITH PLANS AND REQUIREMENTS

All permits issued hereunder shall be deemed as a matter of law to require the applicant (including without limitation all of his or her agents, contractors or employees of any kind) to carry out the proposed work in compliance with all applicable statutory and regulatory requirements, and in full accordance with the plans and specifications approved in connection with the Permit . If the County Engineer determines that actual conditions present on-site do not conform to those stated in the permit or the approved plans or specifications, the County may issue a stop-work order until the applicant obtains approval for a revised plan that conforms to the existing conditions and satisfies all applicable requirements. Modifications of previously-approved Right of Way Work Permits or plans shall not be valid until approved in writing by the County Engineer. Bonds or letters of credit may be required to secure these obligations before a Permit or modification thereto will issue.

1.40.12 WARRANTY PERIOD

Any repaving, restoration, or improvement shall be warranted by the applicant against any and all defects for a period of two (2) years from the completion of such work unless the Permit specifies a longer warranty period.

1.40.13 ROAD CHANGES

In the event that any change is made to a County road that necessitates the removal or relocation of an installation made by a permit applicant, the relocation or removal of that installation shall be at the Applicant's expense upon written request of the Public Works

designee. The relocation or removal shall be completed within 30 days of notification for minor projects or infrastructure. For major utility relocation projects that do require extensive design, securing of contracts, or material orders, the relocation or removal period shall be within 90 days of notification. To avoid the necessity of such changes, the Applicant is encouraged to locate his facility consistent with any existing future plans for the roadway.

1.40.14 INSPECTIONS

The County Engineer or his/her designee shall have the right to enter the premises to inspect work undertaken pursuant to a Right-of-Way Work Permit at any time. Inspection may include but need not be limited to preparation of surface for fills, retaining walls, drainage devices, and any and all other matters set forth in the Permit or the applicable plans and specifications for the work (including, without limitation, the CDOT *Standard Specifications*). The County Engineer or his/her designee may require soil borings, compaction or other tests at the applicant's expense if an inspection discloses that such tests may be necessary to ensure public health, safety or welfare. Tests shall be taken at locations designated by the County Engineer or his/her designee and shall be performed by an independent testing firm approved by the County. Certified copies of the test data are to be furnished upon request to the County Engineer or his/her designee. The applicant shall inform the County Engineer or his/her designee at least one (1) day in advance of each pre-scheduled inspection regarding the status of the work and its compliance with the applicable Access Permit and all applicable plans and specifications. Final approval of work conducted pursuant to a Right-of-Way Work Permit shall not be given until all work, including installation of all drainage structures and their protective devices, has been satisfactorily completed in accordance with all Permit requirements and all applicable plans and specifications, and all required data or reports have been submitted.

Any work or material that does not conform to County standards will be brought to the attention of the applicant and, if immediate corrections are not made, construction may be stopped. Failure of the County to notify the applicant of noncompliance with requirements shall not relieve the applicant of its responsibility to comply. Before a bonding commitment is released, certification of satisfactory completion of work from the Public Works designee must be filed. Certification shall be effective only upon the Public Works designee's signature.

1.40.15 CONSTRUCTION STANDARDS AND SPECIFICATIONS

Unless another section of this AMP provides otherwise, the most recent edition of the Colorado Department of Transportation's *Standard Specifications for Road and Bridge Construction* shall govern all Right-of-Way Work Permit construction practices. Variations from the CDOT *Standard Specifications* may be granted by the County Engineer when site-specific conditions make application of the *Standard Specifications* impractical or unnecessary. The determination of whether or not a variance is justified shall rest in the sound discretion of the County Engineer. Such a variance shall only be granted through a signed writing executed by the County Engineer.

1.40.16 SUPERVISED INSPECTION REQUIRED

All Right-of-Way Work Permit work other than routine maintenance shall be performed under the supervision of a qualified and registered professional civil engineer at the Applicant's expense and shall be designated as "supervised work". For supervised work, it shall be the responsibility of the Applicant's engineer to supervise and coordinate all site inspection and

testing during working operations. If the engineer finds that the work is not being done in accordance with either the applicable Permit or accepted construction practices, he/she shall immediately send a written notice of the nonconformity and of the recommended corrective measures to the person in charge of the work and to the County Engineer or his/her designee.

1.40.17 UTILITY BRIDGE, DITCH OR CULVERT CROSSING

In general, utilities are not permitted to be attached to bridges and must be placed at least 4 feet below the ditch (roadside or irrigation) or creek flow line and as close to the right-of-way line as conditions permit. The utility must be at least 4 feet below the flow line elevation for a minimum distance of at least 10 feet on either side of the ditch bank or 20 feet beyond the 100-year floodway section as determined by the County. This would generally permit future bridge and channel improvements without the necessity of relocating utilities.

Where utilities are permitted to be attached to bridges due to overriding conditions encountered in the field as determined by the County, such utilities shall be placed so as not to obstruct the waterway of the bridge and/or any attachments such as brackets, hangers, connectors, conducts shall be designed by and signed by a registered professional engineer in the State of Colorado. In such cases, the utility must indemnify the County against any and all liability of any kind arising, or that may arise, out of the placement of the utilities. The utility must also list the County as an additional insured on appropriate policies providing coverages acceptable to the County's Risk Management Department.

1.40.18 FINANCIAL SECURITY AND BONDING

A surety bond in favor of the County in the amount of at least two thousand dollars (\$2000.00), or other amount to be determined by the Public Works designee if deemed necessary, shall be filed before any right-of way work permit is issued. All financial securities will be held for a 2-year period unless otherwise specified by approving staff. The bond will be conditioned upon:

- A. Faithful performance of such work in strict compliance with specifications, rules, regulations, and ordinances of Pitkin County.
- B. The restoration and clean up of any site affected by the construction activities.
- C. The maintenance of the site during the warranty period herein provided. For projects over five thousand dollars (\$5000.00), the contractor shall take out a performance bond with the owner, naming Pitkin County as additionally insured for the amount of the project. This may be in lieu of the surety bond. The bond may be waived by the Public Works designee upon applicant's showing of good cause.

1.40.19 LIABILITY

Neither the issuance of a permit nor compliance with the provisions hereof or with any conditions imposed in the permit issued hereunder shall relieve the applicant from the full responsibility for any damage whatsoever to other persons or property, nor impose any liability upon any official, appointee, or employee of Pitkin County for damage to persons or property.

1.40.20 FINAL REPORTS

Upon completion of the permitted work, the following reports or data may be required:

- A. A report from the applicant's engineer certifying that all work has been completed in conformance with the approved plans and applicable requirements, accompanied by "as-built" plans of the completed work shall be required
- B. Soils and/or geology reports

C. Cross-sections

D. Other reports as required

The release of any bond or security posted by the applicant may be conditioned upon the submittal of the final report.

1.40.21 FEE SCHEDULE

(See Appendix A)

1.41 OVERSIZED TRANSPORT PERMITS

1.41.01 PURPOSE

In order to ensure the longevity of and reduce overall impacts to County roads, posted vehicle weight and load limits must be strictly obeyed. Permits may be issued on an individual basis to allow certain vehicles to exceed posted load limits based on the criteria in this section 1.41.

Before vehicles or other types of equipment which do not conform to the limitations set by the Colorado Revised Statutes are used upon any County road, or before any vehicle or any type of equipment which exceeds the posted load limit of a County Bridge are permitted to cross the bridge, the operator must obtain a permit from the County Public Works Department. The County Public Works Department will require such provisions as it may deem necessary to protect the road and/or bridge affected by the use of said non-conforming equipment depending on the nature of the vehicle or equipment and the affected infrastructure.

1.41.02 PROCEDURE

An Overweight /Oversized Transport Permit must be obtained at least forty eight (48) hours prior to the planned use of any road on the Pitkin County system where the gross weight of the vehicle including load exceeds the posted limitations. The posting may be limited to certain times during the year, such as April - June during the spring thaw. The applicant shall complete a permit application issued by the County Public Works Department, which shall be signed by the Public Works designee, the applicant, and in some instances an affected homeowners association or other property owner, before use of the road or other infrastructure is allowed.

1.41.03 GENERAL POLICY

The Pitkin County Road and Bridge Department shall, pursuant to § 42-4-106, C.R.S., as amended, post a load limit upon County roads and bridges within Pitkin County, Colorado, which will protect said roads and bridges from all overweight/oversized vehicular traffic. Weight limits shall be pursuant to § 42-4-507 and 42-5-508, C.R.S., as amended. These weight limits are generally considered to be (unless revised) 36,000 lbs GVW for two axle vehicles, 54,000 lbs GVW for three or more axle/single unit vehicles, and 85,000 GVW for any non-interstate haulers.

No person, corporation, association, or other entity of any nature shall operate or cause to be operated any vehicle upon or along any County Right-of-Way within Pitkin County with a total gross weight in excess of the posted weight limits upon said roads or bridges, unless prior permission is granted specifically by the Pitkin County Public Works Department, or other officials designated by the Pitkin County Board of County Commissioners for routes and loads within Pitkin County, Colorado. Permission to exceed applicable limits may be conditioned on compliance with restrictions or requirements which may be imposed by said Pitkin County Public Works Department.

- A. Authorization The Director of Pitkin County Public Works is hereby authorized and empowered, pursuant to C.R.S. § 43-2-111, as amended, and § 42-4-510, as amended, to issue special permits, in writing, authorizing an applicant to operate or move a vehicle

or combination of vehicles of a size or weight of vehicle or load exceeding the maximum specified in this code, upon any County road or highway, as specified in the special permit granted to the applicant. Permits for movement of manufactured homes shall be issued as provided in C.R.S. § 42-4-510.

- B. Vehicles Requiring Permits All motor vehicles or combinations of vehicles which exceed the height and/or weight specifications contained in C.R.S. § 42-4-508, 42-4-507 or other applicable law, as amended, which are to be operated or moved on County roads or highways shall be required to apply for and receive a special road permit from the Public Works designated agent prior to using any County road or bridge.
- C. Application Procedure The Public Works designated representative shall have the responsibility for accepting, processing, and granting any and all special road permits.
- D. Criteria for Granting Special Road Permits The Public Works designated representative may grant applications for special road permits provided that the route to be traveled upon by the applicant's vehicle or combinations of vehicles is specified and the time and dates during which said vehicle or combination of vehicles is transiting the County roads are designated in the permit.
- E. Proof of Financial Security All applicants for special road permits under this section shall be required, as a condition of being granted a special road permit, to submit proof of liability insurance or a bond running to Pitkin County. Said liability insurance or bond shall be set in an amount deemed adequate to compensate the County for any possible damage to County roads, bridges or structures, upon which said special permitted vehicle or combination of vehicles shall be transiting. In no event shall the applicant be required to provide liability insurance coverage or bond in excess of \$1 million dollars.
- F. Bond Requirement As a condition of any Pitkin County road use permit, the Public Works designee may require posting of a bond as security for possible damage to a County road. Currently, the cost of a chip and seal surface is approximately \$50,000 per mile and that of asphalt mat, \$150,000 per mile, and that of gravel road is \$15,000 per mile. However, actual prevailing market costs shall be the basis for determining the amount of the bond and may change due to fluctuation in the market.

1.41.04 OVERWEIGHT/OVERSIZED TRANSPORT PERMITS FOR COUNTY BRIDGES

In order to accommodate commercial activities within Pitkin County, permits may be issued on an individual basis allowing certain vehicles to exceed the posted load limits on certain bridges.

An Overweight/Oversized Transport Permit must be obtained at least forty-eight hours prior to the planned crossing of any bridge on the Pitkin County system where the gross weight of the vehicle including load exceeds the posted limitations of the bridge. The applicant must complete a crossing permit application issued by the County Public Works Department, which must be signed by the Public Works designee and the applicant before the crossing is made. Approved permit must be kept with the transporting vehicle at all times.

1.41.05 LIABILITY

Neither the issuance of the permit, nor compliance with the provisions and conditions of the permit, will relieve the applicant from liability to the County for damage caused by the applicant's use of the bridge by overweight/oversized vehicles. Any permit granted pursuant to this section shall require that the applicant indemnify and save harmless Pitkin County, and its

officers, agents, appointees, and employees against any claims for damage or loss resulting from the applicant's use of a bridge by overweight vehicles. The applicant shall post security in an amount adequate to protect against potential damage to the bridge or bridges the applicant proposes to cross.

1.41.06 OVERWEIGHT/OVERSIZED TRANSPORT PERMIT

The Pitkin County "Overweight/Oversized Transport Permit" applications are available at the Public Works Department. Completed applications shall be submitted to the Public Works Department, 76 Service Center Road, Aspen, CO, 81611.

1.41.07 FEE SCHEDULE (See Appendix A)

1.42 REVOCABLE RIGHT-OF-WAY PERMIT

1.42.01 PURPOSE

The purpose of these requirements is to establish engineering, inspection and permitting policies by which any structure(s) or temporary construction can be placed by a public or private property owner within a County right of way, road easement, or public roadway. Under no circumstances shall a Revocable Right-of-Way Permit be construed to grant any permanent or irrevocable rights in County property. Such permits grant only a fully-revocable license in a County asset. A Revocable Right-of-Way Permit is not a substitute for a Right-of-Way Work Permit, which will also be required in most cases.

1.42.02 PERMIT REQUIREMENTS

Any person, business, utility, or agency, including contractors, developers, owners, and governmental agencies (excluding Pitkin County itself and all of its departments, agents, and instrumentalities), who proposes to construct a structure, or to make a substantial renovation to an existing structure within any County Right-of-Way shall first obtain a Revocable Right-of-Way Permit to erect or maintain such structure unless specifically exempted herein. A separate permit will be required for each structure proposed, unless a group or series of structures are proposed at one time.

A permit will not be required, and the applicant will be considered exempt, for the following:

- A. Minor or insubstantial maintenance to an existing specific structure. Such work includes, but may not be limited to, cleaning, painting or other resurfacing to an existing structure or structures; repairing or mending an existing structure or structures.
- B. Any work within the right-of-way to repair or maintain existing irrigation ditches or impoundments.

1.42.03 PLANS AND SPECIFICATIONS

Two (2) sets of plans and specifications shall be submitted for review by the County Engineer or his/her designee. Upon request by the County, these plans and specifications shall be prepared by a registered professional engineer duly licensed by the State of Colorado. The plans and specifications shall, at a minimum, show the following:

- A. Site vicinity map and site plan accurately detailing the location of the work
- B. Construction plans and specifications showing structure(s) plan and profile
- C. Schedule of proposed work
- D. Drainage and erosion control plan addressing proposed work
- E. Construction Management Plan (if work is in conjunction with a development permit)
- F. Revegetation Plan
- G. Map or letters from utility companies detailing utility placement (if applicable)
- H. Signing and striping plans (if applicable)
- I. Traffic Control Plan and applicable methods of handling traffic (if applicable)
- J. Asphalt patches shall conform to standards set forth in the Appendix
- K. Subdivision, zoning, or development plan
- L. Property and easement map
- M. Parcel and/or ownership maps

1.42.03 HAZARDOUS OR HARMFUL CONDITIONS

Whenever Pitkin County determines that an existing structure or structures, whether previously-permitted or not, becomes a hazard to public safety or interferes with the County's maintenance or structure plans for the right-of-way on which it is placed, the owner of the structure or of the property which the structure benefits, upon receipt of written notice from the County Engineer or his designee shall, within the period specified therein, repair or eliminate said structure(s) so as to eliminate the hazard or impedence posed by the structure and be in conformance with the requirements contained herein.

1.42.04 ENFORCEMENT

Revocable Right-of-Way Permits grant only a fully-revocable right in County property. Should the applicant, the owner of a structure, or the owner of a property benefited by the structure fail to adhere to all Permit requirements, the County shall revoke the Permit and the responsible person or entity shall remove the structure at issue immediately. The County may also require removal of a structure for the County's convenience, and in its sole discretion, at any time. Every Revocable Right-of-Way Permit shall include a provision that the applicant shall indemnify the County and pay any and all of the County's costs and attorney's fees should judicial action be necessary to obtain removal of a structure which the County directs be removed or altered.

1.42.07 SUPPLEMENTAL REPORTS

Supplemental reports and data (i.e., geology, soils, water, drainage, wildlife, etc.) may be required to support an application for a Revocable Right-of-Way Permit in the discretion of the Department of Public Works. Supplemental reports shall be prepared by qualified professionals in the field. Recommendations included within such reports shall be incorporated into and made a condition of the Permit at the discretion of the County Engineer or his/her designee.

1.42.08 LIABILITY

Neither the issuance of a permit nor compliance with the provisions hereof or with any conditions imposed in the permit issued hereunder shall relieve the applicant from the full responsibility for any damage whatsoever to other persons or property, nor impose any liability upon any official, appointee, or employee of Pitkin County for damage to persons or property.

1.42.09 REVOCABLE RIGHT-OF-WAY PERMIT

The Pitkin County "Revocable Right-of-Way Permit" applications are available at the Public Works Department and online at www.aspenpitkin.com. Completed applications shall be submitted to the Public Works Department, 76 Service Center Road, Aspen, CO, 81611.

1.42.10 FEE SCHEDULE (See Appendix A)

1.43 REVOCABLE RIGHT-OF-WAY PARKING PERMIT

1.43.01 PURPOSE

Roadside parking is PROHIBITED along all County roads and within any County road right-of-way except as may be authorized by a Revocable Right-of-Way Parking Permit, unless a parking area has been established and designated by the County Engineer. Only a Revocable Right-of-Way Parking Permit may authorize temporary parking. In an attempt to satisfy needs for the traveling public, public parking areas may be determined and improved on an as-needed basis, provided that adequate right-of-way exists. Parking areas may also be provided within designated "nodes". The County is under no obligation to approve parking within the right of way.

1.43.02 PERMIT REQUIREMENTS

Any person, business, utility, or agency, including contractors, developers, owners, and governmental agencies (excluding the County itself and all of its departments, agents, and instrumentalities), who proposes to park within the County Right-of-Way shall obtain a permit.

1.43.03 PLANS AND SPECIFICATIONS

Plans and specifications shall be submitted for review by the County Engineer or his/her designee. If determined by the County to be necessary, these plans and specifications shall be prepared by a qualified professional. In all cases that they are requested, the plans and specifications shall show the following:

- A. Site vicinity map and site plan accurately detailing the location of parking
- B. Schedule of proposed work
- C. Construction Management Plan (if work is in conjunction with a development permit)
- D. Traffic Control Plan and applicable methods of handling traffic (if applicable)

1.43.04 ENFORCEMENT

Enforcement requirements contained herein may be enforced by an authorized designee of the County, or by injunctions resulting in work stoppage by the District Court in and for the County of Pitkin, State of Colorado, pursuant to law, or suit may be commenced by the County Attorney on behalf of the Board of County Commissioners for damages or hazardous or harmful conditions due to non-compliance.

1.43.05 LIABILITY

Neither the issuance of a permit nor compliance with the provisions hereof or with any conditions imposed in the permit issued hereunder shall relieve the applicant from the full responsibility for any damage whatsoever to other persons or property, nor impose any liability upon any official, appointee, or employee of Pitkin County for damage to persons or property.

1.43.06 REVOCABLE RIGHT-OF-WAY PARKING PERMIT

The Pitkin County "Revocable Right-of-Way Parking Permit" applications are available at the Public Works Department and online at www.aspenpitkin.com. Completed applications shall be submitted to the Public Works Department, 76 Service Center Road, Aspen, CO, 81611.

