PARK COUNTY STANDARD SPECIFICATIONS

FOR

ROAD AND BRIDGE CONSTRUCTION

February 22, 2002

Park County, Colorado Road & Bridge Standards

Amended October 24th, 2005

TABLE OF CONTENTS

		Page(s)
ARTICLE I	GENERAL PROVISIONS	5
1.1	Title	5
1.2	Purpose and Intent	5
1.3	Level of Performance	5
1.4	Scope and Application	5
1.5	Authority	5
1.6	Amendments	5
1.7	Definitions	5
1.8	Severability	11
1.9	Waiver	11
ARTICLE II	ADMINISTRATION	12
2.1	Road Systems	12
2.1.1	The Colorado State Highway System	12
2.1.2	The County Road System	12
2.1.3	City Streets	12
2.1.4	Mixed Jurisdiction	12
2.1.5	Other Public Roads	13
2.1.6	Public Roads	13
2.2	Road System Regulations	13
2.2.1	Traffic Control Devices	13
2.3	Enforcement and Inspection	13
2.3.1	Cooperation with Other Entities	13
2.3.2	Enforcement	13
2.3.3	Inspection	14
2.4	County Road System Additions and Improvements	14
2.4.1	Planning	14
2.4.2	Design	14
2.4.3	Right-of-Way Dedication/Acceptance	14
2.4.4	Guarantee of Public Improvements	15
2.4.5	Construction	15
2.4.6	Inspection	15
2.4.7	Acceptance of Roads for Dedication to the County and for County Maintenance	15
2.4.8	Public Road Construction and Inspection	16
2.5	Deletions from the Road System	16
2.5.1	Road and Easement Vacations	16
2.6	Road Name and/or Number Changes	17
2.7	Snowplowing	17
ARTICLE III	TRANSPORTATION PLANNING AND DEVELOPMENT POLICIES	21
3.1	Functional Classification of Roads	21
3.2	Land Use Changes - Compliance	21
3.3	Planning Principles	21

Page(s)

ARTICLE IV DESIGN STANDARDS 23
4.1 Application of Design Standards 23
4.1.1 Minimum Standards 23
4.2 Design Factors 23
4.2.1 Road Classification 23
4.2.2 Projected Traffic Volumes 23
4.2.3 Terrain Classification 23
4.2.4 Design Speed 23
4.3 Geometric Standards 24
4.3.1 Horizontal Alignment 24
4.3.2 Vertical Alignment 25
4.4 Cross Sections Standards 26
4.4.1 Typical Sections 26
4.4.2 Right-of-Way Width 26
4.4.3 Crown Slope 26
4.4.4 Side Ditches 26
4.4.5 Curbs and Gutters 26
4.4.6 Side Slopes 27
Table 4-5 Cut and Fill Slopes 27
4.4.7 Ramps for Physically Handicapped 27
4.4.8 Horizontal and Vertical Clearance 27
4.5 Driveway Access Control Standards 27
4.5.1 Access to Arterial Roads 29
4.5.2 Access to Collector Roads 29
4.5.3 Local Roads 30
4.6 Intersections 30
4.6.1 General Requirements 30
4.6.2 Intersection or Access Approach Radii 30
4.6.3 Sight Distance 30
Table 4.6 Intersection Sight Distance 31
4.7 Pavement Structure Design 31
4.7.1 General Design Procedure and Requirements 31
4.7.2 Pavement Structure Design 31
4.7.3 Flexible Pavement Design Considerations 32
4.7.4 Minimum Structural Sections 32
4.7.5 Rigid Pavement Design 33
4.8 Drainage 33
4.8.1 Applications 33
4.8.2 Design Criteria 33
4.8.3 Hydrology 33
4.8.4 Drainage and Irrigation Structures within County Road Right-of-Way 34
4.8.5 Roadside Ditches 34
4.8.6 Bridges 34
4.9 Road Appurtenances 35
4.9.1 Road Signs and Traffic Control Devices 35
4.9.2 Guardrail 36
4.9.3 Cattle Guards 36

4.9.4	Mail Boxes	37
4.10	Utilities	37
4.10.1	Underground Utilities	38
ARTICLE V	CONSTRUCTION SPECIFICATIONS	41
5.1	General Policies	41
5.1.1.	Park County Construction Specifications	41
5.1.2	The Project Engineer	41
5.1.3	Inspection and Testing	42
5.1.4	The Use of Approved Plans and Specifications	43
5.1.5	Acceptance of Work	43
5.1.6	Cooperation with Utilities	44
ARTICLE VI	TRAFFIC STUDIES	45
6.1	Guidelines for Traffic Studies	45
ARTICLE VII	PERMITS	46
7.1	Issuance Of Permits	46
7.1.1	Disclaimer	46
7.2	Utility Permit	46
7.2.1	Permit Procedure	46
7.3	Driveway Permit	48
7.4	Surface Alteration Permit	48
7.5	Oversize/Overweight Permits	48
7.6	Snow Removal Permit	49
7.7	Suspension or Revocation of Permits	49
7.8	Transfer of Permits	49
7.9	Financial Security	49
Table 7-1	Permit Fee Schedule	50
	Referenced Reports	51
Table 3-1	Summary of Design Elements	52
Table 4-1	Minimum Curve Radius for Design Speed on Local Roads and Lanes	53
Table 4-2	Minimum Curve Radius for Design Speed on "Collectors and Arterials"	53
Table 4-3	Maximum Super-Elevation Rates	53
Table 4-4	Side Friction Factors for Design Speed	53
Table 4-7	Pavement Design Regional Factor	54
Table 4-8	Pavement Design Strength Coefficients	55
Table 4-9	Permissible Velocities for Roadside Drainage Ditches	56
Figure 4-1	Stopping Sight Distance on Crest Vertical Curves	57
Figure 4-2	Serviceability Index = 2.0 to be used on Collectors, Local Roads, and Lanes	58
Figure 4-3	Serviceability Index = 2.5 to be used on Arterials	59
Table 5-1	Minimum Requirements for Compaction of Embankments and Subgrades	60
Table 5-2	Required Quality Control Tests	61
Appendix A	Legal Responsibilities	62
Appendix B	Lane Sections Major Arterial Section	63
Appendix C	Lane Sections Collector/Local/Local Other	64
Appendix D	Cattle Guard Specifications	65
Appendix E	Reclamation Recommendations for new Exposed Earthwork	66

ARTICLE I

GENERAL PROVISIONS

1.1 Title

These regulations may be cited as the "Park County Standard Specifications for Road and Bridge Construction."