1.43.07 FEE SCHEDULE (Appendix A)

1.44 APPEAL FROM DENIAL OF PERMIT

Whenever a permit is required by this Asset Management Plan, and the Public Works Department denies the permit, the applicant for the permit may, within fifteen (15) days from the date of such denial, request in writing to the appropriate officer who denied the permit, an appeal of the denial to the Board of County Commissioners. The officer receiving the written request for an appeal shall, within fifteen (15) days of receiving the request, submit to the Board of County Commissioners the written request for the appeal, and any administrative record consisting of documents considered by the officer in his denial, including the application for the permit and all supporting documents. The Board of County Commissioners will then decide, based upon a review of the record, whether to accept or reject the decision of the officer, within thirty (30) working days of receiving the transcript/decision. The Board of County Commissioners may, in its discretion, request additional or other information from the applicant, the County officer who issued the denial, or other County staff. The decision rendered by the Board of County Commissioners is the final decision of the County. Decisions made by the Board of County Commissioners regarding rights to use County property (except for uses specifically protected by a constitutional or statutory provision) are not subject to judicial review.

1.45 ENFORCEMENT

The Pitkin County Asset Management Plan shall be enforced in accordance with the provisions of Colorado law and as provided in this section.

1.45.01 VIOLATIONS

A. Unlawful Activity

- (1) It shall be unlawful to engage in any activity for which a permit is required under this AMP without first obtaining such permit, or to engage in activity in violation of the terms of any permit issued under this AMP. No landowner or lessee shall knowingly permit activity upon his/her property in violation of this section.
- (2) It shall be unlawful for any person to engage in road maintenance of any County road except by written agreement with Pitkin County.
- (3) It is unlawful to park on any County road or right-of-way without a permit, as set forth in this AMP.
- (4) It shall be unlawful for any person to deposit, plow, push or otherwise place snow plowed or shoveled from a private driveway, road, sidewalk, or any other source, onto any County road.
- (5) It shall be unlawful to violate any other provision of this Asset Management Plan that regulates private use of, or impact on, any County Asset.

B. VIOLATIONS, PENALTY

- (1) Whenever in any section of this Asset Management Plan the doing of any act is required, prohibited, or declared to be unlawful, each violation of any such provision shall be a Class 2 Petty Offense with a maximum fine not to exceed \$1,000 and/or imprisonment for a period not to exceed 90 days or the maximum allowable by State law, as amended. Provided, however, that traffic infractions shall be addressed as provided in this section. The Director of Public Works or his/her authorized designee, the Pitkin County Code Enforcement Officer, or any Law Enforcement officer shall be authorized to serve either a Summons and Complaint or Penalty Assessment, as specified in this Section on any person who violates the provisions of this Asset Management Plan.
- (2) a. The following acts shall be subject to Penalty Assessment:
 - 1) Parking on any County Road or its related Right of Way without a permit, as set forth in §§ 1.03.01(J), 1.04.01(L), 1.05.01(L) and 1.06.01(M).
 - 2) Depositing, plowing, pushing or otherwise placing snow upon or across any County Road or its related Right of Way.
 - 3) Violating Park and Ride Facility use regulations.
- b. The Penalty Assessment schedule for violations other than traffic infractions shall be:

- First Offense: \$100.00
- Second Offense: \$250.00
- Third and additional offenses: \$1,000.00 or maximum then allowed by law.

- c. The Penalty Assessment schedule for traffic infractions including but not limited to parking, blocking or impeding maintenance in the County Right of Way and Park and Ride Facility violations shall be:
 - First and subsequent Offenses - \$15

- (3) a. Violations of the Asset Plan not addressed by § 1.45.01(B)(2) shall be addressed by Summons and Complaint to appear in Pitkin County Court, including but not limited to:

- Engaging in road maintenance of any County road and its related Right of Way except by prior written agreement with Pitkin County.
- Violation of permit requirements of this Plan.

- b. Violations addressed by Summons and Complaint shall be subject to a minimum penalty of \$500 and maximum penalty of \$1,000, or the maximum then allowable by State law, as amended.

- (4) Summonses and Complaints shall be referred to the District Attorney for prosecution in Pitkin County Court. Non payment of a Penalty Assessment shall result in prosecution of the Penalty Assessment as a Summons and Complaint pursuant to § 16-2-201, C.R.S., as amended. In such case the penalty schedule set forth in § 1.45.01(B)(2)(b) shall be followed.

- (5) Any Person who aids, assists or abets any other Person in committing a violation of these regulations shall be subject to the penalties specified in § 1.45.01(B) dependent upon on whether the person aided or assisted is subject to Penalty Assessment or Summons and Complaint.

1.45.02 VIOLATIONS, CIVIL ENFORCEMENT

- A. Notice of Violation In addition to utilizing the enforcement procedures authorized by § 1.45, the Director of Public Works or his/her designee; the Pitkin County Code Enforcement Officer; or the Director of Open Space and Trails or his/her designee may deliver a Notice of Violation (NOV) to any person who violates this Asset Management Plan. The NOV shall specify the violation, and may require that the violator either cease and desist immediately from all acts or omissions relating to the violation, or correct the violation within a specified time not to exceed 90 days. Failure to comply with the terms of an NOV shall result in enforcement pursuant to § 1.45. Issuance of a Notice of Violation shall not be deemed a condition precedent to enforcement pursuant to the procedures set forth in § 1.45, nor shall it preclude later enforcement action pursuant to § 1.45.
- B. Civil Enforcement In the event of any act or omission that violates any section of this AMP, the County Attorney, in addition to other remedies provided by law or specified herein, may institute an injunction, mandamus, abatement, or other appropriate civil

action or proceeding to prevent, enjoin, or abate any unlawful activity, or to remove any improvements or construction resulting from such unlawful activity. In the event that such unlawful activity has damaged any county property, the violator shall be liable for any damage to county property resulting from any such unlawful activity, including, but not limited to, compensation for staff time and for use of county equipment or contracted services to repair such damage. Any civil action or proceeding may include a claim to recover all such money damages in addition to any and all claims for injunctive or other equitable relief.

C. Withdrawing or Withholding Permits In the event that the Public Works Director or designee, Code Enforcement Officer, or Open Space and Trails Director or designee has personal knowledge of any violation of this AMP, any Public-Works issued permit may be withdrawn after the violator is provided notice and an opportunity for hearing before the Board of County Commissioners. If the violation involves activity under a Pitkin County Community Development building permit, the building permit may also be withdrawn after consultation with Community Development staff and after the violator is provided notice and an opportunity for hearing before the Board of County Commissioners. No further permits or approvals from the County shall be issued for any property generating a violation until the violation is brought into compliance with the standards of this AMP.

D. Vehicle Removal Any vehicle blocking traffic or impeding road maintenance on a County road or right of way may be moved pursuant to § 42-4-1803, C.R.S. The procedure for removing such vehicles shall be as follows:

- 1) Public Works staff shall provide the vehicle's description, license plate, location and circumstance to the Pitkin County Sheriff's Office and request that the Sheriff's Office have the vehicle removed.
- 2) If the Pitkin County Sheriff's Office informs Public Works that it is unavailable to have a vehicle removed in a reasonable amount of time, Public Works staff may request approval from the Sheriff's Office for Public Works staff to remove the vehicle.
 - a) If a vehicle is to be removed by Public Works staff with Sheriff's Office approval, Public Works shall call dispatch and request a tow. Public Works-initiated tows shall be taken to the Sheriff's impound lot and Public Works staff shall within a reasonable time notify the Sheriff's Office of the details of the tow, including vehicle description, location and license plate number.
 - b) If a vehicle can be simply moved to a nearby location rather than to the impound lot to resolve the problem posed by the vehicle, Public Works staff shall have discretion to make that decision after following the same procedures set forth above. Nothing herein shall obligate Public Works, the Sheriff, or any other entity to relocate a vehicle rather than removing it.

- 3) When Public Works initiates a vehicle removal, Staff shall when practicable first make a reasonable effort to inform the vehicle's owner of the impending vehicle removal. The circumstances—including without limitation the location of the vehicle, the level of service of the road or asset in question, the danger to the public, and the disruption to maintenance and provision of other public services—shall inform a sound exercise of discretion as to what a reasonable effort is and how long Public Works must wait before initiating the removal of a vehicle. In some circumstances it may be necessary to immediately remove a vehicle without first contacting the owner.
- 4) In circumstances where a vehicle is approved by the Sheriff's Office to be towed to the Sheriff's impound lot, the Sheriff's Office is responsible for accomplishing the necessary logistics such as vehicle logs and vehicle release to owners. Public Works staff shall assist as requested by the Sheriff's Office.

SECTION II FLEET ASSET MANAGEMENT AND MAINTENANCE

2.01 SERVICES PROVIDED

The Fleet Management Department serves as the cost center for the management and maintenance of County vehicles and rolling stock. Services provided include technological research to match equipment to function, specification writing for procurement, procurement document and contract production, bidding and award analysis, disposal of equipment, vehicle repair, preventive maintenance of equipment, utilization management, life cycle costing analysis, replacements and improvements. The department develops and utilizes computer systems to track and control costs, control inventories, and improve productivity in support of the above functions.

2.02 VEHICLE AND EQUIPMENT REPLACEMENT

Fleet Management uses Life Cycle Cost Analysis to replace County owned vehicles and equipment. Equipment or vehicles will be replaced when costs are higher to keep them than to replace them. Individual units will be replaced on a unit-for-unit basis, and the life cycle cost analysis will be used to determine if the unit has reached the end of its economic life cycle. The main components of the analysis consist of the following:

- A. Total cost per mile (Including mpg)
- B. Condition of vehicle use (Weather, Magnesium chloride, work being preformed)
- C. Purchase price
- D. Resale value
- E. Depreciation
- F. Safety (To County employees and citizens)
- G. Vehicle conditions
- H. Annual mileage

Light truck, SUV's and administration vehicles have a 7 year 140,000 mile target. Heavy trucks and equipment have a 10 year or 10,000 hour target.

2.03 PLANNED REPLACEMENT

All vehicles and Equipment will be on the ten-year budget plan and managed by the Fleet Manager. The ten-year budget plan will be submitted to the Finance department as part of the annual budget process with final approval by the BOCC. Exceptions to the planned replacement guidelines are as follows:

- A. Vehicles, or pieces of equipment, identified as having low usage will be pulled from the using department unless that department obtained approval to maintain the vehicle in the fleet from the BOCC. Underutilized vehicles may be swapped from one department to another if needed.
- B. Emergency vehicles, such as Ambulances, fire and rescue vehicles.
- C. Airport emergency and plow vehicles that are partially funded by the Federal Government.
- D. Non-licensed utility-purpose vehicles.
- E. Specialized equipment that may not fall under the above criteria.
- F. Wrecked or totaled vehicles, and vehicles destroyed by natural disaster.
- G. Other extenuating circumstances that may necessitate a replacement vehicle sooner than expected.

2.04 ADDITIONS TO FLEET

The Fleet Management department will not increase the size of the vehicle fleet purchased with appropriated funds except in the case of legislatively mandated program changes, federal program initiatives such as alternative fuels testing or documented need resulting from program growth. All additions must be approved by the BOCC and have budget in place for the life of the vehicle which will include fuel, maintenance, and staffing by the fleet department. If a department has documented a need for additional vehicles and has consulted with the fleet department, the department will need to inform their section leader and bring it to the BOCC. Fleet will meet with the department to determine the most cost effective and appropriate vehicle to be purchased.

2.05 STANDARDIZATION

Fleet Management has implemented a vehicle standardization process to use the same make of vehicle whenever possible. This will enable Fleet to control the amount of mileage on vehicles by swapping underutilized and over utilized vehicles within the Fleet. This process will also reduce the amount of training needed for fleet technicians and reduce the amount of stocked parts at the Fleet facility. Employees shall not personalize County vehicles so vehicles can be moved amongst departments or personnel.

2.06 PARTS AND DATA ENTRY

All parts are held in a secured cage. The parts mechanic orders parts and controls the inventory. Obsolete and slow moving parts are returned to receive credit or reimbursement. All fast moving parts will be contracted with vendors on a consignment basis whenever possible to relieve the County of a large overhead in stocked parts. These consignment parts will be kept in the parts cage but are not paid for until used. The Fleet Parts Person orders all the parts for County vehicles, and performs all the data entry. Procurement of parts will be added to new vehicle contracts to obtain the lowest price for replacement parts. All terrain tires will be ordered on new vehicle purchases and used to the extent of their useful life, the tires will then be replaced with the same make and model of tire used on all County vehicles.

2.07 TRAINING AND CERTIFICATION

Training is to be included in procurement contracts to enable fleet mechanics the opportunity to receive free or low-cost up-to-date training on new vehicles. The Automotive Service Excellence (ASE) certification system shall be used to satisfy all state and federal vehicle requirements and to improve the credentials of fleet technicians.

2.08 PREVENTATIVE MAINTENANCE

Preventive Maintenance (PM) is the routine, scheduled maintenance on any County vehicle that is triggered by specific mileage accumulations. The information obtained from a fueling transaction includes total miles driven on each tank of fuel, number of minutes the vehicle has set at idle, top speed a vehicle has driven at any given time and total miles of vehicle. Using this system, fleet will monitor mileage, determine PM intervals and contact the department using the vehicle to schedule a PM. There is also a sticker on the windshield of each vehicle to tell the operator when the next PM is due. It is the responsibility of the driver to check the sticker and to schedule a PM if the department has not been contacted. Operating a vehicle 1,000 miles past the required PM will result in being shut out of the County fuel system. Preventive maintenance work on vehicles will be conducted every 4,000-5,000 miles.

Preventive maintenance work on equipment will be conducted every 250 hours.

2.09 UNSCHEDULED MAINTENANCE-EMERGENCY REPAIRS

Unscheduled maintenance or emergency repairs are those that fall outside the realm of a routine PM. Examples of this type of maintenance include: brake, engine, and transmission repairs. Unscheduled maintenance and emergency repairs are those associated with vehicle break downs. Fleet customers should follow the following procedures when a break down is experienced:

- A. Call the fleet department and advise them of the problem. If after hours, call or radio dispatch and they will page fleet.
- B. The fleet department will advise the appropriate action to take.
- C. Fill out a driver's defect report located electronically at M/county/fleet/defect report and go over it with a shop mechanic.

2.10 MODIFICATIONS

County owned vehicles and equipment are not to be modified in any way without consulting Fleet. Fleet or a designated vendor that is under contract to the County will perform any modification needed. All modifications will meet National transportation safety guidelines and engineered to the manufacturer minimum specifications. All welding will be conducted or inspected by a certified welder. No objects are to be placed in the interior of a vehicle that fall within the drivers front, passengers front or side curtain air bag discharge envelope. Emergency response and Sheriff's vehicles can be equipped with an approved air bag shut off device installed by fleet and recorded with the Colorado Department of Transportation.

2.11 WASHING and CLEANING

It is expected that departments and drivers of assigned vehicles will keep the interior and exterior of the vehicle clean and in good general condition. Vehicles can be cleaned at the County wash bay at any time. Soap, brushes and cleaning supplies are provided. If vehicles are not cleaned, fleet will clean them during a scheduled maintenance and charge the department for this service. The department head of the assigned vehicle will be notified to take appropriate action.

2.12 OPERATOR MAINTENANCE CHECKS

- A. Drivers are responsible for inspecting their vehicle before and after operation. Any defect discovered during these inspections or while driving should be noted and reported to the fleet department at the end of their shift. Any defect that would cause further damage to the vehicle, render it unsafe, or present a hazard should be reported immediately. The vehicle should not be driven until necessary repairs are completed.
- B. At a minimum, the following checks should be accomplished on a weekly basis: tire condition and pressure, leaks (any kind), engine oil level, coolant level, lights/signals, fuel, windshield washer fluid, license plates front and rear and any County logo required on the vehicle.
- C. On a daily basis, with the engine started and before moving, the driver should check all gauges, brakes, windshield wipers and horn.
- D. All CDL (Commercial Drivers License) drivers using large trucks and heavy equipment will perform a pre-trip inspection, post-trip inspection, and fill out the driver's and vehicle log book as per Colorado state law.

2.13 COUNTY POOL VEHICLE RESERVATIONS AND USE

- A. County Employees may reserve vehicles set aside for business travel.
- B. Vehicles are available on a first come, first serve basis.
- C. To reserve a vehicle the employee will contact the Public Works Administration via either telephone or email.
- D. For vehicles picked up after regular business hours (8am-5pm Mon.-Fri.) key pickup will be arranged ahead of time. No keys will be left in the vehicle at any time.
- E. Due to high demand for vehicles, if a vehicle is reserved and is not picked up one hour after scheduled, the vehicle will be released back into the pool for someone else to reserve. It is the employee's responsibility
- F. To advise the Public Works Administration that the employee's needs have changed.
- G. Priority will be given to County employees who do not have a County vehicle assigned to their department.
- H. Upon return of the vehicle, the employee who borrowed it will wash it in the County wash bay, and fill it with gas at the Public Works Facility. Employees are also responsible for removing all trash, cleaning any spills they may have created and advising Fleet of any defects.

2.14 Department Assigned Vehicles

- A. Departments are responsible for maintenance and visual up-keep.
- B. Vehicles are specifically used for only County business needs.
- C. Any body damage or accidents claims are the responsibility of the Department to notify the Fleet Manager and Risk Management for the required repairs.
- D. Before use, Departments need to perform daily maintenance checks on vehicles to insure proper and safe operation.
- E. After vehicle use and before sending to Fleet for maintenance, Departments need to insure the vehicle has been cleaned inside and the outside should be washed.

SECTION III FACILITY MANAGEMENT AND MAINTENANCE

3.01 GENERAL FACILITY POLICY

Pitkin County believes in managing and maintaining its building, grounds, and parking areas (facilities) in order to avoid expensive capital repairs and in order to serve the needs of the organization, tenants and the general public. The purpose of this section of the Asset Management Plan (AMP) is to ensure consistent management and maintenance practices over time in order to maximize resource allocation, protect County facilities and provide guidance to the organization and the public with respect to expectations for facility use. Facilities shall be managed based on the service type, character and historic qualities of the particular facility. Short-term community and organizational needs shall be considered in management decisions, however strategic long-range planning shall be the primary driver for changes in facility use or configuration. Long-range facility plans shall not be compromised in order to accommodate short-term uses.

3.02 BUILDING MANAGEMENT POLICY

Building management decisions shall be made with specific regard to the building in question. Pitkin County owns and manages a wide variety of building facilities which serve various organizational and civic purposes. The AMP shall define management practices for individual buildings. The AMP will define parameters within which employees shall be able to make decisions in regard to the management of buildings, including: use, occupancy, capital improvements, remodeling, and other issues. Changes to building management parameters or any individual decision that does not fall within set parameters shall only be made with the consent of a majority of the Board of County Commissioners.

3.03 BUILDING MAINTENANCE POLICY

Maintenance of County buildings shall be based on the type and amount of use buildings produce. As a general rule active public buildings shall receive the highest level of maintenance. Internal service buildings shall receive a moderate level of maintenance. Mountain top sites shall receive the lowest amount of maintenance. Rental buildings shall receive limited or periodic levels of service with regard to maintenance. While these categories shall uniformly cover most of the maintenance practices, given the wide variety of services rendered in the buildings, special maintenance parameters shall be given to individual buildings.

3.04 GROUNDS & WALKWAYS MANAGEMENT AND MAINTENANCE POLICY

Grounds management decisions shall be made within parameters contained in the AMP. Deviations from the parameters or changes to the parameters shall only be made with the consent of the Board of County Commissioners at a regular meeting. Management parameters shall describe use, amenities, capital improvement guidelines, walkway specifications and changes to vegetation. Maintenance parameters shall guide employee decisions with regard to snow removal, walkway type, surface repair guidelines, irrigation, chemical application, mowing, pruning and other specific maintenance practices. Specific grounds and walkways may receive special treatment in the AMP outside the general guidelines for all County grounds.