1.2 Purpose and Intent

The general purpose and intent of these Standards are to provide for the uniform planning, design and construction of new roadways and related facilities and improvements to existing roadways and facilities, and further, to provide for the administration of the Park County Road System in a manner consistent with applicable federal, state and local statutes, ordinances and regulations. The intent of these Standards is to provide for a minimal level of performance to achieve functional effectiveness, ease of maintenance, pleasing appearance, and environmental concerns.

1.3 Level of Performance

These Standards provide a uniform minimum acceptable level of planning, design and construction. If and only if it can be shown that an alternate plan, design or construction will provide an outcome equal to or better than the required design, natural material, or procedure, then such alternate signed by an engineer, may be approved at the sole discretion of the County Road and Bridge Authority Team.

1.4 Scope and Application

These Standards apply to all roads, which are subject to County jurisdiction under Park County Land Use Regulations and apply to construction of new roads and improvements to existing roads. Residential driveways are exempt from these Standards however, they do require a driveway access permits and they do have their own standards as set forth herein.

1.5 Authority

These regulations are authorized by, inter alia, Sections C.R.S. 30-28-101 et. seq. 30-28-133, 43-2-114, and 43-2-201.

1.6 Amendments

These Standards, may be amended, supplemented, changed, modified or repealed, in Whole or in part, by the BOCC only after a public hearing on the proposed amendment, supplement, change, modification or repeal. Notice of such public hearing, setting forth the date, time, place and purpose of such public health, shall be published in a newspaper of general circulation within Park County at least once a week for two consecutive weeks immediately before the hearing.

1.7 Definitions

AASHTO: American Association of State Highway and Transportation Officials

FHWA: Federal Highway Administration

ITE: Institute of Traffic Engineers

AGRICULTURAL ROAD - Any road whose primary use is to serve an agricultural operation.

ARTERIAL ROAD - See Article III, Section 3.1

ADT - (Average Daily Traffic) the average 24-hour volume, being the total number during a stated period, divided by the number of days in that period. Unless otherwise stated, the period is a year.

ATTERBERG LIMITS - Specifications for soil stability

AUTHORITY TEAM - Park County Road and Bridge supervisor or his/her designated representative.

AXLE LOAD - The total load transmitted by all wheels on a single axle extending across the full width of the vehicle. Tandem axles 40 inches or less apart shall be considered as a single axle.

BACKFILL - Material used to replace, or the act of replacing, material removed during construction; also may denote material, placed or the act of placing, material adjacent to structures.

BASE COURSE - The layers of specified or selected material of designated thickness placed on a sub base or a sub grade to support a surface course.

BOCC - The Board of County Commissioners of Park County.

BRIDGE - A structure including wall or abutments erected over a depression or an obstruction, as water, highway or railway and having a track or passageway for carrying traffic or other moving loads.

CALIFORNIA BERING RATIO TEST - Engineering test to determine material stability and resistance to horizontal expansion.

CEMENT TREATED BASE - A base consisting of a mixture of mineral aggregate (or soil) and Portland cement, mixed and spread on a prepared surface, to support a surface course.

CHANNELIZATION - The separation or regulation of conflicting traffic movements into definite paths of travel by use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of traffic, both vehicular and pedestrian.

CITY STREET - Roads that are within the boundaries of an incorporated municipality that are dedicated to the public and are maintained by the City.

COLLECTOR ROAD - See Article III, Section 3.1

CONTROL OF ACCESS - The condition where the right of owners or occupants of abutting land or other persons to access, light, air or view in connections with a highway is fully or partially controlled by public authority.

COUNTY - Park County.

COUNTY PRIMARY ROAD SYSTEM - County roads selected by the BOCC on the basis of greatest general importance; the County primary system as selected shall constitute an integrated system within itself or with the state highway system. All primary roads will be maintained but not necessarily plowed by Park County.

COUNTY ROAD - Public road accepted by Park County as a primary or secondary road.

COUNTY SECONDARY ROAD SYSTEM - All roads not on the County primary road system and for which the BOCC assumes responsibility, but not necessarily maintenance.

CROSS SLOPE (ROADWAY) - On divided highways each one-way pavement may be crowned separately as on 2-lane highways, or it may have a nondirectional slope across the entire width of pavement, almost downward to the outer edge.

CUL-DE-SAC ROAD - A local road open at one end only, and with special provisions for turning around.

CURBWALK - Monolithic combination of curb and gutter and sidewalk.

CULVERT - A closed conduit, other than a bridge, which conveys water carried by a natural channel or waterway transversely under the roadway.

DELINEATORS - To define the roadbed, and are used as an aid to alert drivers of day and night hazard conditions.

DESIGN LOAD - The loads that must be supported by a structure in terms of live and dead weight loads.

DESIGN PERIOD - Geometric design generally based on estimated traffic requirements 20 years after construction.

DRIVEWAYS – Access roads that serve two or less dwelling units.

18K EDLA - 18,000 pound single axle Equivalent Daily Load Applications. (See "Axle Load" and Equivalence Factor".)

ENGINEER - Professional engineer registered in the State of Colorado.

EROSION - The wearing away of a land surface by detachment and transporting of soil and rock particles by the action of water, wind, or other agents.

FLARED INTERSECTION - An un-channelized intersection, or a divided highway intersection without islands other than medians, where the traveled way of any intersection leg is widened or an auxiliary lane added.

FLEXIBLE PAVEMENT - A pavement structure, which maintains intimate contact with and distributes loads to the sub grade and depends upon aggregate interlock, particle friction and cohesion of stability.

GEOMETRIC DESIGN - The arrangement of the visible elements of a road, such as alignment, grades, sight distances, widths, slopes, etc.

GRADE - The rate expressed in terms of percent, ascent or descent by length.

GUARDRAIL - A protective device intended to make highways safer by reducing accident severity.

HIGHWAY, STREET, OR ROAD - These are general terms, denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way. In rural areas, or in urban areas where there is comparatively little access and egress, a way between prominent termini is usually called a highway or road. A way in an urban area, with or without provisions made for curbs, sidewalks, and paved gutters are ordinarily called a road.

HORIZONTAL ALIGNMENT - Horizontal geometries for safe and continuous operation at a uniform design speed for substantial lengths of highway and must afford at least the minimum stopping distance for the design speed at all points on the highway.

HVEEM STABILIMETER - A device to measure the lateral pressure transmitted by soil or aggregate being subjected to a vertical load. The pressure obtained is used to compute "R" Value. The internal resistance of the friction property of a bituminous pavement or a base course. Data obtained is used to compute the relative stability.

INCLUDE - Including without limitation.

INSPECTOR - Can either be a member of The Park County Road and Bridge Authority Team or their designated representatives.

INTERSECTION - The area embraced within the prolongation or connection of the lateral curb lines, or if none, then the lateral boundary lines of the roadways of two highways, streets, roads or driveways, or any combination of thereof, which join one another at, or approximately at, right angles, or the area within which vehicles traveling on different highways joining at any other angle may come in conflict.

LANE - See Article III, Section 3.1

LATERAL - A conduit diverting water from a main conduit, for delivery to distributaries; a secondary ditch.

LIME TREATED BASE - A base consisting of a mixture of soil, hydrated lime and water, usually mixed in place and placed to support a pavement structure, or the components thereof.

LOCAL - See Article III, Section 3.1

MAY - A permissive condition. No requirement for planning, design or construction is intended.

MINIMUM COVER - The point of minimum cover shall be the edge of the paved shoulder giving the least cover over the pipe.

MINIMUM TURNING RADIUS - The radius of a minimum turning path of the outside of the outer front tire.

NON-MOTORIZED TRAIL - A gravel or paved trail suitable for bicycle and pedestrian travel.

PARK COUNTY - The Board of County Commissioners or its designee.

PARK COUNTY ROAD SYSTEM - All roads in any of the Park County primary or secondary systems

PASSING SIGHT DISTANCE - The minimum sight distance on two or three lane highways that must be available to enable the driver of one vehicle to pass another vehicle safely and comfortably without interfering with the speed of an on-coming vehicle traveling at the designed speed should it come into view after the overtaking maneuver is started.

PAVEMENT - That part of a roadway having a constructed surface for the facilitation of vehicular movement.

PAVEMENT STRUCTURE - The combination of sub base, base course and surface course placed on a sub grade to support the traffic load and distribute it to the roadbed.

PERSON - Any individual, entity, partnership, corporation, association, company, municipality, or other public or corporate body, including the federal government, or any political subdivision (including any municipality, county, or district), agency, instrumentality, or corporation of the State of Colorado of the United States of America.

PLANT MIXED BITUMINOUS BASE - A base consisting of mineral aggregate and bituminous material, mixed in a central plant, laid and compacted while hot, on sub base or a sub grade, to support a surface course.

PRIME COAT - The application of a low viscosity liquid bituminous material to an absorbent surface, preparatory to any subsequent treatment, for the purpose of hardening or toughening the surface and promoting adhesion between it and the superimposed construction.

PORTLAND CEMENT CONCRETE PAVEMENT - A pavement composed of portland cement concrete on a prepared sub grade or base course in accordance with plans and specifications.

PUBLIC ROAD - Any road dedicated to the general use of the public, mayor may not be accepted by the County for maintenance.

R VALUE - The resistance value of the soil while in a state of density and degree of saturation typical of the most adverse conditions to be expected on the road during the service life.

REGIONAL FACTOR - A numerical factor expressed as a summation of a value assigned for precipitation, elevation and drainage. This factor is used to adjust the structural number.

RESIDENTIAL DRIVEWAY - See "Driveways"

RIGHT-OF-WAY - A general term denoting lane, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes.

ROADBED - The graded portion of a highway, usually considered as the area between the intersections of top and side-slopes, upon which the sub base, base course, surface course and shoulders are constructed. Divided highways are generally considered to have two roadbeds.

ROADSIDE - A general term denoting the area adjoining the outer edge of the roadway. Extensive areas between the roadways of a divided highway may also be considered roadside.

ROAD SIGN - A traffic control device mounted on a support above the level of the roadway that conveys a specific message by means of unchanging words or symbols.

ROADWAY - The portion of a highway, including shoulders, for vehicular use. A divided highway has two or more roadways.

ROADWAY PRISM - The area of a road bounded by the traveled surface, the shoulders and lines projecting downward and away from the outside edge of the shoulder and intersecting the ground surface at an angle of thirty (30) agrees to horizontal.

SERVICE ABILITY INDEX - A number, which is indicative of the pavement's ability to serve traffic at any specific time.

SHALL - A mandatory condition.

SHOULD - A recommended but not mandatory condition.

SHOULDER - The portion of a roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use and for lateral support of base and surface courses.

SIGHT DISTANCE - The distance visible to the driver of a passenger vehicle, measured along normal travel path of a roadway, to the roadway surface or to a specified height above the roadway, when the view is unobstructed by traffic.

SINGLE-UNIT TRUCK - A freight vehicle of two or three axles and larger than a pickup.

SIEVE ANALYSIS - Test to divide soils into equal size particles. Test used to classify soils for road use.

SLOPE EASEMENT - An easement for cuts or fills.

STANDARDS - As used in this document refers to the Park County Standard Specifications for Road and Bridge Construction as adopted by the Park County Board of County Commissioners in 2001.