3.05 PARKING AREA MANAGEMENT AND MAINTENANCE POLICY

Parking area management decisions shall be made within parameters contained in the AMP. Deviations from the parameters or changes to the parameters shall only be made with the consent of the Board of County Commissioners at a regular meeting. Management parameters shall describe type of use, capacity, surface type, amenities and capital improvement guidelines. Maintenance parameters shall guide employee decisions in regard to level of service for snow removal, surface and striping maintenance, organizational responsibility and other maintenance activities for parking areas.

3.06 FACILITY ADMINISTRATION

Pitkin County Public Works administers the County facilities including, but not limited to, maintenance, layout, alterations, upgrades, property acquisition, and construction. County staff is responsible for planning of County space needs and establishing construction standards. In order to maintain a uniform development policy throughout the County, the Public Works Department develops construction standards, reviews plans, prepares specifications, procures and contracts, and conducts surveys and inspections.

3.07 DESCRIPTION OF FACILITY TYPES

3.07.01 ACTIVE PUBLIC FACILITIES

The active public facility classification typically includes facilities that house County staff, other governmental staff, paying tenants and are used frequently by the public. Public uses can include meetings, court appearances, research, recording of deeds, purchasing, and obtaining information. Facilities that are active public facilities will receive the greatest level of maintenance by the County. The safety of staff and the public will be the primary goal of these maintenance efforts.

3.07.02 INTERNAL SERVICE FACILITIES

The internal service facility classification typically includes County staff offices or asset storage. There may be a small occurrence of public use such as dropping off of materials and supplies.

Facilities that are internal service facilities will receive maintenance by the County but will not receive the priority maintenance of the active public facilities.

3.07.03 MOUNTAIN TOP FACILITIES

The mountain top buildings are typically in remote areas accessible by a 4x4 vehicle or helicopter during summer months and snow cat, snowmobile or helicopter during winter months. These facilities will receive maintenance by the County but will not receive the priority maintenance of the active public facilities.

3.07.04 RENTAL FACILITIES

There are two rental facilities owned by the County. The protocol for placement in these facilities first goes to employees with priority status, those on call-out status for a substantial amount of time, or first responders. They are then offered second to a general lottery if no priority employees are interested.

3.07.05 GROUNDS AND WALKWAYS

It is the goal of Building Maintenance to maintain the grounds and walkways for the traveling public and staff.

3.07.06 PARKING FACILITIES

All County owned parking facilities will receive maintenance by the County and are on the ten-year capital repair and replacement schedule. The parking areas will be adequately lighted, signed and marked. Snow and debris will be removed for the traveling public

3.08 ACTIVE PUBLIC FACILITIES

Tenant meetings are conducted in each facility twice a year to evaluate facility needs.

3.08.01 COURTHOUSE

The Courthouse is occupied by the following:

- County staff: Assessors Office, Treasurers Office, and Sheriffs Office
- City staff: Aspen Police Department
- Courts staff includes Probation, District Attorney, Youth Zone, District Court, and County Court
- Public uses: Court, hearings w/attorney, and meetings

The Courthouse was constructed in 1890. The building consists of approximately 18,300 square feet, encompassing three levels and an attic. The Courthouse is a two story brick and stone structure with a basement /garden level. It has masonry bearing walls, and a wood structure. The roof is a mansard design, with asphalt shingles on the low slope portion. A tower constructed of wood framing and ornamental sheet metal cladding is located above the entry.

The courthouse roof consists of a low-slope (2:12) roof which transitions to steep slope mansard roofs all around the building. The mansards drain onto small flat roofs at their base. The east and north entries to the basement have flat roof porches.

- Low-slope Main roof:
 - Roofing System Type: TPO
 - Manufacturer: Versico, Inc.
 - Approximate Slope: 4:12
- Mansard Roofs:
 - Roofing System Type: TPO
 - Manufacturer: Versico, Inc.
 - Approximate Slope: 4:12

The interior finishes are plaster or gypsum board walls with paint or vinyl wall covering. The garden level is a combination of furred out gypsum board walls and exposed stone. The ceilings are generally painted plaster or gypsum board, with acoustical tile in some locations. Most floors are carpeted, except for the main corridors of the garden level, which are quarry tile.

The Pitkin County Courthouse Heating, Venting and Air-conditioning system (HVAC) consists of hot water baseboard radiation along the perimeter walls and windows. Two Trane air handling units in the attic supply air to 23 zones within the building. A chiller that is located on the roof of the Pitkin County Jail cools the building.

The electrical system consists of a 120/208 volt, 3 phase, 400 amp main distribution panel (MDP) with a 400 amp main service switch, and eight distribution switches feeding five branch circuit panel boards, an emergency panel and elevator. The present distribution system is located in a storage/utility room in the garden level.

A passenger hydraulic, Otis Elevator (472353) serves the building. All ADA codes for access and use in the elevator are met. The garden level of the building provides for an ADA operable door.

Lighting has been upgraded to all energy efficient, era sensitive, fixtures by Willshire and Lightier

3.08.02 COURTHOUSE PLAZA

The Courthouse Plaza Building is occupied by the following County staff:

- Clerk and Records Office, Finance Department, Human Resources Department, Risk Department, Managers Office, County Attorney Office, Open Space and Trails Department, Emergency Management and Public Relations.
- Public uses: Public BOCC meetings, records research, job application and accounts payable.

The Courthouse Plaza was built in 1972. The Courthouse plaza consists is 16,000 square feet. It is three-stories, plus a basement, of cast-in-place concrete construction with exterior walls of through-wall brick. The glazing is aluminum storefront throughout, with project-out systems for natural ventilation.

Roofing System Type/Manufacturer: Ballasted EPDM/Versico Roofing Systems
Approximate Slope: 1/8" per foot.

The HVAC is supplied by one Hasting unit on the roof that supplies heat to the building. An evaporative cooler cools the building.

The electrical consists of 120/208 , 3 phase 400 AMP system.

3.08.03 LIBRARY

Occupied by Library staff, the Library also offers conference rooms and training for the Public. The Library was built in the early 1990's and is a three-story building with a mezzanine in the main library space. The building is approximately 30,000 square feet. There is a basement which opens to grade at the north side. The structure is constructed of metal studs and brick veneer. The interior finish is painted gypsum board with carpet on the floors. The exterior materials are brick with precast copings, and aluminum windows.

The library roof consists of flat recycled plastic tiles applied to sloped decks that surround several flat roof areas. There are small metal roofs with light monitors in the center of the flat roof areas.

- Roofing System Type: Recycled plastic tile Roofing:
 - Plastic Manufacturer: Eco Star
 - 50 Year Warranty
 - Class 4 impact resistance
 - Freeze/thaw resistance
 - 110 mph wind warranty
 - Class A fire rating
- EPDM Roofing:

- Roofing System Manufacturer: Ballasted EPDM/Firestone Building Products
- Approximate Slope: 1/8" per foot
- Metal Roofs:
 - Standing seam Manufacturer: Unknown
 - Approximate Slope: 4:12

The HVAC system consists of a single variable air volume air handling system with hot water coil, chilled water coil, and inlet vane dampers to control the quantity of air delivered to the spaces. The AHU is a 35,000 cfm. Trane unit with a 40 hp motor. A relief/exhaust fan with a VAV damper maintains building static pressure. It has a 25 hp motor. A chiller unit on the roof cools the building.

The electrical system consists of 120/208 volt, 3 phase, 4 wire, 1200 amp main service distribution board with four 42 circuit branch panel boards and an emergency panel.

Two, passenger, hydraulic Dover Elevators (D59069 & D59070) provide access to all levels of the building.

3.08.04 JAIL

The Jail is occupied by:

- County and City staff: Communications Department and Jail staff.
- Inmates: 24 hour lock-down
- Public uses: visitation

The Jail is a 17,500 square foot, one-story brick-veneer building with a walkout basement. The jail was built in 1984 with a communications addition added in 1995. The walls are brick veneer over concrete masonry bearing walls and steel framed construction. Interior finishes are primarily painted concrete masonry units, with carpet or VCT on the floors. Ceilings are exposed precast planks. There is a raised floor area at the booking area and dispatch for communications wiring. The roof of the building is flat, with certain areas surrounded on all sides by a sloped standing-seam metal roof. The building has punched out windows, a fenced-in exercise yard and a gymnasium. The gymnasium has painted CMU walls and an athletic surface floor.

The HVAC systems include a hot water heating system-serving air handling units and convectors. The five boilers are natural gas fired high efficiency Slan Fin-Victory models rated at 150,000 BTUH each and installed in 1995. Three boilers serve the heating system and two boilers serve the domestic hot water.

The jail roof consists of a low-slope roof with higher sloped metal roofs in the center of the building. The metal roofs drain onto the flat roof.

- TPO roof, fully adhered
 - Expected life 25 years.

The electrical system consists of a 120/208-volt, 3 phase, 4 wire, 600 amp main distribution panel (MDP) with six main switches feeding branch panels, HVAC equipment and emergency system panels.

An emergency electrical system exists and is composed of 100kw, 120/208 volt, single phase, natural gas fueled stand-by generator, 260 amp automatic transfer switch, an emergency

panel, UPS system, by-pass isolation switch and associated panels.

3.08.05 MICHAEL W. SCHULTZ BUILDING: HEALTH AND HUMAN SERVICES

The Michael W. Schultz Building, also known as Health and Human Services Building, is occupied by:

- County staff: Environmental Health Department
- Paying tenants: Aspen Counseling, Community Health, Response, Kids First, Roaring Fork Employee Credit Union, Response and Aspen Valley Hospital.
- Public uses: Clients of paying tenants, meetings, healthcare

The Health and Human Services Building is a two-story building that was built in 1992 and covers approximately 16,500 square feet of space serving offices, exam rooms and conference space. The building consists of steel stud and exterior insulation and finish system (EIFS) construction at the walls, with a sloped roof covered in lightweight concrete shingles. Finishes in the building consist of gypsum board walls, carpeted or VCT floors and suspended acoustical tile ceilings.

A single Patterson-Kelly, natural gas fired hot water boiler located in the 2nd floor mechanical room generates the HVAC system hot water heat. A single pump circulates hot water. One natural gas fired tank heater is located in the mechanical room; it provides domestic hot water to the entire building. A chiller on the southwest side of the building supplies cooling to the building.

- A. Recycled plastic tile Roofing: Roofing System Type: Plastic Manufacturer: Eco Star
- 50 Year Warranty
 - Class 4 impact resistance
 - Freeze/thaw resistance
 - 110 mph wind warranty
 - Class A fire rating

The electrical system consists of 120/208 volt, 3 phase, 4 wire, 600 amp service with six main service switches feeding four 200 amp branch circuit panel boards and equipment.

3.08.06 PUBLIC WORKS ADMINISTRATION

The Public Works Administration facility is occupied by:

- County staff: Public Works, Open Space and Trails
- Public uses: Permit applicants, meetings

The Public Works Administration facility consists of two pre-engineered metal buildings on concrete foundations, the Service Center, and the Fleet Maintenance Building built in 1990. The exterior skins of both buildings are pre-finished steel panels. Windows have thermal break aluminum frames with 1" insulating glazing units.

The roofing system for both buildings utilizes a trapezoidal, structural standing seam panel.

- Service Center Building Roofing System Type: Structural Standing Seam
 - Manufacturer: Stran
 - Approximate Slope: 2:12

The Service Center Building consists of a large sloped section over the vehicle storage area, with a separate sloped section over the office portion.

The Service Center building interior has painted gypsum board walls, carpet or VCT floors, and suspended acoustical ceilings. The remainders of both buildings have exposed roof structure, CMU or pre-finished metal panel walls and sealed concrete floors.

The administrative area has a large residential Lennex furnace with a DX air conditioning coil. The garage bays (4) are heated with natural gas fired Ray-tech infrared tube heaters with vacuum pumps. There is one for each bay.

3.08.07 AIRPORT MAIN TERMINAL

The Airport Main Terminal is occupied by Airport County staff and various tenants.

The Airport Main Terminal was built in 1972, with a renovation and addition in 1987, 1999, 2000, 2001 and 2003. The single story airport terminal is 39,258 square feet. It is built of glulam wood framed building with cedar siding nailed to the gypsum board or plywood sheathing. The base is stone rubble on concrete. The window frames and storefront are aluminum. The roof is a flat roof maze of separated roof sections and has a large, low-sloping configuration with internal drainage. It is a membrane system of over 4" of rigid insulation on a plywood deck. Insulation levels are approximately R-30. There are a number of skylights throughout the terminal.

- EPDM Roofing Roofing System Type: Adhered (white) EPDM
 - Manufacturer: Carlisle Syntec Systems
 - Approximate Slope: less than 1/8" per foot

The HVAC consists of three Trane Units on the roof with a chiller on the roof of the facility. The electrical system consists of 120/208 volt, 3 phase, 4 wire with the original distribution system providing 600 amps distributed through a buss and gutter feeding branch panel boards and equipment. During the expansion and remodel a new 1600 amp main distribution center (MDC) was installed with five new branch circuit panel boards. The original system was subsequently back fed from the new MDC and was provided with additional distribution space.

3.08.08 LANDFILL SCALE HOUSE

The landfill scale house contains County landfill administrative staff offices. Landfill customers must enter the scale house to pay for waste deposited and to receive a scale ticket receipt. The scale house is a 24'x 60' modular trailer owned by Pitkin County. It is served by forced air heating and 120v electrical service.

3.09 INTERNAL SERVICE FACILITIES

3.09.01 FLEET MAINTENANCE

Occupancy of this building includes County Staff from the Fleet Department and the Road and Bridge Department. There are no public uses of this building.

The Fleet Maintenance Facility is used for vehicle maintenance. The exterior skin of the building is a pre-finished steel panel. Windows have thermal break aluminum frames, with 1"

insulating glazing units.

The roofing system utilizes a trapezoidal Roofing System Type.

- Structural Standing Seam Manufacturer: Stran
- Approximate Slope: 2:12

This building consists of an upper clerestory roof that slopes towards a lower roof at the north and south elevations. There are no eave overhangs at any of the roof areas. Small roofs were added at the north and south elevation over the doors to prevent sliding snows and ice from injuring persons entering and exiting the building.

Natural gas fired infrared tube heaters configured in a vacuum system supply heating. Two waste oil heaters (Reznor) also deliver heat to the main bay; these have power burners. There is electric heat in the break room and restrooms.

3.09.02 FLEET ANNEX

This building is used by Road and Bridge and the Fleet department for vehicle and material storage.

The Fleet Annex building is a metal structure on a concrete slab that is for vehicle and material storage. Infrared heaters heat the building.

3.09.03 PUBLIC WORKS STORAGE UNIT

These bays are occupied by the Sheriffs office, Clerk and Recorders, Roaring Fork Employee Credit Union, Assessors, Finance, Combined Aspen/Pitkin Records Department, and the Airport for Records storage.

The Public Works Storage Building is a prefab metal structure on a concrete slab. This building was erected in 2001 and has eight bays. Interior bays have been insulated.

3.09.04 LANDFILL MATERIALS RECOVERY FACILITY

This building houses recyclables and equipment for use at the Landfill.

The Landfill Materials Recovery Facility (MRF) is a 60'X100' pre-fabricated steel building served by 3-phase, 440 volt electric service. Two waste oil heaters (Reznor, Shenandoah) exhausted outside deliver heat to the MRF. It houses a horizontal materials baler that was replaced in 2003 and a semi-automated com-mingled recyclable sorting line.

3.09.05 LANDFILL STORAGE BUILDING

This building houses recyclables.

The Landfill Storage Building is a 30'X50' pre-fabricated steel building that is served by 3 phase, 440 volt electrical service. The building is used for storage of processed recyclables.

3.09.06 LANDFILL CREW BUILDING

The Landfill Crew Building is occupied by:
Landfill County Staff.

There are no public uses for this facility.

The Landfill Crew Building is a 20'X40' stick built building on a concrete slab served by 120 volt electrical service. The building houses the Recycling Crew and serves as their break, restroom, and locker facility. There are two offices that house the Recycle Crew, two restrooms with running water, and three underground concrete vaults that serve the water and wastewater needs.

3.09.07 SHOOTING RANGE BUILDING

This building is used by law enforcement agencies as a storage and training facility. The Shooting Range Building is a 10'X20' wood building on a concrete slab with 120 volt electrical service.

3.10 MOUNTAIN TOP SITES

3.10.01 ASPEN MOUNTAIN (AJAX)

The Ajax building was built in the late 1970's. (78 or 79) The building is approximately 16' x 20' x 7' of A frame type wood construction built on concrete pillars for a foundation. The interior of the building is plywood panel, well insulated and heated with thermostat control. The exterior roof was replaced in the spring of 2002 and the interior refurbished and insulated in the summer of 2002. It houses electronic equipment, racks and various batteries for back up power. The building is powered with 120AC rewired in 2002, and relies on battery back up in the event of a power interruption. (There is no generator at this site.) There is a single Rohn-45 tower attached to the rear of the building and an older wood platform type tower with a catwalk and railing. Access is via the Ski Company gondola in the winter and via summer road by truck in the summer months.

3.10.02 CROWN MOUNTAIN

The Crown Mountain building was built in the 1960's. The building is approximately 10'x12'x 7', made of cement bricks with a flat tarpaper roof. There is an external 120/240 VAC generator set and above ground propane tank. The interior of the building is painted and the floor carpeted. It houses electronic equipment in equipment racks and batteries. The ventilation system consists of an automatic fan. There are four ROHN-25 guyed towers and one freestanding tower located at the site.

Pitkin County's site lease and access is via the Bureau of Land Management ROW Permit Number COC-22082.

3.10.03 ELEPHANT MOUNTAIN

The Elephant Mountain building was built in the 1960's. The building is approximately 8'x 12'x7' including a separate generator room with a generator. The building is a wood frame building with a peaked tarpaper roof. There is electricity via a power line that was installed in the 1960's. The interior of the building is unfinished wood and is carpeted. It houses electronic equipment in equipment racks and batteries. There are four ROHN 25 guyed towers and two ROHN 45 guyed towers. There are 5, 100 lb. propane canisters for the generator. Pitkin County's site lease is through the USFS special use permit 1026-03. Access and underground utility easement is located in Book 556, Page 638 of the Pitkin County Clerk and Recorder. Access is best by helicopter.

3.10.04 JACK RABBIT RIDGE

The Jack Rabbit Ridge building was built in the 1970's. The building is cement block, approximately 12'x12' x 8'. It houses electronic equipment in equipment racks. There are four ROHN 25 guyed towers.

The site easement is in Book 432 Page 739 of the Pitkin County Clerk and Recorder. The access easement is on the Owl Creek Plat.

3.10.05 LOGES PEAK

The Loges Peak building was built in the 1980's and is a 4x6 wood frame building with a slanted tarpaper roof. The inside is unfinished wood. It houses electronic equipment in equipment racks. There are two ROHN 25 towers.

Pitkin County's site lease is through the USFS special use permit 1026. Access is through the Aspen Skiing Company.

3.10.06 LOWER RED MOUNTAIN

The Lower Red Mountain building was built prior to 1972. The building is cement block with a flat tarpaper roof approximately 10 x 12 x 8. There are three ROHN 25 towers. There is an internal 120/240 VAC generator set. It houses electronic equipment in equipment racks.