STABILIZATION - Modification of soils or aggregate by incorporating materials that will increase load bearing capacity, firmness and resistance to weathering or displacement.

STATE HIGHWAY - Roads that are within the County that are dedicated to the public, but are maintained by the Colorado Department of Transportation.

STOPPING SIGHT DISTANCE - The distance required by a driver of a vehicle, traveling at a given speed, to bring his vehicle to a stop after an object on the roadway becomes visible. It includes the distance traveled during the perception and reaction times and the vehicle braking distance.

SUBBASE - The layer or layers of specified or selected material of designed thickness placed on a sub grade to support a base course.
SUBGRADE - The top surface of a roadbed upon which the pavement structure and shoulders, including curbs, are constructed.

SUPERRELEVATION - The vertical distance between the heights of inner and outer edges of highway pavement used to prevent a vehicle from sliding outward, or to counteract all the centrifugal force of a vehicle traveling at an assumed speed.

SURVEY MONUMENT - A stone or other permanent mark serving to indicate an angle or boundary.

SUSTAINED GRADE - A continuous highway grade of appreciable length and consistent or nearly consistent gradient.

TERRAIN - The topography of the profile of a highway, road, or street. As used in this manual, the term generally has one of two modifiers; rolling, or mountainous. These two modifiers represent combinations or geometric features in varying degrees, which relate primarily to gradients and horizontal and vertical alignment. They reflect the effect on capacity of the operating characteristics of truck in terms of their passenger cars equivalent under the different geometric conditions.

THESE STANDARDS - All provisions in the Park County Standard Specifications for Road and Bridge Construction.

TOPOGRAPHY - The configuration of the earth surface including the shape and position of its natural and man-made features.

TRAFFIC CONTROL DEVICE - Any sign, signal, marking or installation placed or erected under public authority, for the purpose of regulating, warning, or guiding.

TRAVELED WAY - The portion of the roadway for the movement of vehicles exclusive of shoulders and auxiliary lanes.

VERTICAL ALIGNMENT - Properly designed, should provide adequate sight distance, safety, comfortable driving, good drainage, and pleasing appearance. Stopping sight distance requirements controls minimum lengths of crest vertical curves.

1.8 Severability

If any section, clause, provision, or portion of these Standards should be found to be unconstitutional or otherwise invalid by a court of competent jurisdiction, the remainder of these regulations will not be affected thereby and is hereby declared to be necessary for the purposes set forth in 1.2 of these Standards. Nor will such a finding affect the validity of any permit previously issued, financial security previously accepted, or action previously taken by the County, except as specifically adjudicated by the court.

1.9 Waiver

The Board of County Commissioners (BOCC) may waive the requirements of these Standards as follows:

A. The applicant for a waiver shall present a written petition to the BOCC requesting the waiver, and explaining why compliance with these Standards would be unreasonably burdensome and why a waiver will not adversely affect public health, safety, or welfare. The applicant will bear the burden of proof by a preponderance of evidence on these issues.

B. Within fourteen (14) days of receipt of the petition, the BOCC will set and publish notice of a public hearing on the petitions. At a minimum, this notice shall be published once a week for the two consecutive weeks immediately before the date set for the hearing.

C. Within fourteen (14) days after the hearing, the BOCC must issue its decision. The waiver shall be granted only if the Board determines that compliance with these Standards would be unreasonably burdensome and that a waiver will not adversely affect public health, safety or welfare.

ARTICLE II

ADMINISTRATION

2.1 Road Systems

The road system in Park County consists of federal highways, state highways, county roads, city streets and alleys, town streets and alleys, and other public roads.

2.1.1 The Colorado State Highway System

The Colorado State Highway System in Park County is administered by the Colorado Department of Transportation under the direction of the Executive Director and the State Highway Commission. The Colorado Department of Transportation has full responsibility for the construction and maintenance of all Colorado State Highways within the unincorporated areas of Park County. Within incorporated areas, a municipality may assume maintenance responsibilities under a maintenance agreement. The placement of traffic control signs on all County roads at an intersection with a state highway is under the jurisdiction of the Colorado Department of Transportation.

Access to the Colorado State Highway System in Park County is administered by the Colorado Department of Transportation through the State Highway Access Code, and other applicable regulations.

Planning for state highways is conducted by the Colorado Department of Transportation in cooperation with the county, local municipalities, and other agencies.

2.1.2 The County Road System

A. There has been established in Park County a primary system and a secondary system of County roads. Such roads are designated and described on the Park County Road Map.

B. The Park County Road Map - A Park County Road Maintenance Map has been adopted by the Board of County Commissioners. This map shall be updated periodically and no less than annually to reflect additions, deletions and alterations to the County Road System. Copies of the County Road Map shall be available from The Park County Road and Bridge department for a nominal fee.

C. County Road Administration - The BOCC shall determine the general policies and priorities of the County as to County road matters. The BOCC shall cause to be developed the planning, design and construction standards, and regulate inspect and enforce activity conducted pursuant to such standards.

The Road and Bridge Department is responsible for the maintenance, repair and improvement of certain designated County roads and bridges, and the inspection and regulation of utility installation in County right-of-way.

2.1.3 City Streets

Each city and town in the County should have a street system that consists of all streets open and used. Those streets will be designated as required by the Federal Aid to Urban Systems.

2.1.4 Mixed Jurisdiction

Situations arise in which both the County and a municipality or other government agency have ownership and/or jurisdiction over portions of the same road (e.g., a municipality annexes to the centerline of a County road.) The standards applicable in each such situation shall be determined on

a case-by-case basis by the governing authorities and shall be reduced to a binding written instrument.

2.1.5 Other Public Roads

The following are public highways:

A. All roads over private lands dedicated to the public use by deed, filed with the County Clerk and Recorder of the county in which such roads are situated, when such dedication has been accepted by the BOCC. A certificate of the County Clerk and Recorder with whom such deed is filed, showing the date of the dedication and the lands so dedicated, shall be filed with the County Assessor of the county in which such roads are situated.