Pitkin County's site lease is through the USFS Special Use Permit 1026-08. Access is via the Sunnyside trail. There is a joint use agreement outlining maintenance recorded in Book 580 Page 770 of the Pitkin County Clerk and Recorder.

3.10.07 UPPER RED MOUNTAIN

The Upper Red Mountain building is a large (approximately 10' x14 "x 8') culvert buried partially in the ground with an attached 5' x7' wood frame building to house the 120/240 VAC generator set. The interior is unfinished with linoleum and wood flooring. It houses electronic equipment in equipment racks and batteries. There is a solar panel system that was upgraded in 2002. There are 250 lb. propane tanks. There is one self-supporting tower and one ROHN 45 tower.

Pitkin County's site lease is through a USFS Special Use Permit. Access is via the Hunter Creek Rd to Four Corners Rd. to Sunnyside Trail.

3.10.08 SUNLIGHT MOUNTAIN

The Sunlight Mountain building is approximately 10' x 24'. The building is cement block with a gabled shingle roof. There is a 6'x8' wood landing. The interior is painted with carpeting on the floor. It houses electronic equipment in equipment racks. There is an internal generator.

There is an above ground propane tank. There are three ROHN 45 guyed towers. Pitkin County's site lease is through the USFS Special Use Permit 270-2. Access is via USFS Rd. 300 to USFS Rd. 3128.

3.10.09 THOMASVILLE

The Thomasville building was built in the 1970's. It is a 6' x 8' wood frame building with a pitched roof. There are four ROHN 25 guyed towers. The interior is unfinished wood. It houses electronic equipment in equipment racks. Pitkin County's site lease is through the USFS Special Use Permit. Access is via helicopter.

3.10.10 WILLIAMS PEAK

The Williams Peak building was built in the 1960's. It is an approximately 6' x 10' wood frame building with a pitched tarpaper roof. There is an internal 120/240 VAC generator set. It houses electronic equipment in equipment racks. The interior is unfinished. There is a propane tank and four ROHN 25 towers.

Pitkin County's site lease is through the State Board of Land Commissioners ROW 1468, Book 14. Access is by easement located in Book 556 Page 625 of the Pitkin County Clerk and Recorder.

3.11 RENTAL FACILITIES

3.11.01 REDSTONE CABIN

The Redstone Cabin is located at 17838 Highway 133, Redstone, Colorado 81623. This property is currently known as the County Parcel Elk Park. It is a 600 square foot log structure that has two bedrooms and one bath. The dwelling has an individual septic system and has community water supply from Redstone Water and Sanitation.

The interior of the cabin is wood paneling, has one wood burning stove and electric baseboard heating. Utilities to the cabin are electric, cable and telephone. The renter pays all utilities except for water service.

3.11.02 PUBLIC WORKS CABIN

The Public Works Cabin is located at 76 Service Center Road, Aspen Colorado, 81611. This property is known as the Pitkin County Service Center parcel. The cabin is a 900 square foot stick built structure that is a studio layout with one bathroom. The dwelling has City of Aspen Water and is served by Aspen Consolidated Sanitation district.

The interior of the cabin is painted gypsum board. There is one gas stove and electric baseboard for heating. Utilities to the cabin are electric, gas and telephone. The renter pays for the electric, gas and phone. The County pays for water and sanitation.

3.12 GROUNDS AND WALKWAYS

3.12.01 COURTHOUSE

The Courthouse Yard is the grounds around the Pitkin County Courthouse at 506 E Main Street, Aspen. This grassy area has an underground irrigation system. There are lilac and pine trees. The parameter is lined with rose bushes and a rod iron fence. The walkways consist of brick, concrete or sandstone and are approximately 537' in length. The concrete walkways on the northern side of the Courthouse include snowmelt piping for snow removal.

3.12.02 LIBRARY

The grassy areas on the West and South sides of the library have shrubs and evergreens with underground irrigation. Walkways are approximately 375' long and include snowmelt.

3.12.03 MICHAEL W. SCHULTZ

The grounds around the Michael W. Schultz Yard (Health and Human Services Building) at 405 Castle Creek Road are a grassy area with an underground irrigation system controlled by the Aspen Valley Hospital. All Walkways are concrete and are approximately 452' in length.

3.12.04 PUBLIC WORKS

The grassy area around the Public Works Administration office at 76 Service Center Road has Pine trees and Crab Apple trees. The yard has an underground irrigation system.

3.11.05 VETERAN'S PARK This Park located between the Courthouse Plaza and the Courthouse Building at 530 E Main Street, Aspen is a grassy area with large Pine trees. A brick walkway leads to a Veterans monument. Granite benches and placards are present. The yard has an underground irrigation system.

3.13 PARKING FACILITIES

3.13.01 MAINTENANCE PRACTICES FOR PARKING FACILITIES

- A. Drainage Channels or ditches will be properly placed and maintained and managed in an environmentally sensitive way. Site drainage shall be channeled into defined ditches or curbs and gutters.
- B. Parking will be managed for proper identified uses
- C. Surfacing Existing surface should be continued
- D. Proper signage will be placed and maintained as necessary
- E. Snow removal will be provided by the County to maintain a usable public parking area

3.13.01 CENTRAL COUNTY CAMPUS

The Central County Campus Parking Lot is located behind the Courthouse Plaza and Courthouse buildings, and accessed from Bleeker Street. The lot has an asphalt surface and a designated Emergency Response vehicle parking lot. The lot is 109' X 86' and has a capacity of up to 17 vehicles.

3.13.02 FLEET PARKING

The Fleet Parking area has parking available on the north, east and west sides of the Fleet building with a capacity of up to 30 vehicles. The lot has an asphalt surface with concrete drainage pans directing water shed to a settling pond.

3.13.03 MICHAEL W. SCHULTZ (Health and Human Services)

This building has two designated parking lots: one for client parking and the other for employee parking. The client parking lot has an asphalt surface with safety lighting. It is 125' X 120' and has a capacity of up to 45 vehicles with two designated handicap accessible parking spaces. There is no overnight parking allowed in this parking area. The employee parking lot is located on the northern side of the building with asphalt surface and safety lighting. It is 115' X 45' and a capacity of 12 vehicles.

3.13.04 PUBLIC WORKS

The Public Works lot is an employee and public parking lot. The lot has an asphalt surface with safety lighting. It is 206' X 43' with a capacity for 24 vehicles and one designated handicap accessible parking space.

3.13.05 Buttermilk Park and Ride

The Buttermilk Park and Ride Facility is jointly owned by Pitkin County and the State of Colorado and is located at the intersection of State Highway 82 and Owl Creek Road. The Facility lots that run along Owl Creek Road to West Buttermilk Road are bisected by the entrance road into Buttermilk Ski area and are delineated with large boulders; regulatory parking signs also define the parking areas. The lots shall be used for two purposes: (1) commuter and other parking that promotes mass-transit, carpooling, and other activities that reduce traffic congestion on Highway 82; and (2) recreational-use parking for Pitkin County trails and related recreational facilities. All other uses are prohibited, including overnight parking. Permits for certain temporary uses that relate to minimizing congestion on the Highway 82 corridor, or that present temporary extraordinary circumstances that would

inefficiently burden roads and other public facilities if not addressed at the Buttermilk lots, may be available upon application to Pitkin County Public Works.

Parking by persons who utilize the Buttermilk Park and Ride Facility for transportation to Aspen Mountain, Aspen Highlands, or Snowmass Ski Areas shall be permitted.

Pitkin County and the State of Colorado shall share maintenance responsibilities including lot grading as needed. Snow removal responsibility shall be the responsibility of Pitkin County and may be contracted out as appropriate. Pitkin County shall install and maintain signage.

3.14 REMODEL AND FACILITY CHANGE PROCEDURES

Interior remodel or additions to Facilities is determined on an as needed basis. Growing County departments is usually the reason for space changes. Annually Public Works provides a space analysis of County facilities that provides the necessary information for the determination of space needs. Budget must be approved by special request for space alterations.

3.15 MAINTENANCE PRACTICES FOR FACILITIES

3.15.01 MAINTENANCE PRACTICES FOR ACTIVE PUBLIC FACILITIES

- A. Inspections: Annual inspections will be performed on fire alarm systems, fire sprinkler systems, fire extinguishers, fire detection devices, boilers and elevators.
- B. Cleaning: Routine cleaning is performed daily and includes bathrooms, vacuuming, sweeping and trash removal. Deep cleaning will be performed bi-annually and include carpet cleaning, interior windows, dusting, edging and stripping, waxing or buffing of hard surface flooring.
- C. Electrical: Systems will be inspected and maintained to the current Uniform Electrical Code. Only licensed electricians will perform work or maintenance on systems. All additions will be load verified.
- D. Fumigation: Fumigation for rodents and bugs will be performed by a licensed fumigator annually or on an as-needed basis.
- E. Mechanical (HVAC): Grease bearings, oil motors, check belts, check filters and routine checks of boilers are done monthly.
- F. Roofing: General checks of conditions done bi-annually.
- G. Signage: General occupancy signage and directional signage will be maintained.

3.15.02 MAINTENANCE PRACTICES FOR INTERNAL SERVICE FACILITIES

- A. Inspections: Annual inspections will be performed on fire alarm systems, fire sprinkler systems, fire extinguishers, fire detection devices, boilers and elevators.

- B. Cleaning: Routine cleaning is performed three times per week and includes bathrooms, vacuuming, sweeping and trash removal. Deep cleaning will be performed annually and include carpet cleaning, interior windows, dusting, edging and stripping, waxing or buffing of hard surface flooring.
- C. Electrical: Systems will be inspected and maintained to the current Uniform Electrical Code. Only licensed electricians will perform work or maintenance on systems. All additions will be load verified.
- D. Fumigation: Fumigation will be performed on an as needed basis.
- E. Mechanical (HVAC): Maintenance of grease bearings, oil motors, check belts, check filters and routine checks of boilers will be done monthly.
- F. Roofing: General checks of roof conditions will be done bi-annually.
- G. Signage: General occupancy signage and directional signage will be maintained.

3.15.03 MAINTENANCE PRACTICES FOR MOUNTAIN TOP SITES

- A. Inspections: Annual inspections will be performed on the following: towers, guy wires, anchors, antennas, translators, cables, roofs, generators, exhaust systems, propane tanks, fire extinguishers and first aid items.
- B. Cleaning: Each time a site is used it will be left clean and all trash will be removed from the site. The sites with carpeting are vacuumed as needed. Deep cleaning will be conducted annually each summer. Building will also be assessed annually for rodents.
- C. Electrical: Systems will be inspected and maintained to the current Uniform Electrical Code. Only licensed electricians will perform work or maintenance on systems. All additions will be load verified.
- D. Fumigating: Bleach solutions will be available at each site.
- E. Signage: Signage will comply with local and federal regulations.
- F. Weed Control: Weed control will be assessed annually at specific sites.

3.15.04 MAINTENANCE PRACTICES FOR RENTAL FACILITIES

- A. Inspections: Annual inspections will be done for any capital maintenance needed.
- B. Maintenance: Maintenance will be scheduled on an as-needed basis in conjunction with inspections.

3.15.05 MAINTENANCE PRACTICES FOR GROUNDS AND WALKWAYS

- A. Weed Control: Herbicide and/or Biological controls will be used on an as needed basis.

- B. Irrigation: Irrigation systems are on timed controls and maintenance of systems will be on an as needed basis. Systems will be operational in the spring and blown out in the fall.
- C. Mowing: Lawn mowing will be done weekly.
- D. Snow Removal: Snow will be shoveled and ice melt will be applied as needed.
- E. Landscape: Planting, upkeep and pruning of vegetation will be done once a week.

SECTION IV LAND MANAGEMENT AND MAINTENANCE

4.01 PURPOSE

The health of our environment is clearly a high priority for residents of the Roaring Fork Valley. Yet, the health and productivity of our natural plant communities are being threatened by the introduction and propagation of numerous invasive alien plants. Noxious weeds are much like fire in their ability to spread rapidly, threatening the recreational, agricultural, economic, and environmental value of our lands. Thousands of acres of land in Pitkin County are already infested with noxious weed species. It is estimated that infested acreage increases 15% annually if no control measures are imposed.

4.02 OBJECTIVES

- A. Comply with, and execute, the requirements of the Colorado Noxious Weed Act, § 35-5.5-101, C.R.S., et seq., and the governing regulations at 8 CCR § 1206 et seq..
- B. Promote awareness, education, and training relating to weed management issues.
- C. Survey and map weed infested areas.
- D. Promote the use of integrated management techniques
- E. Restore and maintain desirable plant communities throughout the County
- F. Contain heavy infestations of noxious weeds
- G. Generate public support for the weed management program
- H. Work with other government agencies and departments to institute “Best Management Practices” and/or land use regulations relating to land use referrals
- I. Stop the spread of noxious weeds into uninfested areas

4.03 SERVICES

The Land Management program eradicates weeds on 72 miles along the State Highways 82 and 133 right-of-ways and on 266 miles of County road rights-of-way. The department also manages weeds on 1,319 acres of public land throughout the County, including 218 acres at the Airport, and 45 acres at the Solid Waste Center. In addition, the department offers revegetation and noxious weed management advice for 620,000 acres throughout Pitkin County.

4.04 STATE MANDATES

The Colorado Noxious Weed Act and the governing regulations state that certain noxious weeds pose a threat to the continued economic and environmental value of the land in Colorado, and that they must be managed by all landowners in the State. Together, these acts require the local governing authority to adopt and administer a noxious weed management program aimed at reclaiming infested acres and protecting weed-free land. The Act directs local governments to take the steps necessary to manage noxious weeds in their respective jurisdictions.

In accordance with these statutes, Pitkin County has established a Noxious Weed Advisory Board and a Weed Management Enforcement Policy, detailed in the following sections. The Pitkin County Weed Management Plan was adopted in April 2004 for the purpose of effectively coordinating the efforts of all landowners, private and public, to manage noxious weeds

throughout the County. The most recent revision of the plan can be obtained from the Land Management Department, or downloaded from the Pitkin County website at: http://www.aspenpitkin.com/pdfs/depts/64/Weed_mgmt_plan.pdf

4.05 NOXIOUS WEED LISTS

The state has designated 71 plants as State Noxious Weeds. This list is available through the Pitkin County Land Management Department or the Colorado Department of Agriculture.

The Colorado Department of Agriculture has prioritized the 71 noxious weeds into three categories, designated List A, B, or C:

- “List A” populations have been designated by the Colorado Department of Agriculture for eradication in Colorado. This means that it is a violation to allow any List A species to produce seed or develop other reproductive propagules. It is the intent of the Commission to eliminate these particular species before they become widespread.
- “List B” populations have been designated by the Colorado Department of Agriculture for suppression or containment, with a long-term objective of eradication. This means it is a violation to allow any List B species to spread into any uninfected area.
- “List C” species have been designated by the Department of Agriculture for suppression or containment. These species are common weeds throughout Colorado, making eradication infeasible at this time.

Additional information pertaining to those State Noxious Weeds occurring in Pitkin County can be found in the Pitkin County Noxious Weed Management Plan.

4.06 ENFORCEMENT

4.06.01 NOXIOUS WEEDS DEEMED A PUBLIC NUISANCE

Noxious weeds listed in section III of the Pitkin County Noxious Weed Management Plan, at any and all stages, are subject to all of the laws and remedies relating to the prevention and abatement of nuisances, including, but not limited to, those set forth in § 35-5.5-113 C.R.S.

4.06.02 AUTHORIZED AGENTS FOR ENFORCEMENT

Pursuant to § 35-5.5-105(2), C.R.S., the Pitkin County Land Manager and his or her employees and agents, and the County Code Enforcement Officer, are hereby designated “authorized agents” to enforce the Noxious Weed Management Enforcement Policy in unincorporated areas of the County, by utilizing those procedures set forth in this section, the Noxious Weed Act, and any other applicable local, state and/or federal statutes, rules, regulations and ordinances pertaining to noxious weed management.

4.06.03 INSPECTION AUTHORITY

Inspections shall be conducted pursuant to the Noxious Weed Act, this section, and section 4.06.04, below. Pursuant to § 35-5.5-108.5, C.R.S., the Land Manager and/or Code Enforcement Officer shall (after complying with the requirements of the Noxious Weed Act and section 4.06.04) have the right to enter upon any premises, lands, or places, whether public or private, during reasonable business hours, for the purpose of inspecting for the existence of noxious weed infestations, when at least one of the following events has occurred:

- (1) The landowner or occupant has requested an inspection;
- (2) A neighboring landowner or occupant has reported a suspected noxious weed infestation and requested an inspection, or
- (3) The authorized agent has made a visual inspection from the public right-of-way or area and has reason to believe that a noxious weed infestation exists.

4.06.04 NOTIFICATION OF INSPECTION

No entry upon any premises, lands, or places shall be permitted until the landowner or occupant has been notified in accordance with § 35-5.5-108.5, C.R.S. by certified mail that such inspection is pending. Where possible, inspections shall be scheduled and conducted with the concurrence of the landowner or occupant.

If, after receiving notice that an inspection is pending, the landowner or occupant denies access, the inspector may seek an inspection warrant issued by a municipal, County, or district court having jurisdiction over the land. No landowner or occupant shall deny access to such land when presented with an inspection warrant. The court shall issue an inspection warrant upon presentation by the local governing body, through its agents or employee, of an affidavit stating:

- A. The information which gives the inspector reasonable cause to believe that any provision of this article is being or has been violated,
- B. That the occupant or landowner has denied access to the inspector; and
- C. A general description of the location of the affected land.

4.06.05 NOTIFICATION OF WEED PROBLEM

Should an inspection disclose a weed infestation, the Board of County Commissioners, acting directly or indirectly through its agents or staff, is empowered by the Noxious Weed Act to advise landowners and occupants of the presence of noxious weeds and the need for eradication of those weeds. Said notice shall:

- A. Name the noxious weeds present
- B. Advise the landowner or occupant to manage the noxious weeds, and
- C. Specify the best available control methods of integrated management.

Where possible, the County shall consult with the affected landowner or occupant in the development of a plan for the management of noxious weeds on the premises or lands.