B. All roads over private or other lands dedicated to public uses by due process of law and not heretofore vacated by the BOCC.

C. All roads over private lands that have been used adversely without interruption or objection on the part of the owners of such lands for twenty (20) consecutive years;

D. All toll roads or portions thereof, which may be purchased by the BOCC.

E. All roads over the public domain, whether agricultural or mineral.

2.1.6 Private Roads

Unless written by contract, Park County assumes no maintenance responsibility on private roads, and does regulate utilities on private roads. The use of private roads for emergency services, postal delivery, or school pickups must be arranged by the owner with the appropriate agency.

2.2 Road System Regulations

2.2.1 Traffic Control Devices

All traffic control devices/informational signage installed on County roads shall conform to the latest edition of the Manual on Uniform Traffic Control Devices, published by U.S. Department of Transportation, Federal Highway Administration. Said manuals will be available for review at the Road and Bridge Department.

The Road and Bridge Department may conduct accident studies, traffic analysis, traffic control studies, or any other engineering studies required by state law or by the Manual on Uniform Traffic Control Devices, which are prerequisite for the installation of traffic control devices on County roads.

2.3 Enforcement and Inspection

2.3.1 Cooperation with Other Entities

Insofar as possible, the Road and Bridge Department, and other officials of Park County, should seek the cooperation of all law enforcement officials in administering the provisions contained herein, and in developing ways and means to improve traffic conditions.

2.3.2 Enforcement

Any person engaging in an activity subject to these Standards who is not in compliance with these Standards, who does not obtain a permit required by these Standards, who does not comply with any permit requirements on conditions, or who acts outside the authority of the permit shall cease

such activity immediately upon written direction from the Road and Bridge Department, Authority Team or designated representative. Such person also may be enjoined by the County from engaging in such an activity, and may be subject to such other criminal or civil liability as may be prescribed by law.

These enforcement provisions are in addition to those provided in Article VII.

2.3.3 Inspection

A. The Authority Team is hereby empowered and directed to inspect and examine the use, occupation, or development of, or activity in, each and every area or activity subject to these Standards for the purpose of determining from time to time whether any use, occupation, development or activity is in violation of any of the provisions of these Standards or of any permit issued or required pursuant to these Standards.

B. If a violation is found, the Authority Team or designated representative will, by written order, direct that such remedial action be taken forthwith as will result in full compliance with the applicable standards; provided that the issuance of such order is not a prerequisite to the initiation of any enforcement process set forth in the standards; and provided further that compliance with such order is not a defense to any alleged violation of these Standards in any hearing or court action instituted seeking permit suspension or revocation, full compliance with these Standards, or any other applicable remedy, sanction or enforcement mechanism.

2.4 County Road System Additions and Improvements

A. By the County - The BOCC may lay out, alter, or change any County road, and acquire lands for County roads. The staff is responsible for the planning, design, right-of-way acquisition, construction and inspection of all additions and improvements to the existing County Road System. Such activities will comply with these Standards.

B. By Others - Any road proposed by other than the County to be added to the existing County road system will ordinarily pass through five review steps: planning, acceptance of design, acceptance of right-of-way dedication, construction, and inspection. As a final step, the BOCC may accept maintenance/plowing responsibilities for the road. Such activities will comply with these Standards.

2.4.1 Planning

The planning or layout of any new road subject to these Standards and any improvements to any existing roads subject to these Standards shall be in accordance with Article III as it may be amended.

2.4.2 Design

The design of any new road subject to these Standards and any improvements to any existing roads subject to these Standards shall be in accordance with Article IV as it may be amended. Plans and specifications shall be prepared by a professional engineer in accordance with these Standards and must be approved in writing by the Authority Team before any construction activity whatsoever commences. If construction has not commenced, such written approval shall expire without further notice one year from the date it is issued. Any amendment or revision to a plan or specification, and any resubmission of a plan or specification, must conform to the Standards, as they exist at the time of the amendments, revision or resubmission.

2.4.3 Right-of-Way Dedication/Acceptance

Affirmative written action by the BOCC is required for County acceptance of any dedication to the public or the County of a road right-of-way. The road, however, shall not be maintained or snowplowed by the County until the requirements set forth in 2.4.7 are met.

2.4.4 Guarantee of Public Improvements

When these Standards require a guarantee that public or private improvements will be built or meet certain criteria, such guarantee or financial security shall be as required by Park County, as in the Park County Land Use Regulations or as defined in Section 7.9. The purpose of the guarantee or financial security is to assure the following: that the project or activity is completed, that all requirements and conditions are performed, and that costs to the County are offset in the event the project or activity is suspended, curtailed, abandoned or does not meet certain criteria.

2.4.5 Construction

Construction of new County roads and reconstruction of existing County roads shall conform to the provisions of Article V of these Standards. Surface Alteration Permits shall be obtained as per Section 7.4.

2.4.6 Inspection

Inspections and testing shall be performed to ensure compliance with these Standards and any other requirements and conditions before any Road and Bridge Department recommendation is made to the BOCC for maintenance acceptance and/or release of a guarantee or financial security. Requirements for inspections and testing are found in Article V - Construction Specifications; compliance is the sole responsibility of the developer or permittee.

2.4.7 Acceptance of Roads for Dedication to the County and for County Maintenance

A. Roads Not on State or Federal Lands - Ownership of a road not on state or federal lands and offered to the County may be accepted by the BOCC with express conditions regarding County maintenance and/or snowplowing in the discretion of the BOCC. Such dedication and conditions must be recorded by resolution and may be conditioned on the requirements below. This section shall not be construed to be a guarantee that the County will accept, maintain, or perform any snow removal operations on any particular road.

1. The road shall be constructed in accordance with these Standards.

2. The Authority Team shall have completed final inspection and shall have approved the roads in accordance with Article V of these Standards and shall have recommended acceptance.

3. The road must connect to another maintained County road, state highway, or city street of the same or higher functional classification.

4. An application for acceptance shall have been submitted to the Road and Bridge Department for the road. The application shall have been submitted at least two weeks before performance of the final inspection. The Road and Bridge Authority Team will not accept an application for acceptance, nor will any inspection be performed when, in the sole discretion of the Authority Team, weather conditions prohibit a complete inspection.

5. All required road signs and traffic control devices have been installed in accordance with the Manual of Uniform Traffic Control Devices.

6. A guarantee of financial security has been submitted to the County in an amount determined by the BOCC to warrant the integrity of the said road for a period of 2 years after the acceptance by the County. In the sole discretion of the BOCC, such a time period may be extended. An inspection by the County shall be conducted at the end of the time period. The obligations of the developer or permittee shall terminate only upon correction or repair by the developer or permittee of all deficiencies identified by such inspection.

7. All required subsurface utilities and related infrastructure shall have been installed in the backslope of the right-of-way prior to finishing sub grade. I.e. (culverts, cattle guards, all utilities etc...)

8. All survey monuments that were in a roadway or a road right-of-way shall have been reset by a surveyor licensed in the State of Colorado.

9. Trench compaction tests and results, as required in Article V of these Standards and as required by any permit shall have been submitted to and approved by the Authority Team for all trenches within the road right-of-way. Such tests and results shall have been submitted and approved prior to placement of any road base material whatsoever.

10. A reproducible copy of as-built drawings shall have been submitted to the Road and Bridge Authority Team. The drawings shall accurately show all road construction details, utility and lateral locations and depths, property boundaries and corners, and other pertinent information as required. Upon its submission to the Authority Team, the copies shall become and remain the property of the County.

11. Such other conditions, as the BOCC deems necessary for public health, safety, or budget constraints.

B. Roadways through State and Federally Owned Lands - It may be to the benefit of the general public for the County to accept roads through state and federally - owned land whether or not such roads meet these Standards. Upon the receipt of a petition for acceptance of such roads into the County Road System, roads, which fall into these classifications, may be accepted into the Road System by the BOCC pursuant to the waiver process set forth in Section 1.9.

2.4.8 Public Road Construction and Inspection

The construction of a new public road that is subject to the Park County Land Use Regulations shall comply with the process and procedures set forth herein for a county road except that;

A. Section 2.4.7.A.4 shall not apply;

B. The guarantee required by Section 2.4.7.A.6 shall warrant the integrity of the road construction for twenty-four (24) months after such construction is completed.

2.5 Deletions from the Road System

2.5.1 Road and Easement Vacations

The BOCC may vacate any county road or portion thereof subject to the provisions of C.R.S. Sections 43-2-301 et. seq. No road or part thereof shall be vacated so as to leave any parcel adjoining said roadway without an established public road connecting said land with another established public road.

2.6 Road Name and/or Number Changes

Neither the name nor number of any road dedicated to public use or to the County may be changed except upon written application to and written approval by the BOCC. The name or number of a road within a recorded subdivision may be changed only after such application and approval by amending the final plat in compliance with the Park County Land Use Regulations. No road names or numbers shall be used which will duplicate, or be confused with, the names of existing city streets or county roads.

The County will be responsible for changing the applicable road name or number signs of any road accepted by the county for maintenance. If the road name or number change is for a road that has not been accepted by the County for maintenance, the applicant, homeowner's association, or the developer of the affected subdivision is responsible for changing the road name or number signs.

2.7 Snowplowing

A. Park County shall not plow snow on any road unless and until such road has been dedicated to the public and accepted for county maintenance by the BOCC; except that it shall be in the sole discretion of the BOCC to determine from time to time which such roads so dedicated and accepted will be plowed by the County.

B. **Park County Policy and Procedures for Requests for Park County to Provide Snow Removal Services on County Roads.**

It is the policy of the county not to provide snow removal services on any public roads not accepted by the BOCC for snow removal.

A request for the county to provide snow removal services on a county road to an area not currently being served shall be submitted in written form to the Park County Road and Bridge Department. The written request shall include at a minimum:

1. The name and number of the road requested to be plowed.
2. If necessary, a map designating the portion of the road to be plowed.
3. The distance to be plowed.
4. Evidence that the road is a public road.
5. Other information that may be required by the Road and Bridge Department.
6. A list of property owners benefiting from the proposed service.
7. State the reason the plowing is being requested. (i.e. emergencies or other hardships.)

All requests shall be submitted to the Park County Road and Bridge Department before September 1st (which is traditionally the beginning of the snow season.) Requests received after September 1st will be considered as requests for the following winter season.

Upon receipt of the request, the Road and Bridge Department Authority Team shall conduct a site visit and prepare an evaluation report for the Board of County Commissioners. The report shall address the following:

1. An assessment of the condition of the road including width, base drainage, fencing, etc.

2. An evaluation and estimate of cost to bring the road up to a standard suitable for winter maintenance and plowing.

3. A recommendation of the type of equipment that would be required to remove snow; the frequency, duration and extent of snowplowing, the amount of manpower and time involved and an estimate of cost.

4. An assessment of safety considerations involved with the request.

5. A statement as to whether the road is a natural extension of an existing snowplow route.

6. A statement of any general public benefit served by providing snow removal service.

7. An assessment of any negative impact that might result from providing snow removal service.

The written request to provide snow removal service together with the evaluation prepared by the Road and Bridge Authority Team shall be submitted to the BOCC. All requests shall be considered in a public meeting of the Board.

At its discretion, the BOCC may approve or deny the request for the County to plow the road. The BOCC may conditionally approve the request based on, but not limited to, the following conditions:

a. The frequency, duration and extent of snow plowing services to be provided.

b. Property owners' financial participation in preparing the road for snow removal.

c. A time limit with periodic review for continuation of the service.

The county shall exercise its appropriate, lawful authority to ensure compliance with this Snow Removal Policy.

C. **Park County Policy and Procedures for Requests by Private Individuals to Plow a Public/County Road**

The purpose of this policy is to outline the procedures and criteria by which the BOCC will consider requests presented to perform private snow removal on a Public Road under the County's jurisdiction.