4.06.06 LANDOWNER ACTION

Within a reasonable time after receipt of notification, which at no time shall exceed ten days, the landowner or occupant shall:

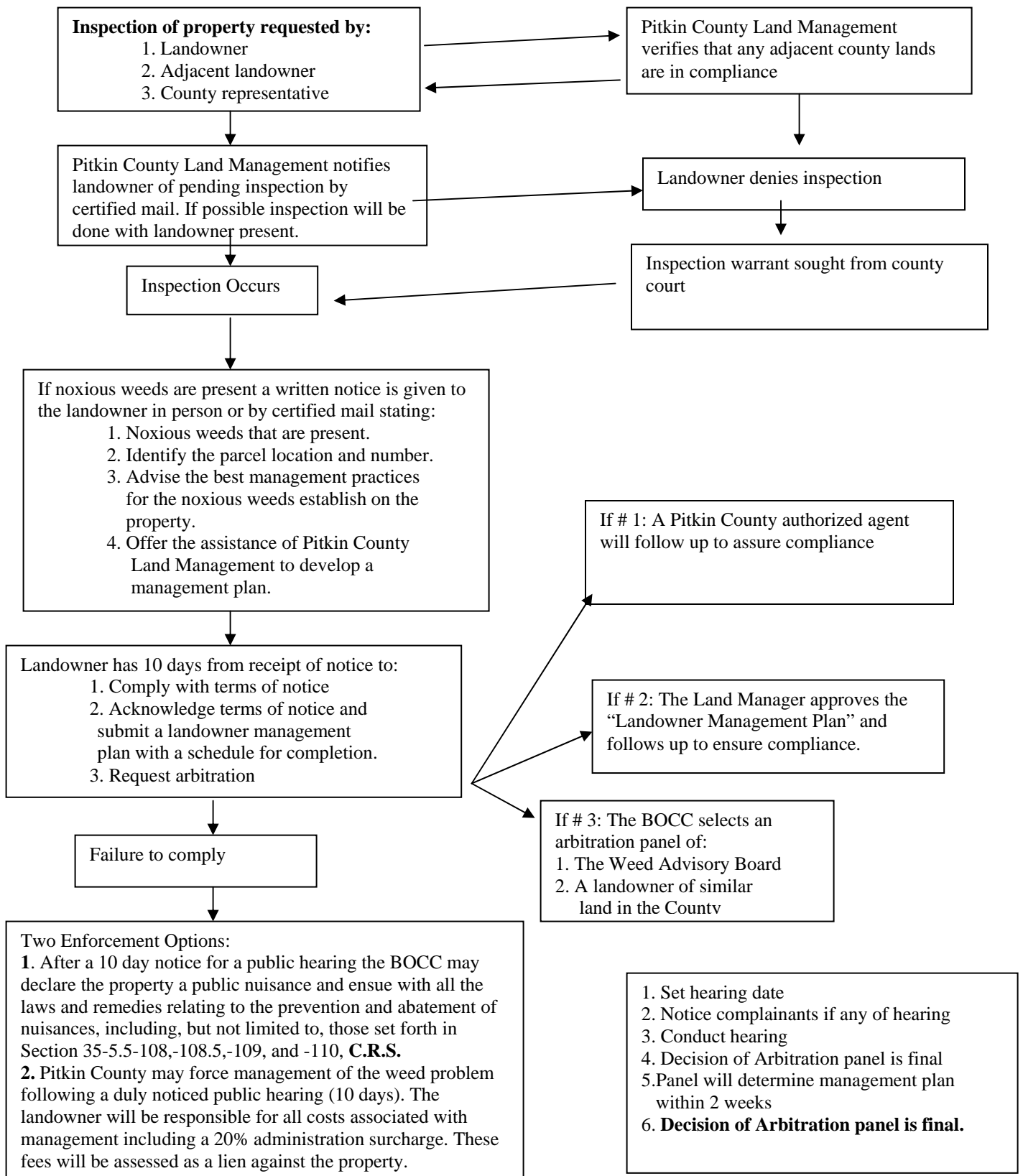
- A. Comply with the terms of the notification
- B. Acknowledge the terms of the notification and submit an acceptable schedule for the completion of the plan for compliance (Landowner Management Plan, Appendix B)
OR
- C. Request an arbitration panel to determine the final management plan.

4.06.07 NONCOMPLIANCE

Noncompliance with the terms of a Notification issued pursuant to this section shall be addressed in the manner prescribed by § 35-5.5.-108.5 and the governing regulations.

4.06.08 ENFORCEMENT FLOWCHART

Pitkin County Noxious Weed Enforcement Proceedings Flow Chart



4.07 REVEGETATION

See Appendix C for the Pitkin County Revegetation Guide

SECTION V DEFINITIONS

5.01 DEFINITIONS

- AASHTO: American Association of State Highway Transportation Officials.
- ADT: Average Daily Traffic
- ASTM: American Society for Testing and Materials.
- ACCESS: Any driveway or other point of access such as a street, road or highway that connects, either directly or indirectly, to the County road system.
- ACCESS: Any Driveway, Private Road or other traveling surface used to access a
- APPLICANT: Individual requesting permits or approvals from the County.
- BC: Begin curve
- BVC: Begin vertical curve.
- BASE: A layer of selected or processed aggregate material placed immediately below the pavement or wearing surface and above the sub-base or sub grade.
- BOND: One or more security arrangements including Financial Security or liens or monies placed in escrow which may be acceptable by the County covering the entire cost of all required improvements.
- COUNTY: The County Representative or any of its authorized agents.
- CUL-DE-SAC: A dead end local road with special provisions for turning around.
- CULVERT: A closed conduit, other than a bridge, which conveys water transversely under the roadway.
- CURVE RADIUS: The radius at the centerline of the roadbed.
- DESIGN SPEED: A maximum safe speed that can be maintained on a road segment under favorable conditions; light traffic, good weather, daylight etc. Design speed correlated the physical features of the road, including width, horizontal and vertical alignments, sight distance, etc.
- DRIVEWAY: Roads that serve 1 to 5 residential uses and have a traffic volume of less than 58 vehicles per day.
- EC: End curve

EVC: End vertical curve.

EXISTING GRADE: Vertical location of the existing ground surface prior to excavation or filling.

FILL: Deposits of soil, rock, or other materials placed by man.

GRADING: Any excavating of filling or combination thereof. MAJOR

FLOODWAY: That portion of the flood regulatory area as defined in the Pitkin County Zoning Resolution required for the passage of the 100 year flood.

PIVC: Point of Intersection Vertical Curve.

PUBLIC RIGHT OF WAY: Any County right-of-way, County road easement, or County road open to the public via agreement or prescriptive use, that falls under County jurisdiction and/or maintenance.

RIGHT OF WAY: An accepted dedicated public property or easement with or without improvements, which

SILT FENCES: A temporary sediment barrier consisting of a filter fabric supported by wooden or steel posts and entrenched.

SITE: Any lot or parcel of land or contiguous combination thereof.

STREAMS: Any intermittent or perennial water course so designated on USGS maps.

STRUCTURE: Includes but is not limited to such improvements as a fence, wall, earthen berm, physical depression, landscaping, sign, curb, gutter, drainage device, lighting, walkway, stairway steps, lift, parking area, or natural feature (i.e., boulder, log).

SUBGRADE: The bottom of a roadway excavation or top of fill finished to a smooth uniform surface upon which a layer of specified surfacing material such as base, sub-base, and asphaltic concrete is to be placed.

TRAVELED WAY: The portion of the roadway for the movement of vehicles, exclusive of shoulders.

TYPICAL SECTION: A drawing showing both the geometric cross-section and structural cross-section elements. USGS: United States Geological Survey USFS: United States Forest Service

APPENDIX A

PERMIT FEE SCHEDULE:

Access Permit:	\$540.00
Oversized Transport Permits	\$15.00
Annual Oversized	\$250.00
Right-of-Way Work Permit	\$540.00
Revocable Right-of-Way Permit	\$540.00
Revocable Right-of-Way Parking Permit	\$540.00
Pitkin County Traffic and Parking Management Plan	Included with Access Permit
Landowner Revegetation Plan	No Fees

APPENDIX B
PERMITS, FORMS, AND REVEGETATION GUIDELINES



ACCESS DEVELOPMENT PERMIT APPLICATION

130 S Galena Street · Aspen, CO · 81611
970-920-5524 Fax 970-920-5439
www.aspenpitkin.com

Permit # _____

VALID PERMIT MUST BE KEPT ON SITE AT ALL TIMES
Permit valid for one year unless otherwise specified.

1. Address of property to be accessed: _____

2. Legal description of property to be accessed: _____

3. Owner(s)'s Name: _____ Contact/Fax Number: _____ Mailing Address: _____

4. Owner's Authorized Agent: _____ Contact/Fax Number: _____ Mailing Address: _____

5. Contractor's Name: _____ Contact/Fax Number: _____ Mailing Address: _____

6. Architect or Engineer on Record: _____ Contact/Fax Number: _____ Mailing Address: _____

7. Parcel ID number of property to be accessed: _____ Check <http://www.aspenpitkin.com/depts/3/> or call the Pitkin County Assessor's Office at 970-920-5160 for the parcel ID number.

8. Property also known as: (Provide a detailed map showing the location at legible scale) _____

9. Land use approval number(s): _____

10. Is there existing access? _____

11. For residences, list the number and type of dwelling units. _____

12. For commercial building, list the number/sq. ft. of building(s). _____

13. Type of material to be excavated or placed on property:
 13a. Material will be brought from: _____ 13b. Is the material possibly contaminated? Yes _____ No _____
 13c. Excavated material will be taken to: _____

14. Description of work: _____
 Total acreage or square footage of disturbance: _____ Max cut depth: _____
 Total cubic yards of material moved: _____ Max fill depth: _____

15. Will the project result in disturbance of ≥ 1 acre of land? Yes _____ No _____
 15a. If you answered "Yes", submit a copy of your state Construction Stormwater Permit or R-Factor waiver. Information on this permit is available at: <http://www.cdph.state.co.us/wq/PermitsUnit/stormwater/construction.html>.

16. Is any portion of the project already complete? _____ If yes, give reason and date(s) of prior construction activity. _____

17. Will the project disturb/result in removal of any vegetation? Yes _____ No _____
 17a. If you answered "Yes" submit a revegetation plan, including a plant list with scientific names of species, planting schedule and method of irrigation. The County's Revegetation Guidelines are available at: <http://www.aspenpitkin.com/depts/64/deptmain.cfm>.
 17b. How will you prevent the establishment of noxious weeds at the project? _____

18. Will the project result in disturbance of any wetlands or riparian areas? Yes _____ No _____
 18a. If you answered "Yes", submit a description of your revegetation/mitigation plan, including a plant list with scientific names of species, planting schedule and method of irrigation. Also submit a copy of your U.S. Army Corps of Engineers Sec. 404 permit in connection with any disturbance of "jurisdictional waters" of the U.S. Contact the U.S. Army Corps of Engineers in Grand Junction (970-243-1199) for information on Sec. 404 permit requirements.

19. Will the project involve work in the Pitkin County Right of Way? Yes _____ No _____
 19a. If you answered "Yes" a County Right of Way Work Permit must be obtained prior to commencing work. Information on this permit is available at: <http://www.aspenpitkin.com/depts/24/permits.cfm> or by calling Public Works at 970-920-5390.

20. Will the project disturb/involve work in the 100-year flood plain? Yes _____ No _____
 20a. If you answered "Yes" a County Floodplain Development Permit must be obtained prior to commencing work. Information on this permit is available at: http://www.aspenpitkin.com/depts/12/water_res.cfm or by calling the Natural Resource Specialist at 970-429-2033.

Having carefully read the requirements, I (Applicant) hereby agree to the terms and conditions described within. This form is a permit only when validated by County staff. Work started without a permit will be subject to Pitkin County enforcement action and charged double permit fees.

21. Signature of Applicant:	21a. Date:
-----------------------------	------------

22. Signature of Property Owner(s):	22a. Date:
-------------------------------------	------------

FOR STAFF USE ONLY (DO NOT WRITE BELOW THIS LINE):

23. Additional Terms and Conditions of Permit (check all that apply):
 _____ At the time of issuance of this permit you are required to post \$_____ as financial security to ensure successful completion of your revegetation plan. These monies will be held for two growing seasons from the date of completion of the project and will only be released at that time if a site visit by Pitkin County Land Management confirms that successful revegetation has been accomplished. Applicant is obligated to contact Pitkin County Land Management (970-920-5214) to schedule the required two-year site visit. The monies will be forfeited if successful revegetation is not confirmed after two growing seasons, or if Applicant fails to timely schedule the required site visit.

 _____ A Fugitive Dust Control Plan approved by the Environmental Health and Natural Resources Department is required.
 _____ Other:

There is a \$540.00 permit flat fee due at submittal of permit application.

The following additional fees may be required to be paid prior to issuance of this permit:

County Engineer Referral Fee: \$225

Additional Flat Fee for Applications Involving Large Scale Undergrounding of Utilities & Earthmoving Projects: \$225

You will also be invoiced by the Land Manager, Planning Engineer and Natural Resource Specialist for any review and follow up inspection time exceeding 2 hours at a rate of \$150/hr.

Date Permit Application Received:		Permit Flat Fee (due at submittal): _____	Check # _____
		Additional Fees (due at issuance): _____	Check # _____
Date Permit Issued:		TOTAL FEE (no refunds): _____	

23. Staff Comments:

24. Approved by Pitkin County Engineer:	24a. Date:
---	------------

25. Approved by Pitkin County Land Manager:	25a. Date:
---	------------

26. Approved by Pitkin County Planning Engineer:	26a. Date:
--	------------



OVERSIZED PERMIT APPLICATION

76 Service Center Rd. · Aspen, CO · 81611
970.920.5390 Fax 970.920.5374

Permit # _____

Check # _____

One Time fee \$15.00
Annual Oversize \$250.00

Permit must be obtained at least two business days prior to planned use or TRIPLE fees will be charged

Permit Valid Until: _____

VALID PERMIT MUST TRAVEL WITH TRANSPORT

PROPOSED ROUTE WITH MAP MUST BE PROVIDED PRIOR TO TRANSPORT

1. Owner's Name & Address

2. Contractor Name

3. Contractor Contact Person

3b. Contact Phone(s)

4. Contractor Mailing Address

5a. Start Date:

5b. End Date

6. County Being Moved from

7. Hours of transport

8. Overall Length

9a. Front Overhang

9b. Rear Overhang

10a. Height

10b. Width

11. Traffic Control Company and phone #

12. Traffic Control Supervisor Name and phone #

13. Shipment Consists of

14. Single Trip From _____ To _____

15. On Following Dates

16. Over Pitkin County Hwy #

17a. Make & Type of Vehicle

17b. Vin #

If there is any anticipated traffic interference on County Roads, Dispatch must be notified Each day of work 920-5310

Having carefully read the requirements of the below, I (permittee) hereby agree to the terms and condition described within. This form is a permit only when validated by county staff, work started without permit will be double fee.

18a. Signature

18b. Date

19a. Approved by Authorized Representative for Pitkin County Public Works

19b. Date



RIGHT-OF-WAY WORK PERMIT APPLICATION

76 Service Center Rd. · Aspen, CO · 81611
970.920.5390 Fax 970.920.5374

Permit # _____
Check # _____

Permit Valid Until: _____

Permit Fee (no refunds) **\$540**

VALID PERMIT MUST BE KEPT ON SITE AT ALL TIMES

1. Owner's Name & Address

2. Contractor Name

3. Contractor Contact Person

3b. Contact Phone(s)

4. Contractor Mailing Address

5. Name of Project (IF ANY)

6. Work Location

6a. Nearest Intersection

If there is any anticipated traffic interference on County Roads, Dispatch must be notified Each day of work 920-5310

7. Description of Job

8b. Start Date:

8c. End Date

8a. Traffic Control Company

8b. Phone(s)

9. Type of work:
 Bore Trenches Open Cut Other _____

Depth _____ Width _____
Length _____ Other _____

> 30% Slope * If yes see
 YES NO below

10. Purpose:
Water _____ Sewer _____ Electric _____ Phone _____ Gas _____ Repair _____ Other _____

10a. Proof of Water or Sewer Tap
fees paid YES NO

11. Does Work Impact Pitkin County Open Space & Trails? YES NO

11a. OST Approval: _____

Having carefully read the requirements of the below, I (permittee) hereby agree to the terms and condition described within. This form is a permit only when validated by County staff, work started without permit will be double fee.

12. Signature of Applicant

Date

Permit will not be released to applicant until all required documents have been submitted (see below)

FOR STAFF USE ONLY (DO NOT WRITE BELOW THIS LINE):

13. Certified Traffic Control Plan (including dimesions)	Required?	<input type="checkbox"/> YES <input type="checkbox"/> NO	13a. Received?	<input type="checkbox"/> YES <input type="checkbox"/> NO
14. Revegetation/ Landscape Plan	Required?	<input type="checkbox"/> YES <input type="checkbox"/> NO	14a. Received?	<input type="checkbox"/> YES <input type="checkbox"/> NO
15. Drainage and Erosion Plan Needed	Required?	<input type="checkbox"/> YES <input type="checkbox"/> NO	15a. Received?	<input type="checkbox"/> YES <input type="checkbox"/> NO
16. Construction Fencing Needed	Required?	<input type="checkbox"/> YES <input type="checkbox"/> NO	16a. Done?	<input type="checkbox"/> YES <input type="checkbox"/> NO
17. Boring Permit Only (NO CUT)	Required?	<input type="checkbox"/> YES <input type="checkbox"/> NO	17a. Done?	<input type="checkbox"/> YES <input type="checkbox"/> NO
18. Compaction of backfill at 95% Proctor or Marshall Values	Required?	<input type="checkbox"/> YES <input type="checkbox"/> NO	18a. Done?	<input type="checkbox"/> YES <input type="checkbox"/> NO
19. Construction plans (from P.E. or L.S.)	Required?	<input type="checkbox"/> YES <input type="checkbox"/> NO	19a. Received?	<input type="checkbox"/> YES <input type="checkbox"/> NO

BOND REQUIREMENTS: Bonds held for 2 years and must be submitted prior to construction

20. Construction Bond Amount YES NO \$ _____ Initials _____ Bond Cert# _____ Expires _____

21. Revegetation Bond Amount YES NO \$ _____ Initials _____ Bond Cert# _____ Expires _____

22. Overall Project Bond YES NO Project Manager _____ Location of Bond _____

Maintenance Bond Amount YES NO \$ _____ Initials _____ Bond Cert# _____ Expires _____

Performance Bond Amount YES NO \$ _____ Initials _____ Bond Cert# _____ Expires _____

23. Special Conditions:

PERMIT NOT VALID UNLESS ALL THREE SIGNATURES ARE PROVIDED

24. Approved by Land Management Designee

24a. Date

25. Approved by Public Works Designee

25a. Date

26. Surety Bonds Reviewed and Approved by

26a. Date

*>30% Slope - Applicants must go through a full development review process with the County Community Development Department for any activity that encroaches on areas with more than a 30% slope.

**REVOCABLE ROW PARKING PERMIT APPLICATION**

76 Service Center Rd. · Aspen, CO · 81611

970.920.5390 Fax 970.920.5374

Permit # _____

Check # _____

Permit Valid Until: _____

Permit Fee (no refunds) **\$540****VALID PERMIT MUST BE KEPT ON SITE AT ALL TIMES**

1. Owner's Name & Address			
---------------------------	--	--	--

2. Contractor Name			
--------------------	--	--	--

3. Contractor Contact Person		3b. Contact Phone(s)	
------------------------------	--	----------------------	--

4. Contractor Mailing Address			
-------------------------------	--	--	--

5. Name of Project (IF ANY)			
-----------------------------	--	--	--

6. Work Location		6a. Nearest Intersection	
------------------	--	--------------------------	--

6b. Lot	6c. Block	6d. Subdivision Name (if Applicable)	
---------	-----------	--------------------------------------	--

If there is any anticipated traffic interference on County Roads, Dispatch must be notified Each day of work 920-5310

7a. Description of Job			
------------------------	--	--	--

7b. Start Date:		7c. End Date	
-----------------	--	--------------	--

8a. Traffic Control Company		8b. Phone(s)	
-----------------------------	--	--------------	--

9. Please attach Map or Illustration of parking area			
--	--	--	--

10. Does Parking Activity currently exist? <input type="checkbox"/> YES <input type="checkbox"/> NO		10a. Proposed date for beginning parking	10b. Corner Lot	10c. Inside Lot
--	--	--	-----------------	-----------------

11. Does Work Impact Pitkin County Open Space & Trails? <input type="checkbox"/> YES <input type="checkbox"/> NO If yes Approval must be obtained and signed on line 14				
--	--	--	--	--

Having carefully read the requirements of the below, I (permittee) hereby agree to the terms and condition described within. This form is a permit only when validated by county staff, work started without permit will be double fee.