The requirements and procedures set forth herein and in the permit should be considered the minimum and additional information or criteria may be applied.

In order to facilitate the plowing of a road that might not otherwise be plowed, The Park County Road and Bridge Department may allow a private individual or company to remove snow from all or part of a county road.

No person shall remove snow from a County road without first receiving permission from the Park County BOCC and a Snow Removal Permit issued by the Park County Road and Bridge Department.

A request to plow a County road shall be made in writing to the Park County Road and Bridge Authority Team. The written request will include at a minimum:

1. The name and/or number of the road to be plowed.

2. If necessary, a map designating the portion of the road to be plowed.

3. The distance in miles to be plowed privately.

4. The type of equipment to be used to remove the snow.

5. The name of the person(s) responsible for snow removal.

6. The names and mailing addressed of property owners located along the proposed snow removal route.

7. The reason the plowing is being requested.

8. The time period for which the permit is being requested.

Upon receipt of the request, the Road and Bridge Authority Team shall conduct a site visit and prepare an evaluation report for the BOCC. The report shall address the following:

1. An assessment of the condition of the road including width, base drainage, fencing, etc.

2. An evaluation and estimate of cost to bring the road up to a standard suitable for winter maintenance and plowing.

3. A recommendation of the type of equipment that would be required to remove snow; the frequency of plowing; and the duration of plowing.

4. An assessment of safety considerations involved with the request.

5. A statement of any general public benefit served by providing snow removal service.

6. An assessment of any negative impact that might result from providing snow removal service.

If the plowing is authorized by the BOCC, the Road and Bridge Authority Team and the person requesting permission to remove snow shall meet on-site to evaluate the condition of the road before plowing begins.

The County may require that reasonable improvements and repairs be made to the road that are necessary for public safety and to protect and preserve the road. Such improvements or repairs shall be made at the expense of the private individual unless otherwise agreed to by the County.

For the purposes of this policy, snow removal work shall include: (1) removal of snow from all the traveled way, including sufficient turnouts for safe and efficient use of all Users, and (2) leaving culvert inlets in a natural condition without snow or other material plowed into them so that the drainage system will function normally.

Upon review of the plow request, Park County may request a bond or a cash deposit to

secure performance according to this policy. The amount of security required will be relative to the distance being plowed, and the surface of the road.

The person requesting permission to remove snow from a county road indicates that he/she has read, understands and agrees to comply with the conditions set forth in this policy and with the conditions of a permit if one is issued.

The County shall exercise its appropriate, lawful authority to ensure compliance with this Snow Removal Policy.

Nothing in this policy is, or shall be construed to be, an obligation of the BOCC to permit the private snowplowing of any particular road.

ARTICLE III

TRANSPORTATION PLANNING AND DEVELOPMENT POLICIES

3.1 Functional Classification of Roads

All roads in the Park County Road System shall receive a functional classification from the Authority Team. The functional classifications used in Park County are: (Also See Table 3-1)

Major Arterial (Paved)

3,000+ ADT Residential, commercial, and recreational traffic - significant economic importance to County (example: CR 43)omit example

Rural Arterial (Paved or Unpaved)

500 to 2,999 ADT Residential, commercial and recreational traffic - significant economic importance to County (example: CR 77, CR 92, CR 15.)omit example

Collector (Paved or Unpaved)

100 to 499 ADT Primarily residential, commercial and recreational traffic - significant economic importance to County (example: CR 35, CR 53, CR 6 Coil DR., omit example

Local (Paved or Gravel)

20 to 99 ADT Primarily recreational, residential or commercial traffic (logging) may be joint jurisdiction such as Forest Service and county and maintained by county under agreement. (Examples: Chick-a-dee Ln, Wampum Ln, Aspen Way)omit example

Local other (Native Surface)

To 19 ADT Primarily residential and recreational (Example: Kenosha Cir.)omit example

3.2 Land Use Changes - Compliance

Land use changes may include subdivisions, building permits, uses by special review, and other developments, which change or intensify the use of the land. All such changes must be in compliance with the Park County Land Use Regulations and, if applicable, the Park County Regulations for Special Development Projects. Right-of-way dedications pursuant to a land use change shall be made in conformity with the functional classification assigned to such road by the County and shall align with the centerline of existing right-of-ways In the case of proposed new alignments, detailed site planning and alignment studies may be required. The planning principles for roads in Section 3.3 shall be followed for land use change permit applications.

3.3 Planning Principles

Basic factors in the design of a road system include:

Safety - for both vehicular and pedestrian traffic

Efficiency of Service - for all users

Livability - especially as affected by traffic elements in the circulation system

Economy - of both construction and use of land, design should minimize maintenance costs and maximize ease of snow removal.

Each of the following principles is an elaboration on one or more of these four factors. The principles are not intended as absolute criteria, since instances may appear where certain principles conflict. Therefore, the principles should be used as guides to proper system layout.

A. Insure Vehicular and Pedestrian Access - Road widths, placement of sidewalks or pathways, pattern of roads and number of intersections shall be related to safe and efficient use of the road and access to abutting lands.

B. Control Access to Arterial - Local road systems and land development patterns should not detract from the efficiency of peripheral arterial facilities. Ideally, land development should occur so that no parcels require direct access to arterial routes. The number of access points between the local road system and the arterial system should be minimized. Intersections along arterial system should be minimized. Intersections along arterial routes should be properly spaced for efficient and safe traffic flow. The roads that do intersect the arterial system will tend to have high traffic volumes since they are the only access points. The number of residential lots directly accessing collector roads should be minimized.

C. Discourage Speeding - Residential roads should be designed to discourage excessive vehicle speed.

D. Courts and Cul-de-sacs - A road ending with a cul-de-sac shall not be longer than one thousand (1000) feet. All cul-de-sacs shall have minimum diameter of one hundred (100) feet with a ninety (90) ft. traveled surface. A cul-de-sac, which may be vacated in the future, shall be improved to the functional classification standard of the road, which it serves if access is provided to dwelling or other structures.