12a. Signature of Property Owner			Date
----------------------------------	--	--	------

12b. Signature of Contractor			Date
------------------------------	--	--	------

Permit will not be released to applicant until all required documents have been submitted (see below)

FOR STAFF USE ONLY (DO NOT WRITE BELOW THIS LINE):

13. Certified Traffic Control Plan <input type="checkbox"/> YES <input type="checkbox"/> NO		13a. Received from contractor <input type="checkbox"/> YES <input type="checkbox"/> NO	14. Approved by Open Space & Trails Designee (pertaining to line 11)	Date
---	--	--	--	------

15. Special Conditions:			
-------------------------	--	--	--

PERMIT NOT VALID UNLESS ALL THREE SIGNATURES ARE PROVIDED

16. Approved by County Engineer		16a. Date
---------------------------------	--	-----------

17. Approved by Public Works Designee		17a. Date
---------------------------------------	--	-----------

18. Insurance Received and Approved by		18a. Date
--	--	-----------



REVOCABLE ROW WORK PERMIT APPLICATION

76 Service Center Rd. · Aspen, CO · 81611
970.920.5390 Fax 970.920.5374

Permit # _____

Check # _____

Permit Valid Until: _____

Permit Fee (no refunds) **\$540**

VALID PERMIT MUST BE KEPT ON SITE AT ALL TIMES

1. Owner's Name & Address

2. Contractor Name

3. Contractor Contact Person

3b. Contact Phone(s)

4. Contractor Mailing Address

5. Name of Project (IF ANY)

6. Work Location

6a. Nearest Intersection

6b. Lot

6c. Block

6d. Subdivision Name (if Applicable)

If there is any anticipated traffic interference on County Roads, Dispatch must be notified Each day of work 920-5310

7a. Description of Job

7b. Start Date:

7c. End Date

7d. Bond Expires (if applicable)

8a. Traffic Control Company

8b. Phone(s)

9. Type of work (check all that apply):

Fence Wall Landscaping Other _____

> 30% Slope

YES NO * If yes see below

10. Purpose:

Water _____ Sewer _____ Repair _____ Electric _____ Phone _____ Gas _____ Other _____

11. Does Work Impact Pitkin County Open Space & Trails? YES NO If yes Approval must be obtained and signed on line 15

Having carefully read the requirements of the below, I (permittee) hereby agree to the terms and condition described within. This form is a permit only when validated by county staff, work started without permit will be double fee.

12. Signature of Applicant _____ Date _____

Permit will not be released to applicant until all required documents have been submitted (see below)

FOR STAFF USE ONLY (DO NOT WRITE BELOW THIS LINE):

13. Certified Traffic Control Plan (including dimensions) YES NO

13a. Received from contractor YES NO

14. Revegetation/Landscaping Plan YES NO

14a. Received from contractor YES NO

15. Approved by Open Space & Trails Designee (pertaining to line 11) _____ Date _____

BOND REQUIREMENTS: Bonds held for 2 years and must be submitted prior to construction

16. Construction Bond Amount YES NO \$ _____ Initials _____ Bond Cert# _____ Release Date _____

17. Revegetation Bond Amount YES NO \$ _____ Initials _____ Bond Cert# _____ Release Date _____

18. Special Conditions:

PERMIT NOT VALID UNLESS ALL THREE SIGNATURES ARE PROVIDED

19. Approved by Land Management Designee _____ 19a. Date _____

20. Approved by Public Works Designee _____ 20a. Date _____

21. Surety Bonds Received and Approved by _____ 21a. Date _____

*>30% Slope - Applicants must go through a full development review process with the County Community Development Department for any activity that encroaches on areas with more than a 30% slope.

PITKIN COUNTY

REVEGETATION GUIDE



Quercus gambelli

Gambel Oak



NATURAL RESOURCES

UPDATED: NOVEMBER 2003



This guide is a modified version of the Native Plant Revegetation Guide for Colorado. Please see Appendix I (pg. 28) for acknowledgements. Pitkin County thanks all those involved for allowing us to benefit from their fine work.

PLANT SELECTION

Plants to be introduced must be appropriate; that is, they should have proven themselves adaptable to the climate, soil and topographical conditions of the designated area. The use of native plants is strongly encouraged because it provides broad biological diversity and helps keep Colorado looking like Colorado with a unique regional landscape that sets us apart from other parts of the country.

Plants selected are expected to be healthy, vigorous, and pest free. Plant material should be drought resistant, heat and exhaust fume tolerant, not soil sensitive, and preferably fast growing, although the designer must recognize the advantage of both fast and slow growing plants and choose accordingly. Tree planting should be primarily deciduous to blend with the natural environment and provide adequate sight distance and view planes.

RECOMMENDED PLANT LIST

TREES

RIPARIAN AREAS (Creek/River Bottoms/Draws/Ponds/Lakes/Irrigation Ditches):

Aspen	<i>Populus tremuloides</i>
Colorado Blue Spruce	<i>Picea pungens</i>
Douglas Fir	<i>Pseudotsuga menziesii</i>
Narrowleaf Cottonwood	<i>Populus angustifolia</i>
River Birch	<i>Betula occidentalis</i>
Rocky Mountain Maple	<i>Acer glabrum</i>
Thinleaf Alder	<i>Alnus tenuifolia</i> (syn. <i>A. incana</i>)

NORTH TO EAST ASPECTS:

Aspen	<i>Populus tremuloides</i>
Douglas Fir	<i>Pseudotsuga menziesii</i>
Lodgepole Pine	<i>Pinus contorta</i>
Ponderosa Pine	<i>Pinus ponderosa</i>

SOUTH TO WEST ASPECTS:

Gambel Oak	<i>Quercus gambelli</i>
One-seed Juniper	<i>Juniperus monosperma</i>
Piñon Pine	<i>Pinus edulis</i>
Sticky Laurel	<i>Ceanothus velutinus</i>

SHRUBS

RIPARIAN AREAS:

Chokecherry	<i>Prunus virginiana</i>
Hawthorn	<i>Crataegus erythropoda</i>
Prickly Currant	<i>Ribes lacustre</i>
Red Osier Dogwood	<i>Cornus sericea</i>
Silverberry	<i>Shepherdia argentea</i>

Thimbleberry	<i>Rubus parviflorus</i>
Twinberry Honeysuckle	<i>Lonicera involucrata</i>
Wax Currant	<i>Ribes cereum</i>
Willows:	
	<i>Salix bebbiana</i>
	<i>S. drummondiana</i>
	<i>S. geyeriana</i>
	<i>S. lasiandra</i>
	<i>S. monticola</i>

NORTH TO EAST ASPECTS:

Chokecherry	<i>Prunus virginiana</i>
Common Snowberry	<i>Symphoricarpos albus</i>
Golden Currant	<i>Ribes aureum</i>
Mountain Snowberry	<i>Symphoricarpos oreophilus</i>
Prickly Currant	<i>Ribes lacustre</i>
Serviceberry	<i>Amelanchier alnifolia</i>
Wax Currant	<i>Ribes cereum</i>
Wood's Rose	<i>Rosa woodsii</i>

SOUTH TO WEST ASPECTS AND SAGEBRUSH FLATS:

Antelope Bitterbrush	<i>Purshia tridentata</i>
Chokecherry	<i>Prunus virginiana</i>
Common Snowberry	<i>Symphoricarpos albus</i>
Common Juniper	<i>Juniperus communis</i>
Mountain Mahogany	<i>Cercocarpus montanus</i>
Mountain Sagebrush	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
Mountain Snowberry	<i>Symphoricarpos oreophilus</i>
Rabbitbrush	<i>Chrysothamnus nauseosus</i>
Serviceberry	<i>Amelanchier alnifolia</i>
Sticky Laurel	<i>Ceanothus velutinus</i>

SEEDING

The following seed mix has been formulated specifically for revegetation work in and adjacent to naturally vegetated areas in Pitkin County. If revegetation is required within active agricultural areas or old hay fields, pastures, etc. then non-native mixes such as Dry or Wet Pasture Mix from Roaring Fork Co-op is acceptable with approval from Pitkin County Natural Resources. Pitkin County Natural Resources Staff must authorize any deviation from these recommendation. The following seed list contains species known to occur naturally in Pitkin County and that have high rates of success when seeded properly. **Seed availability from vendors is somewhat unpredictable; consequently, substitutions are permissible with Staff approval.**

Revegetation Requirements - Seeding

☛ All seed must be certified weed free. No seed can contain any species on the County or State noxious weed lists (Available online at http://www.aspenpitkin.com/misc/weeds/weed_list_table3.htm and <http://www.ag.state.co.us/dpi/weeds/statutes/weedrules.pdf>, respectively) nor can it contain any of the following species (candidates for County list):

☛ Reed Canary Grass (*Phalaris arundinacea*)

☛ Purity tags must be submitted to the County Vegetation Manager (Jim Lewis, 920-5214) prior to installation.

☛ A viable seedbed must be prepared by either disking or hand raking.

☛ A seed drill should be used on slopes that are less than 2:1, and the drill tube spacing should be 6-7 inches. If a seed drill is not used on slopes less than 2:1, the area must be harrowed after seeding to incorporate seed into the soil.

☛ **Seeding rate: If a seed drill is used, 6-10 PLS/acre. Otherwise, 8-12 PLS/acre.**

☛ On slopes that are greater than 2:1 where drilling the seed is not practical, hand raking is required to incorporate the seed into the soil.

☛ The site must be mulched with weed-free mulch after planting. Mulch should be applied at the rate of 2 tons per acre.

☛ A Plantago-based tackifier or similar, approved product must be applied on all mulch at the rate of 150 lbs. per acre to prevent wind from blowing straw off the revegetated areas.

☛ If area to be revegetated is currently dominated by pasture grasses a dry or irrigated pasture mix available at places such as the Carbondale Co-op is acceptable.

☛ Recommended native seed mix (Substitutions must be approved by Vegetation Management prior to installation):

PLANT SPECIES

COMMON NAME	LATIN NAME	%
Slender Wheat 'San Luis'	<i>Elymus trachycaulus</i>	30
Mountain Brome 'Garnet'	<i>Bromus marginatus</i>	30
Western Wheatgrass 'Arriba' or 'Manchar'	<i>Pascopyrum (or Agropyron) smithii</i>	15
Arizona or Idaho Fescue	<i>Festuca arizonica or F. idahoensis</i>	15
Green Needlegrass 'Lodorm'	<i>Nassella (or Stipa) viridula</i>	10

This seed mix is available from many distributors, including:

Wind River Seed
3075 Lane 51 ½
Manderson, WY 82401
E-mail: wrstaff@windriverseed.com
Phone: (307) 568-3361 Fax: (307) 568-3364
Web Site: <http://www.windriverseed.com/index.htm>

Granite Seed Co.
1697 West 2100 North
Lehi, UT. 84043
Phone: 801-768-4422 Fax: 801-768-3967
Email: info@graniteseed.com
Web Site: <http://www.graniteseed.com>

Pawnee Buttes Seed
PO Box 100
605 25th Street, Greeley, CO. 80632
Phone: (800) 782-5947 Fax (970) 356-7263
E-mail Pawneeseed@ctos.com
Web Site: <http://www.pawneebuttessseed.com>

Western Native Seed
P.O. Box 1463, Salida, CO 81201
Phone: (719) 539-1071 FAX: (719) 539-6755
Email: westseed@chaffee.net
Web Site: <http://westernnativeseed.com/>

SEEDING AND PLANTING

Native plantings may be established by natural revegetation of a site, by seeding, or by planting sod, cuttings, or bare root, containerized, or salvaged stock. Natural revegetation may be the best option when native plants are established near the site and when weeds do not seriously threaten to outcompete the native plants. Seeding is often less expensive and more practical than planting nursery stock on large areas. Planting may be more expensive, but it may be the best option in certain situations and may result in more rapid establishment. For many revegetation projects, a combination of planting and seeding will be the most practical approach and will produce the best results.

With either method, care should be taken in planning the arrangement of plant materials on the site. In the natural landscape, plants are rarely arranged in regular rows or monocultural (single species) stands like agricultural crops or in dense patches like horticultural plantings. Instead, plants may be distributed across the landscape in irregular patterns, with many species mixed together and occasional bare areas between plants. For revegetation projects, a more dense, regular cover may be desirable, but the natural landscape can still provide a good guide to planning.

Seeding

Seeding is one of the most commonly used techniques for establishing native plants because it is usually the most cost-effective. However, the establishment of seeded plant stands can be difficult. Patience and experience are normally required for success. Expect to wait three to five years before seeing significant results of a seeding project. Whenever possible, seeding should be used with planting, described later in this section.

The variability of the soil and site conditions means that it is not possible to provide only one set of guidelines. Variation in soil, elevation, site exposure and climate may make establishment difficult.

Before planning a seeding operation, answer the following questions:

- Is seeding necessary?
- Do undesirable plants dominate the site?
- Is weed control practical?
- Is the desired amount and type of seed available and affordable?
- Does the site require additional preparation before the planting can be undertaken?

The answers to these questions will help you in determining the feasibility, timing, cost, and probability of success of your project. In some cases, enough sources of native seed will be present on the site and seeding may actually introduce undesired plant species or genetic variations. Proper management of the land can stimulate the native plants to reproduce and out compete undesired plants. In some areas, the law may require seeding of a disturbed site within a certain period to prevent erosion. Be sure to check with local agricultural and health agencies.

Plant establishment is more likely to be successful if locally adapted species are properly seeded at

the correct time (Horton 1989; R. Mandel, personal communication). Native seeds may be obtained by field collection or purchase.

Collecting Seed

Field collection of local seed has several advantages over purchasing seed: it can be very economical, it ensures that plantings are adapted to local environmental conditions, and it allows for use of species that may not be commercially available. Collecting seed is often most practical for small projects, but can be expanded for larger projects by collecting for several years or by collecting seeds and having them grown in a nursery. The following guidelines refer mainly to collection of seeds from plants with dry fruits that open at maturity. Collection of seeds from fleshy fruits or from fruits that do not open naturally may require different handling. See Young and Young (1986) for more information on seed collection, handling, and storage.

GENERAL GUIDELINES FOR COLLECTING SEED

- Locate collection sites as near to the planting area as possible.
- Identify several collection sites with different elevations, aspects, and geographic locations. Try to find sites separated by at least ¼ mile.
- Obtain permission from the owner to collect seed.
- Do not collect near sensitive plant sites, other environmentally sensitive areas, or weed infested areas. Avoid collecting weed seed.
- Select seeds from at least 30 to 50 healthy, vigorous parent plants at each site. To allow for natural reproduction in the community, leave at least 2/3 of the available seeds.
- Collect when seeds are mature, but before fruits shatter. Correct timing is important and may require observation of parent plants over several weeks. Seeds are usually mature if they feel hard and cannot easily be punctured by a thumbnail.
- Be aware that many native plants will not produce a good crop of strong, viable seeds each year even if flowering seems vigorous. It is possible that efforts invested in seed collection will be repaid at a low level.

HARVESTING AND PROCESSING

There are many techniques for hand harvesting. Some useful ones include the following:

- Cutting: Cut stems as close as possible below the seed head. A grass sickle is a good tool to use.
- Stripping: Wearing gloves, pull along seed heads to dislodge seed into a container.
- Shaking: Gently shake branches to dislodge seeds onto a tarp.

Separate collected seed or seedheads by species, place in paper bags, and label. If seed is going to be used for direct reseeding, a mix of species can be used.

Dry bags of collected seedheads in the sun for about a week with bags placed about two feet (0.5 m) apart, stirring every few days; or dry in a protected area indoors or outside, by spreading plant material in a thin layer on tarps, screens, wood or cardboard. Dry in a sunny area if the

temperature is not over 90° F (32° C). Bring the seed under cover on moist or cool nights and cover with screens if needed to protect from losses by wind or birds.

Clean seed by rubbing seedheads over a piece of 1/8 inch hardware cloth mounted in a wood frame. Dry again for another week in trays lined with newspaper. Cleaned seed can be stored for more than one year. For most species, freezing provides the best long term storage, but storage in a cool, dry environment may be adequate.

● Use caution when buying wildflower seed mixes. Make sure all species are listed and all are native to Colorado.

Purchasing Seed

Native seed should be free of weeds, recently tested for the ability to germinate, and have a high germination rate. Some native species germinate best when seeds are several years old. Consider the following factors to obtain the best possible seed:

- ➡ Plan seed orders early, at least 120 days prior to the planting time. This will allow sufficient time to design a seed mix that will perform properly and to check for availability and price.
- ➡ Buy seed approximately 90 days prior to planned use. This will allow enough time to examine the seed tags and the seed.

To ensure receipt of Certified Seed, specify the following language on seed orders:

“Certified Seed with blue tags attached to the seed bag shall be supplied where a named variety is specified. The vendor shall indicate on the bid whether Certified or common seed is being offered, as well as the origin of the seed. The blue tags which are removed to mix the seed shall be given to the revegetation engineer. In addition, mix tags showing the weighted averages of the ingredients shall be attached to each bag.” (Dunne and Dunne 1996)

- ➡ Check the seed tags and bag labels to verify you are receiving what you ordered. Seed quality can be improved dramatically by requesting certified seed. *How do you know that you are receiving the variety that you ordered?* The only way to tell for certain is to **receive your desired variety in the original bag with the Certified Seed Blue Tag.**

BUYING PREMIXED VERSUS MIXING YOUR OWN

Buy seed by individual species, unmixed, whenever possible. Buying mixed seed may be more convenient for the buyer, but the buyer should be aware of the hidden risks.

- ➡ If Blue Tagged Certified Seed is specified in the mix, there is no way to assure that certified seed will be used. The buyer should ask for the blue tags removed from the bags of certified seed used in the mix.

- The expensive component in the mix may actually be reduced while the cheaper component may be increased.
- Lower quality, weedy lots can be blended into the mix.

If you do purchase mixes, send a good sample in for purity and germination testing to an AOSCA (National Association of Seed Certification Analysts) approved seed lab.

SEED CERTIFICATION

The two types of certified seed that a buyer is most likely to purchase are **Blue Tagged Certified Seed** and **Yellow Tagged Source Identified Seed**.

1. **Certified Seed (Blue Tag):** In the seed industry, Seed Certification is the means of maintaining the pedigree of a specific variety of seed, such as the named variety “Vaughn” which is a variety of sideoats grama. Each variety is released for propagation because it is deemed superior in one or more characteristics, such as seedling vigor, low dormancy, broad range of adaptability, seed production, forage production, form and color, or palatability. Each state has a seed certifying agency or crop improvement association that writes the rules for seed certification. Some seed growers voluntarily use certification to assure their customers of correctly identified, genetically pure seed. Blue Tagged Certified Seed must meet high purity and germination standards and have a low weed content, usually less than 0.25 percent. **There are no standards for noncertified seed other than state limits on weed, which can be as high as two percent!**
2. **Source Identified Seed (Yellow Tag):** There is a strong market for native plant materials, but there may not be certified ecotypes available due to a lack of breeding, low supply, or high cost. In many cases a buyer will accept native material if the material was harvested within a prescribed distance from its intended area of use. While the buyer may request the state and county of origin, state seed law only requires that the actual state of origin be on the label. To receive seed from the area you designate, it is advisable to request “Source Identified Seed” in order to ensure that a certification agency has verified the exact location from which the seed was harvested. Source Identified certification is in place in Colorado, New Mexico, Utah, Wyoming and Montana. The inspector travels to the collection site to verify the species, location (county, state, and elevation), the extent of noxious weeds present, and an estimate of the pounds collected on site. Yellow tags do not guarantee that the seed is free of noxious weeds. Buyers should refer to the vendor’s label for analysis and weed content, or better yet, test the seed themselves. If the seed is to be mixed by the vendor, the buyer should request that the vendor provide the yellow tags.

Take note of several questionable practices sometimes employed by disreputable seed dealers.

- An accepted practice in the seed industry is to label seed as “Variety Not Stated (VNS)” when the source is not known or where there is an oversupply of a particular variety. Some suppliers, however, have informed their customers that VNS seed is an elite type, but can

not be labeled as such because of marketing restrictions. The supplier may sell this seed for a higher price than “Common Class” but less than the actual certified variety. Seed sold in this manner should be purchased as common since there is no proof as to its origin.

- Seed is not certified unless there is a tag attached to the seed bag that clearly states: Certified Seed (Blue Tag) or Source Identified Seed (Yellow Tag). Do not be misled by suppliers who state that the “seed came from a certified field,” or “we don’t have the tags yet,” or “it’s just as good as certified.” Plain and simple, **bags of certified seed have certified seed tags.**

Reputable seed companies will not use these practices, so it is worth your time to get to know which companies are ethical and trustworthy. The only way to completely ensure that what you receive is what you ordered is through proper sampling and testing (Dunne and Dunne 1996).

Testing seed mixes instead of testing individual species of seeds is more expensive and the results are less reliable.

SPECIAL CONSIDERATIONS

Even though a bag may not have a blue tag, it may still contain the variety claimed. A seed lot may fail certification because

- ❖ Purity was slightly lower than the standard for that variety.
- ❖ Seed suppliers may not go to the trouble and expense of having the field and cleaning plants inspected by the seed certifying agency since certified seed often does not command a much higher price than common seed.

“Substandard” Notation

Certification for variety and genetic purity means that a seed lot meets high quality standards for purity and germination, and contains strictly limited amounts of other crop seed, weed seed, inert matter and diseased seed. Some seed of varieties in short supply may be labeled “Substandard” if quality factors other than varietal identity and genetic purity do not meet normal certification standards. In some restricted cases, when the substandard factor will not have a detrimental effect on your project, substandard seed may be acceptable for use. The substandard factor will be listed on the certification tag. (Horton 1989, USDA-NRCS 1992, Young 1994, Colorado Seed Growers Association 1996, R. Mandel, personal communication).

ANALYSIS LABELS

In addition to the seed tags, bags of seed should come with an “Analysis Label.” Knowing how to read one will prove useful.

Accept only seed with a complete analysis label on the bag and a current germination test conducted by an accredited laboratory. In many states, seed cannot be legally sold without an analysis label. Analysis information and net weight may be written on the bag or on an attached tag. The bag should show at least the lot number. The information found on an analysis label includes:

- a) **Variety and Kind:** Kind is the species. The variety need not be stated, but if the seed is supposed to be a certain variety, this variety should be listed on the label.
- b) **Purity:** Purity is the actual proportion of seeds of the desired species present in the bagged material. Purity + inert matter + weed seed + other crop seed percentages must add up to 100 percent. Graminoid seed should contain no more than 10 to 15 percent inert matter or it will be difficult to plant. Even if the percentage of inert matter is low, seed should not contain pieces of stem or unthreshed clusters that will block passage through a drill. The acceptable purity and inert matter for shrubs and forbs will vary by species and by state. To find out the standards for a given species in Colorado you should contact the Colorado Seed Growers Association at (970) 491-6202 or a National Association of Official Seed Certification Analysts (AOSCA) approved seed testing laboratory.
- c) **Weed Seed:** The analysis should indicate that no noxious weed seeds are present (Contact Pitkin County Natural Resources for a copy of the Noxious Weed List). The name and number of seeds per pound of any restricted weeds must be listed on the label. In Colorado the number of restricted weed seeds allowed varies by certification class and species. The general grass seed standards for Colorado are the following:

Table 1: General Grass Seed Standards For Colorado

Factor	Maximum Permitted for Certified Seed
Prohibited noxious weeds	None
Restricted noxious weeds	6 per lb
Total other crop seed	1.00%
Other varieties	1.00%
Other inseparable spp.	0.25%
In graminoid for forage use	0.50%

NOTE: “Other varieties” and “Other inseparable spp.” may include aggressive nonnatives that, even in allowed small amounts may pose a long term problem in the reestablishment of native vegetation.

NOTE: Each state has different lists of prohibited noxious weeds and restricted noxious weeds. If you are buying seed from out of state or if the origin of your seed is from out of state, request that the seed be tested with an “All-States Noxious Weed Exam.” Colorado state law only requires that Colorado seed testing labs report weeds considered noxious in Colorado. Reputable seed companies will test their own lots of seed regardless of origin and will list for which states they tested noxious weeds. Unscrupulous seed companies may list seed as originating from out-of-state to circumvent Colorado seed laws. Again, the only way to be sure you are not getting a noxious weed in your seed is to test the seed yourself. Although certified seed is worth buying, it does not guarantee that the seed is weed free.

For specific information you should contact the Colorado Seed Growers Association at (970) 491-6202 or an AOSCA (National Association of Official Seed Certification Analysts) approved testing laboratory.

- d) **Germination:** Total germination may include the sum of all seeds germinated plus hard seed and dormant seed. Dormant seed is viable but requires time or a physiological stimulus to induce germination. Hard seed is alive but has a thick seed coat that must be scarified, either mechanically, thermally or biologically, before it will germinate. The higher the total germination, the better the seed quality. In general, the germination of a given graminoid species should not be lower than 60 percent, while the germination percentages for various shrub and forb types vary widely by species.

Total germination may be given as a percent followed by "TZ", which means that a staining technique with tetrazolium chloride was used to evaluate seed viability. While this technique can be an acceptable substitute for a germination test, it provides no information about the percentage of hard or dormant seed present. In addition, a TZ test is only as good as the experience of the analyst who administers the test. There are many variables that can give a positive or negative TZ viability indication.

Under Colorado state law, if the seed has been grown in and sold in Colorado, it must have had a germination test within the last year of its date of sale. If the seed has been grown outside of Colorado and is to be brought into the state or if the seed has been grown within Colorado and is to be shipped outside of the state, it must be germination tested within 5 months of its date of sale.

- e) **Pure Live Seed (PLS):** Most species are sold on a PLS basis, with the price adjusted accordingly. PLS equals the percent purity times percent germination. When given a choice between buying on a PLS or bulk basis, PLS is always preferable.

How To Use PLS

If your plan calls for a specific weight of PLS seed per acre, how much bulk seed is needed? To calculate, divide the PLS percentage into the number of pounds recommended. For example, you want to plant 5 pounds PLS of bluebunch wheatgrass per acre. The analysis label indicates 85 percent pure seed and 79 percent total germination; $0.85 \times 0.79 = 0.67$ PLS. Divide 0.67 into 5 pounds per acre and you find that 7.5 pounds of bulk bluebunch wheatgrass seed is required to plant 5 pounds PLS per acre.

Testing Seed

Testing seed is the only way to insure the quality of the seed (purity and viability), that you received what you ordered and that no undesirable species are present.

Purity tests will show the percentages of crop, weed and inert matter (material other than seed such as stems or chaff), and tell you if the percentage of each species in the mix meets the standards you ordered.

The terms germination and viability are sometimes used interchangeably, but do not have the same meaning. A germination test will determine how seeds perform under favorable conditions (which are seldom encountered in the field); however, some seeds are dormant and do not germinate even though they are still alive. Dormant seeds have the potential to germinate if dormancy is broken, usually through time and/or physiological stimulus. A viability test will tell you the sum of the percent germinated and percent dormant seeds in a seed lot, providing information on the potential germination of the lot.

Proper seed sampling is very important. The test results received can be no better than the sample sent in. Samples should be sent to a seed lab that tests according to the standards established by AOSCA.

GENERAL PROCEDURE FOR SECURING A SAMPLE FOR TESTING

To secure a representative seed sample, equal portions should be taken from evenly distributed parts of the quantity of seed to be sampled.

- For free-flowing seed in bags or bulk, a probe or tier should be used.
- For non-free-flowing seed, such as certain graminoid seed, uncleaned seed, screenings, or other seed difficult to sample with a probe or tier, sampling should be done by thrusting one's hand into the bulk and withdrawing representative portions. If the seed has been chemically treated, be sure to wear protective equipment. When a sample is taken with the hand the following procedure should be used:
 1. Insert the hand flat and with the fingers together.
 2. Keep the fingers together as the hand is closed and withdrawn.
 3. Hand samples should be taken from various locations in bags or in bulk.
- Composite samples should be obtained in order to determine the overall quality of a seed lot, including factors such as percentage of pure seed, other crop seed, weed seed, inert matter, noxious weed seed, germination, varietal purity, freedom from disease, and effectiveness of seed treatment.
- Individual bag samples may be obtained to determine whether or not the seed is of uniform quality.

SIZE OF SUBMITTED SAMPLE

For a composite sample to test for quality (purity, germination, and noxious weed examination), the sample should contain a minimum of 2500 seeds. Samples can be compiled by carefully weighing a smaller number of seeds and multiplying to obtain the total weight of seed required. Sample weights may vary from a few ounces for very small seeds to several pounds for large seeds. Always contact the testing lab for specific requirements before submitting a sample. To test for uniformity, the size of any individual-bag samples should be no smaller than the amounts specified for composite samples.

SEED TESTING LABORATORIES

The following Colorado laboratories are approved by AOSCA to test certified seed.

Colorado Seed Laboratory
E-10 Plant Science Bldg.
Colorado State University
Ft. Collins, CO 80523
(970) 491-6406

STA Laboratories, Agricultural Testing Services
630 S. Sunset St.
Longmont, CO 80501
(970) 651-6417
1-800-426-9124

Some seed companies have their own seed testing laboratories that are allowed to test and label uncertified seed only.

Seeding Techniques

TIME OF SEEDING

When seed is planted in non-irrigated conditions, the planting season must be chosen to take advantage of natural moisture. Seeding success is greatly influenced by temperature and precipitation; the best germination occurs when temperatures are above freezing and precipitation is high. In Colorado, seasons that reflect these conditions for cool season species are usually the early spring and late fall; seeding should not be done when the ground is frozen. For warm season species, seeding in late spring or early summer is more likely to accompany temperatures warm enough to support germination. For most sites, proper seeding time is dependent on

- A period of adequate moisture for seed germination.
- A period of adequate moisture for early seedling growth and establishment.
- Adequate soil temperatures for seed growth (Ostler and Allred 1987).

It is important to seed a site as soon as final grading and topsoil placement have occurred to minimize erosion and weed establishment on the project. During periods of time when seeding cannot be accomplished, soils should not remain unprotected.

SEEDING METHODS

There are three primary seeding methods: drilling, broadcasting and hydroseeding. The best method to use will depend on

- Site accessibility and terrain
- Seedbed characteristics
- Time of seeding

Percent slope, aspect, soil type and microclimates will influence the moisture and temperature of a site and should be considered when determining the seeding window for the project.

Drill Seeding

- Proven high revegetation rates.
- Most successful on slopes 3:1 or flatter.
- Preferred because seed depths and seeding rates can be more closely controlled.
- Seed-soil contact is high, which maximizes germination results.

- Drill seeding cannot be accomplished where soils are extremely rocky or slopes are steep.
- Unless specially modified drills are used, all seeds, regardless of size, will be planted at the same depth; the smallest seeds are likely to be planted too deep.
- Seeds drilled in rows may suffer from high interseedling competition.
- Drill seeding leaves “rows” which often persist for many years (or even decades on dry sites); this may be a visual or aesthetic liability.

Tips For Drill Seeding

In general, seeding to a depth of 0.25 to 0.5 inches (0.6 to 1.3 centimeters) should be adequate. Seeding should be conducted along the contour to avoid erosion from water flowing down drill furrows.

Greater success can often be achieved with smaller grass seed and forbs by placing them in a separate seed box and alternating the seeding depth between rows or dropping them directly on the ground to be covered by the action of heavy, trailing chains.

The following components are required in a drill suitable for general use in native seeding:

- Multiple seed boxes for different types of seed (agitators and picker wheels in at least one box for fluffy seed).
- Double disc furrow openers
- Intact depth bands with functioning scrapers on all disc openers to ensure consistent, uniform seed depth placement
- Seed tubes, which drop between disc openers, large enough to handle fluffy seed
- Packer wheels with adjustable tension, to provide proper soil compaction over and adjacent to the seed
- Coulter wheels to allow penetration of furrow openers where seeding into heavy mulch or cover crop.

Broadcast Seeding

Careful attention to seedbed preparation is critical, especially harrowing/raking both before and after seeding.

- Can be used on slopes that are steep, extremely rocky, remote or inaccessible.
- The variable planting depths that result from broadcast seeding allows better establishment of smaller seeds than with drill seeding.
- Resulting vegetation not in “rows”, which is more aesthetically acceptable on many sites.
- If broadcasting is not performed correctly, germination and seedling establishment tends to be slower with this method.

- Broadcast seeding **requires double or triple the seeding rate of drill seeding**, and calibration of seeding rates is less precise than with drill seeding

Hydroseeding

The hydroseeder consists of a water tanker with a special pump and agitation device to apply the seed under pressure in a water slurry. Seed is sprayed on a roughened slope using a hydroseeding machine.

- The water spray can reach areas that are inaccessible by drilling methods.
- The results of hydroseeding are less satisfactory than the results of drill or broadcast seeding because the seed does not make a good soil to seed contact. As a result, fewer seeds germinate. In addition, the slurry mix often rolls off the steep, hard slopes it is applied to,

Tips For Hydroseeding

Hydroseeding may be a good choice for seed that needs sunlight for germination, such as sand dropseed and sagebrush. However, its use should be limited to steep, inaccessible slopes in areas with adequate and dependable moisture during the growing season.

- Be aware that the sheet flow of sprayed water on steep, impermeable slopes may wash the seeds off the slope.

Hydromulching should occur as a separate process after hydroseeding. Do not mix seed and mulch together in one water application process because this will prevent seeds from coming into contact with the soil.

leaving very erratic and uneven distribution of seed.

- As a rule of thumb, hydroseeding in areas receiving less than 20 inches (51 cm) of precipitation will be unsuccessful.
- Hydroseeding is dependent on local water supply for the hydroseeding slurry.

Post Seeding Techniques

After seeding, most sites will benefit from placement of a protective mulch cover. Such covers protect soil and seeds from erosion by wind and water, and conserve soil moisture from the effects

Tips For Broadcast Seeding

Soils “accept” broadcast seed much better if they have been very recently raked or harrowed to eliminate crusting. After broadcasting the seed, cover the seed by harrowing, churning, raking or using a similar technique. Raking or harrowing immediately before and after broadcast is highly recommended.

Care should be taken when seeding to provide uniform coverage (even seed application rates) over the site. Seeding should not be attempted on windy days.

of wind and sun. To be effective, mulches must cover the ground nearly completely and have sufficient durability to survive until the seeds germinate.

MULCH TYPES

In general, mulch should be applied immediately after seeding to protect seed and to avoid disturbing germinating seeds. The following are commonly used mulch types:

Hay

- These materials are often relatively inexpensive to apply.
- Native grass hay may be available in some areas.
- May introduce undesirable weeds or non-natives that will destroy carefully planned and acquired native plantings.

Tips For Using Hay Mulch

In general, hay mulches are more durable the longer the average unbroken stem length. Loose hay is usually highly susceptible to being blown off the surface in most Colorado sites. To counteract this shortcoming, hay is often “crimped” into the soil surface by using a modified disc plow to jam the hay stems into the soil. This does little directly to enhance or stabilize the important cover function of mulch but it can mimic the effects of reducing surface wind speeds and soil desiccation that stubble mulch provides.

Durability of the applied mulch cover is also enhanced by addition of organic tackifier products that “glue” (at least temporarily) the hay to itself and to the ground. When used, hay is typically applied at the rate of 3,000 to 4,000 pounds per acre (3360-4480 kg/ha).

- Weed content of such material must be very carefully monitored and controlled by inspection and certification as required in project specifications.
- Straw is often used for this purpose, but the almost inevitable inclusion of grain seed in straw materials makes the use of straw highly inadvisable because of the competition that results from germinating grain plants.
- Do not use hay of nonnative species such as smooth brome that may germinate and compete with seeded natives.

For hay mulch, a list of certified weed-free hay producers is available from the Colorado Department of Agriculture. The list can be faxed or mailed to interested parties.

Colorado Department of Agriculture
Division of Plant Industry
700 Kipling Street, Suite 4000
Lakewood, Colorado 80215
303-239-4149

Tips For Planted Stubble Mulch Crops

Wheat, rye, and barley should not be used unless they will be mowed before seed maturity, since they produce seed that will compete with the seeded native species.

The annual forage graminoids must be mown prior to seed maturation to prevent reseeding and allow easier drilling of the permanent seed. Planting into such cover requires a grass or no-till seed drill equipped to handle low tillage and high “trash” conditions.

Stubble mulch is most appropriate on low-slope sites because water erosion control capabilities of such covers are limited. Steep slopes such as highway embankments require very intensive efforts and careful species selection to control erosion.

Planted Stubble Mulch Crops

Annual grasses, such as sterile forage sorghums, sudan, or forage millets, are planted the growing season prior to permanent seeding. After crop maturation, native seeds are sown into the residual standing dead material. This method differs distinctly from use of a “nurse crop” in which the annual grain and the perennial mix are planted simultaneously. The “nurse” usually ends up out competing the slow-growing perennials. In a relatively few locations, where moisture can be anticipated to be sufficient to support both the nurse crop and the native seedlings, the method may be beneficial.

- Very cost effective method of providing mulch cover.
- Potential for rill erosion.
- Not recommended for steep slopes.

Hydromulch

Wood fibers are mixed into a water slurry and sprayed onto the ground surface to apply a mulch coating of varying thickness. Hydromulch should be applied separately following seed application. The hydromulch mix is often colored green to assist operators in applying an even cover during spraying. The green color usually fades to tan or gray within a few weeks.

- Overspraying may result in erosion.
- Substantially more expensive than other mulch types.

Tip For Using Bonded Fiber Matrix

The key is to find a certified contractor who knows how to apply the material appropriately.

Tips For Using Hydromulch

An organic tackifier is typically added to the slurry to enhance the durability of the applied mulch cover.

Although typically applied at a rate of approximately 1,500 pounds per acre (1680 kg/ha), it is more effective at a rate of 3,000 pounds per acre (3360 kg/ha) with a guar gum tackifier.

Bonded Fiber Matrix

Bonded fiber matrix is a relatively new product. It is essentially a spray-on mat consisting of a continuous layer of elongated fiber strands held together by a water-resistant bonding agent which creates a very durable and ground-fitting cover.

- ❖ Bonded fiber matrix is especially useful where steep and very rocky surface conditions would make the use of mats ineffective.
- ➡ Great care must be exercised by trained technicians to apply the correct amount of material. A continuous cover is needed to create the integrated shell, but if the material is applied too thickly it can prevent penetration of seedling shoots.

Erosion Control Mats or Blankets

There are a large variety of mats which can perform the function of mulch. Mats composed of aspen shavings attached to or sandwiched between one or two plastic nets have long been used with good success. There are also many mats comprised of different combinations of coconut fiber, straw and other materials that double as both mulch and erosion control.

- ➡ Erosion control mats are generally expensive (although the least expensive are similar to bonded fiber matrix).
- ➡ Installation on rough ground is less efficient because the mulch to ground contact is poor compared to other mulches. Where the surface is very rocky, material ends up suspended above most of the surface stretched between protruding rock “peaks.”
- ➡ Some mats have unsightly plastic netting that does not biodegrade and can be stripped off in large pieces by wind or wildlife.
- ➡ Plastic netting has been reported to trap snakes, whose scales become snagged on the monofilament netting.
- ➡ Paper mats are not recommended in Colorado. They have a tendency to form a paper-mâché-like crust which makes it difficult for plants to sprout.

Planting

Planting can compliment seeding efforts and increase the overall success of a restoration project and should not be overlooked because of the initial higher cost. Planting will be most desirable and cost

Tips For using Erosion Control Mats

Biodegradable netting (not to be confused with “photodegradable” plastic netting) is available from some manufacturers at a slightly higher cost.

Mats are most cost-effective when used on areas where erosion potential is high and the site surface is relatively smooth.

effective when

- ❖ The desired species are difficult to establish from seed, unavailable, or the only seed sources available have low germination rates.
- ❖ The revegetation site is highly erodible or quick results are needed for aesthetic reasons.
- ❖ The revegetation site has abnormally stressful environmental conditions, such as extremely low nutrients, alkalinity, salinity, erosion potential or a short growing season.
- ❖ The existing plant community will present severe competition during seedling establishment.
- ❖ A need for more rapid plant establishment exists than can be met through seeding.

If planting is limited by budget constraints, fewer plants may be used by creating islands of more mature plants, with the following results:

- ❖ A more diverse and natural looking landscape.
- ❖ A central, established stand of native plants which can reproduce and spread.
- ❖ Creation of habitat for wildlife.

In general, site establishment from plants is far more rapid than from seed. (Ostler and Allred 1987, R. Mandel, personal communication).

- ☞ Be aware that nursery stock is costly, and that a successful project will require additional effort and investment to protect planted stock from both wildlife predation and competition from other vegetation (see Protection of Plantings on page 22).

There are two basic options for obtaining native plant materials: 1) purchasing stock from a nursery, or 2) collecting or salvaging plants in the wild, either from the site itself before it is disturbed or from near-by areas.

Plant Materials

BAREROOT AND CONTAINERIZED

Bareroot and containerized plants are common types of transplant stock usually purchased from a nursery. If you are purchasing plant materials from a commercial supplier, the decision to use bareroot or containerized stock should be based on the information summarized in Table 2 below.

With containerized stock, the choice of container size and shape should be based on

- ❖ Species.
- ❖ Seedling size and growth tendencies.
- ❖ Characteristics of the site to be planted.
- ❖ Economics.

Larger containers are more expensive to purchase, transport, store, handle and transplant. However, post-transplant growth has been shown to increase with container sizes. In addition, deeper containers are less likely to result in root spiraling for tap-rooted species. Finally, as a whole, larger stock performs better under more adverse site conditions (Landis and Simonich 1984).

Ideal ages of containerized stock	
herbaceous plants	1 to 3 years
woody plants/shrubs	3 to 5 years
trees	5 to 10 years

Table 2: Bareroot vs Containerized Planting Stock

	<u>Bareroot</u>	<u>Containerized</u>
SPECIES TYPES	Shallow root systems	Deeper or tap-rooted systems
Processing and planting	Require greater care and planning during shipping, storage, handling, and planting. Require irrigated or moist soils.	Shorter production periods and increased survival after transplanting due to less root disturbance during processing. Perform better on adverse sites, especially in rocky or high-stress areas.
Processing and planting	Lack the advantage of being established with their own soil.	Established with their own soil to which beneficial amendments can be added before planting at the site.
Scheduling	Must be either harvested in late fall, after the onset of dormancy, and held over the winter in cold storage or harvested early in the spring, before the onset of leaf emergence, and directly planted to the field.	Can be established during the spring or fall or any other time of the year when there is adequate moisture and favorable site conditions.

Table 2: Bareroot vs Containerized Planting Stock

	<u>Bareroot</u>	<u>Containerized</u>
	The time from nursery establishment to lifting varies from approximately 1 to 3 years.	The time from nursery establishment to lifting averages less than 2 years.
Cost	Cost less and, as a consequence of their relatively lighter weight, are less expensive to ship.	More expensive to produce and ship.

(Landis and Simonich 1984, Shaw 1984, Ostler and Allred 1987)

Ordering And Delivery

Order bareroot or containerized seedlings **from 1 to 4 years in advance** of the planting date. In general, containerized seedlings should be ordered from between 1 to 2 years prior to planting; bareroot seedlings should be ordered from 2 to 4 years prior to planting (Townsend et al. 1993, Shaw 1984). Advanced planning and ordering will ensure the availability of desired species and proper hardening of the stock. In addition to their standard stock, some nurseries offer custom growing and may be able to propagate materials that are collected from the project site. However, custom grown materials have a higher initial purchase cost and may require additional production time as well as an initial contract and down payment (Townsend et al. 1993).

Upon receipt, all containerized stock should be examined to ensure

- ➡ It has a root system adequate to hold the ball together but is not root bound.
- ➡ It is adequately hardened.

Hardening is the process of plant adjustment to cold temperatures. During hardening, a seedling’s growth is reduced, stored carbohydrates accumulate, and the plant becomes more able to withstand adverse conditions. Hardening is a gradual process, accomplished by reducing the supply of moisture, altering the nutrient balance, reducing the temperature, and increasing the seedling’s exposure to direct sunlight as well as to other environmental conditions typical of the planting site. If conditions at the planting site are much different from those at the nursery, site hardening may also be beneficial. The hardening process can not be rushed or accomplished at the last minute. Seedlings which are stressed just prior to establishment have reduced survival rates (Ostler and Allred 1987).

The handling and transportation of bareroot materials must be more carefully planned than that for containerized materials due to their exposed root mass (Shaw 1984, Ostler and Allred 1987). Most nurseries package their seedlings prior to delivery in order to protect their materials during shipping and handling. Seedlings are usually shipped either via express transportation services or in enclosed, refrigerated vehicles. Shipment should not be made in open vehicles or trailers to prevent desiccation and wind damage (Townsend et al. 1993).

The physiological state of the plants should be examined upon delivery. Potential dormancy problems can be indicated by:

- ➔ Elongated buds.
- ➔ Leaf emergence.
- ➔ Root growth and/or elongation of white root buds.
- ➔ Root molds (not to be confused with mycorrhizae).

The seedlings should also be examined for their moisture level, which can be determined by observing the root condition, the twig, needle or root flexibility, and the overall appearance (Townsend et al. 1993).

- ➔ Any damage or deficiencies in the stock should be immediately reported to the nursery and/or contractor from whom it was received. If deficiencies occur in the number of plants shipped or the packaging or transportation procedures, the nursery should be able to correct the problem. If serious problems are noted for the received materials, they should not be planted and should be classified as cull stock. Again, in such case, contact your nursery and/or contractor to correct the problem before payment is made (Townsend et al. 1993).

Protection of Plantings

- ❖ Nursery plantings, especially shrubs, trees and weaker forbs/grasses, will suffer from competition from other vegetation unless they are properly protected. Use a square or circle of landscape cloth or similar material up to 9 ft² (1m²) and cover with mulch to moderate soil temperature rise and extend the life of the cloth.
- ❖ At many sites, protective tubes or cages should be installed on trees and shrubs to protect them from wildlife predation until they are well established.

SALVAGE

An alternative to purchasing plants is to collect them in the wild (referred to herein as “salvage”). Salvaging native plants is ideal because 1) locally-adapted plants are “recycled,” 2) success of transplant survival can be high when the native soil accompanies the salvaged plant, and 3) salvaged plants can be more cost effective than purchased plants, especially for projects with limited budgets but plenty of labor (paid or volunteer). Salvaged plants can either be directly transplanted onto another site or potted and tended until the next planting season.

- ➔ Salvaging from areas that have noxious weeds or undesirable plants should be avoided.

Acquiring Salvaged Plants

There are several ways to obtain salvaged plant material.

- ❖ Native plants or sod on sites slated for development can be salvaged. This method requires some advanced knowledge of construction areas and planning for the destination of salvaged plants.
- ❖ Small numbers of plants may be transplanted from sites ecologically similar to the revegetation site. Do not remove too many individual plants when collecting from such sites. This method is suitable for small restoration projects only.
- ❖ If you are planning your revegetation project in advance of the site being disturbed, plants can be salvaged from the site itself.

What To Salvage

Some experimentation may be necessary to determine which native plants are best for salvage; here are some general guidelines.

- ❖ Plants that reproduce through vegetative sprouting (root shoots) should be ideal for salvaging.
- ❖ Native plants that grow in disturbed areas have been found to be particularly suited for transplanting (Goeldner 1995).
- ➡ Plants with taproots and extensive root systems are least likely to tolerate transplanting.
- ➡ Diseased or weak plants should be avoided.

Native salvaged seedlings should be provided with as much of a competitive edge as possible.

- ❖ Direct transplants should be watered at the time of transplanting, and will benefit greatly from supplemental waterings. Generally, direct transplants will require at least one year of regular waterings. A soaking once every three weeks should be sufficient in cool weather, with increased waterings during warm periods.
- ❖ Dormant plants that are potted need to be watered periodically through the dormant season. A soaking once every three weeks should be sufficient in cool weather. Increase waterings during warm spells.
- ❖ All salvaged plants should be weeded to prevent contamination from the donor site.
- ❖ For wetland plants, water is more critical than soil in plant salvage since wetland plants do not rely on soil microbes and mycorrhizae for survival. Bareroot plants from wetlands can be salvaged and even stored for short periods of time if the plants are kept cool and in a shallow bucket or pool of water. Wetland plants can also be salvaged and transplanted in the summer months as long as the salvaged plants are transplanted directly into wet or moist soils.

When To Salvage

The ideal time to salvage plants is from October to April. Plants can be salvaged at other times of the year if one-third to two-thirds of the plant is cut back and a good rootball is saved and

kept moist. A typical salvage day might consist of digging up plants in the morning and transplanting on another site or potting the plants in the afternoon.

Any plants held over the dormant season or held in a temporary salvage nursery should be transplanted as soon as possible to increase the survival of the salvaged plants. If plants are dug up when dormant, they can also be “heeled in” in a pile of mulch or soil, and kept moist until they are transplanted. Dormant plants that are potted will need to be watered periodically through the dormant season.

Salvage when the soil is moist. If salvaging by hand, transport plants or chunks of sod in plastic grocery bags or moist burlap bags to conserve water. Heavy machinery can be used to move large areas of sod or clumps of shrubs.

CUTTINGS

Some native planting stock is more easily and cheaply produced from cuttings. Cuttings can also be used to maintain the genetic identity and desirable traits of parent material. Plants can be propagated from cuttings as poles, wattles (fascines) or whips. Poles, wattles/fascines and whips are techniques used primarily with cottonwood, poplar and willow propagation for riparian stabilization and restoration (Mandel 1990, R. Mandel, personal communication).

“Heeling in” consists of digging a trench with a sloped side, laying the plants at a 45 degree angle, and placing soil over the root ball to provide winter protection. This system provides more even soil moisture within the ball and prevents the root system from freezing during low temperature periods. Water thoroughly, especially if the soil is dry.

When roots form, the cuttings should be transplanted to containers. After several months of greenhouse acclimation, the transplanted cuttings should be gradually hardened off and used as containerized stock for transplant establishment (Mandel 1990).

SOD

The use of sod is confined to rhizomatous and stoloniferous graminoids. It is not well-suited for use with bunchgrass. Sodding with native species is an effective means of providing rapid plant establishment on critical slopes, grassed waterways, reconstructed drainages, and other priority areas. Sodding can also be used when a desired species produces little viable seed (e.g., inland saltgrass) (Shaw 1984).

While cuttings, sodding, and plant salvage are all valid means of site establishment, they are less commonly used for upland species reintroduction than are containerized or bareroot stock.

Native sod (usually buffalograss) can be purchased from a commercial vendor or can be salvaged (see below). Watering will most likely be required for sod to be successfully established.

Planting Techniques

All stock, whether purchased or salvaged, should be handled as little as possible before transplanting. Even a few minutes of root exposure or extended shoot exposure to warm temperatures and/or high winds can result in plant damage and reduced survival. Only the minimum number of seedlings necessary to complete a designated section of the planting should be removed from their containers/packaging at any one time (Townsend et al. 1993).

STORAGE

Ideally the planting site will be fully prepared and all personnel ready to begin planting when seedlings are delivered. Short-term (under two weeks) storage at the planting site can be facilitated by “heeling in” bareroot materials or by constructing a temporary storage facility for containerized stock.

- ❖ Heeling-in must be done in such a manner as to ensure good soil coverage and protection from moisture loss. Roots should be adequately covered with soil to the root stem, tamped-in, and immediately watered (Townsend et al. 1993).
 - ❖ All materials should be stored in a fenced area which minimizes the chances for damage from humans, birds or animals and should be adequately watered and protected from excess sun, wind and cold.
 - ❖ Transplanting stock should be checked daily for moisture, cold-tolerance, insect or animal damage, and disease.
 - ❖ With proper timing, most deciduous species can be safely stored for more than 90 days.
 - ❖ Plants which are stored for extended periods should have adequate root ventilation to minimize heat build-up from respiration (Townsend et al. 1993, Shaw 1984, Ostler and Allred 1987, Landis and Simonich 1984).
 - ❖ Fall-lifted bareroot transplants can be over-wintered in an appropriate cold storage facility. Proper cold storage involves over-wintering dormant transplants between 34° and 40° Fahrenheit (1°- 4° C) and at approximately 86 percent relative humidity.
- ➡ Some species, especially those with persistent leaves, can not be stored for more than one week without risking damage and/or mold infestation.

WATERING

All temperate western plantings require supplemental moisture at the time of planting, unless they are being transplanted into a wetland or riparian habitat. Whenever possible, soil moisture reserves should be built up prior to plant establishment. This can be accomplished through the use of irrigation and/or snow-fencing on the windward side of the planting area (Townsend et al. 1993). As a general rule, properly hardened transplants should be planted in early spring, as soon as the ground has thawed and while moisture is available.

In general, larger sized or bareroot and salvaged materials will require more moisture than smaller sized and commercially obtained containerized seedlings. At least two quarts (1.9 l) of water per bareroot tubeling and at least one gallon (3.8 l) of water per containerized plant will be needed.

PLANTING

Planting holes may be made with motor-driven augers, planting bars, hoedads, picks, shovels or other means. To avoid drying out the soil, do not excavate holes too far in advance of plant establishment. Holes must be deep enough to allow roots to penetrate into the soil and wide enough so that the roots will drop in at approximately their natural form. However, to minimize labor costs, excavation time, and moisture loss, hole size should not be any larger than necessary.

Place transplants quickly but carefully into the holes to minimize drying the roots. Insert plants into the hole as close to vertical as possible. Plant roots should not be bent, kinked or tangled, or bunched up at the bottom of the hole. Once the seedling is placed in the hole, pack the soil firmly around the root in order to avoid air pockets. Be careful not to mash the roots between the tamped soil and the surrounding substrate. The soil line should be maintained 0.5 to 1 inch (1.3 to 2.5 cm) above the root plug.

To assure good soil to root contact and minimize air pockets, all transplants should be irrigated at the time of establishment. At least two quarts (1.9 l) of water should be used per tubeling and at least one gallon (3.8 l) of water should be used per containerized plant (Townsend et al. 1993, Ostler and Allred 1987).

Planting On Steep Slopes

Working on steep slopes requires that planters begin at the top of the slope and traverse, eventually working downslope. Do not work below another planter; they may dislodge soil which will bury the plants below. The positioning of transplants on steep slopes is critical. Form precipitation catchment basins approximately 12 inches (30 cm) in diameter around each transplant to trap additional water and prevent soil erosion around the plant. Scrape the area directly up-slope from the planting hole with a hoedad or shovel to remove

excess soil which might slough off and bury the seedling. Position the hole near the outer lip of the basin to prevent the plant from being covered by soil eroding from above or exposure of the roots by erosion. Align the crown of the transplanted plug with the plane of the undisturbed slope. Again, to assure good soil to root contact and to minimize air pockets, all transplants should be irrigated at the time of establishment (Ostler and Allred 1987).

In addition to providing moisture and reducing transplant stress, the supplemental water will assist in packing soil around the transplanted root systems and eliminating any remaining air pockets, ensuring good soil to root contact (Ostler and Allred 1987, Townsend et al. 1993, R. Mandel, personal communication).

A Note About Fertilizer

Test the soil from the planting site before adding any amendments. Once you have determined the actual site nutrient conditions, compare these conditions with those considered optimum, if that information exists for the species involved. The available literature differs on its opinions concerning fertilizer use at the time of transplanting. Ostler and Allred (1987) state that Osmocote tablets, a commercial slow-release fertilizer, should be included at the bottom of the transplanting hole to assist with establishment. Wallace (1987) and Mandel (personal

communication) report that many native species, especially those with increased drought tolerance, react adversely to fertilizer use at the time of establishment. With such species, even mild fertilization can cause root-dieback and shoot burning. It is also an excellent idea to consult with a nursery, a plant ecologist, or the Natural Resource Conservation Service (NRCS) in order to determine the specific requirements (Wallace 1987, R. Mandel, personal communication).

APPENDIX I. ACKNOWLEDGMENTS

The Native Plant Revegetation Guide for Colorado is the result of several years work by a large number of dedicated natural resource professionals. These people and the agencies that have supported them in the development of this guide represent a variety of approaches to the protection of natural values in Colorado and beyond. The Colorado Natural Areas Program and Pitkin County extend their appreciation to all who have contributed to the guide; we appreciate your help.

The Colorado Natural Areas Program would like to specifically acknowledge the following contributors, and to apologize in advance if any have been inadvertently omitted.

This guide is dedicated to **Jim Von Loh**. Jim conceived of this guide while he was the Director of the Colorado Natural Areas Program. We wish to recognize and thank Jim for:

- his vision about the importance and usefulness of this guide
- his technical knowledge firmly based in experience throughout the state,
- his competence which provided leadership for the project's many cooperators, and
- his willingness to place an emphasis on the use of native plants in revegetation projects.

Rex A. Seiple and **Dina Clark** laid the groundwork for this document by soliciting input and staffing workshops. They assembled the preliminary drafts of the guide. Rex Seiple deserves special credit for pulling together many, many comments and writing the first drafts. Subsequent work was provided by staff of the Colorado Natural Areas Program: Kathy Carsey, Janet Coles, Karin Decker, and Mark Gershman.

The document has undergone rigorous review, however some errors may have gone undetected. The Colorado Natural Areas Program assumes responsibility for these (but please let us know so that we can correct future editions).

Base funding for the development of this guide was provided by:



GREAT OUTDOORS
COLORADO



The Colorado Natural
Areas Program

Funding for publication and distribution was provided by:

The National Fish and Wildlife Foundation
THE UNITED STATES BUREAU OF LAND MANAGEMENT



Truax Company, Inc., Minneapolis, Minnesota
Colorado State Forest Service, Fort Collins, Colorado
Sharp Brothers Seed Company, Inc., Greeley, Colorado
James Trammell, Littleton, Colorado
Dr. Ruth L. Willey, Gunnison, Colorado











SHARP BROTHERS
SEED COMPANY, INC.












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We would like to thank the following contributing writers who invested many hours of their valuable time preparing sections of the guide.

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Thanks also to all those who contributed by attending meetings, participating in working groups, reviewing and editing draft editions of this document, or providing any of the other types of information and support we have received. Your input was greatly appreciated, thank you.

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Finally, the Colorado Natural Areas Program would like to acknowledge the following individuals for their special contributions to this guide:

Ben Berlinger
Jim Borland
Casey Davenhill

Mary Powell
Neil Sperandeo
Harvey Sprock

Gary Finstad
Alice Guthrie
Charlie Holcomb

Lisa Tasker
Jeff Woods