E. "Y" and "T" turns- may be used as a turnaround at the end of a road segment.

ARTICLE IV

DESIGN STANDARDS

4.1 Application of Design Standards

The standards set forth in this Article provide uniform minimum acceptable values. If and only if it can be shown that an alternate design standard will provide an outcome equal to or better than the required minimum, then such alternate may be approved in the sole discretion of the Road and Bridge Authority Team upon review and approval by the Road and Bridge Authority Team of plans submitted and signed by a professional engineer.

4.1.1 Minimum Standards

4.2 Design Factors

4.2.1 Road Classification

Each road proposed for construction or improvement shall receive from the Authority Team or the Authority Team a functional classification as defined in Section 3.1.1. If such a classification is not specified on the County Road Map, a functional classification shall be assigned and based primarily on volume and traffic per Table 3-1.

4.2.2 Projected Traffic Volumes

A traffic analysis is normally required to project future traffic volumes. A key element in any traffic analysis is trip generation by land use type. The report entitled Trip Generation, published by the Institute of Transportation Engineers, shall be the County guideline where no detailed trip generation data is available.

A twenty (20) year design period or full development shall generally be used to project traffic volumes. Factors provided by the Colorado Department of Transportation and/or the Park County Planning Director shall be used to adjust average daily traffic volumes to design hourly volumes.

The County Planning Director shall consult with the Road and Bridge Authority Team to determine whether a traffic analysis will be required. The traffic analysis will be done during the initial application phase of the development, and at the sole cost of the developer.

4.2.3 Terrain Classification

For the purpose of the Standards, the terrain in Park County shall be classified in two categories:

Flat or Rolling Terrain - Average cross slope less than fifteen (15) percent and the ridges and draws are not well defined.

Mountainous Terrain - Average cross slope greater than fifteen (15) percent and the ridges and draws are steep and well defined.

4.2.4 Design Speed

The choice of a design speed is influenced primarily by the terrain classification, functional classification of the road, and land use. The design speed is generally slightly higher than the posted speed. Acceptable ranges of minimum design speeds are as follows:

	Flat or Rolling		Mountainous	
Functional Classification Speed	Design Speed	Posted Speed	Design Speed	Posted Speed
Arterials	60	45-55	50	30-40
Collector	45	30-40	40	30
Local Road	25	20-25	25	20
Local Other	20	20	15	15

4.3 Geometric Standards

4.3.1 Horizontal Alignment

A. General Considerations - The major considerations in horizontal alignment are topography, road classification, design speed, grade profile, subsurface conditions, safety, and sight distance. All of these must be balanced to produce an alignment that is safe and adequate for the functional classification of the road.

B. Sight Distance - Horizontal alignment must provide at least minimum stopping Sight distance for the design speed at all points. This includes visibility at intersections, as well as around curves and roadside obstruction.

The minimum stopping sight distance is the distance required by the driver of a vehicle traveling at a given speed to bring the vehicle to a stop after an object on the road becomes visible. Stopping sight distance is measured from the driver's eye, which is assumed to be three and one-half (3.5) feet above the roadway surface, to an object 6 inches high on the road.

The required stopping distance for a given design is as follows:

Design Speed (MPH)	Stopping Sight Distance (ft.)
15	100
20	150
25	175
30	200
35	250
40	300
45	400
50	450
60	650

In cases where in sight distance is required by the Road and Bridge department on collectors or arterial. The Colorado Division of Highways' Road Design Manual should be used in determining Passing sight distance.

C. Standards for Curvature - Tables 4-1 through 4-4 set the permissible minimum curve radii and the permissible maximum allowable rate of super elevation for the various functional classifications. The tables are based on design speed, friction factors, and super elevation, and do not consider sight distance.

Sudden reductions in speed introduce the element of surprise to the driver. Where physical restrictions cannot be overcome and it becomes necessary to design curvature, which is lower than the design speed for the project, the design speed between successive curves

shall not change by more than 10 mile-per-hour increments. Under no conditions shall a curve for design speed lower than the design speed of the project be introduced at the end of a long tangent or at other locations where high approach speeds may be anticipated. Use of lower standard curve radii is subject to approval by the County.

Angle points less than one degree require no curve radius. A compound curve is two curves of different radii joining with no tangent between them. A compound curve will not be permitted. A broken-back curve is two curves in the same direction joined by a short tangent. Broken-back curves are not permitted.

D. 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 degree of curvature increases. The standard super elevation rates shown on Table 4-1 through 4-4 are designed to hold the side friction factor within tolerable limits for those operating speeds expected for the range of curve radii given.

For undivided roads, the axis of rotation of super elevation is usually the centerline. Where curves are preceded by long relatively level tangents, the plane of super elevation may be rotated to about the edges of the pavement to improve the perception of the curve.

A super elevation transition is variable in length depending upon the amount of super elevation. Two-thirds of the transition is in the tangent approach at the beginning and the end of the curve, and one-third of the full super elevation is at the beginning and at the end of the curve. Where spiral curves are permitted, the transitions are to be designed using the latest edition of the Colorado Department of Transportation.

E. Coordination with Vertical Alignment - To avoid the possibility of introducing serious traffic hazards, coordination is required between horizontal and vertical alignment. Particular care must be exercised to maintain proper sight distance at all times. Sharp horizontal curves introduced at or near the top of a pronounced crest, or at the bottom of sag vertical curves should be avoided.

4.3.2 **Vertical Alignment**

A. General Considerations - The centerline profile is a reference line by which the elevation or grades of the pavement and other features of the Roadway are established. It is controlled mainly by topography, structure clearances, horizontal alignment, safety, sight distance, design speed, and the performance of heavy vehicles on a grade.

B. Minimum and Maximum Grades - To provide for adequate drainage, the Minimum sustained grades shall be no less than 0.5 percent on roadway sections with curb and gutter and one (1 %) percent on all other roads.

The maximum permissible sustained grades for new roads shall be no more than 8 %.

In flat or rolling terrain, all grades shall flatten to two (2) percent for at least one hundred (100) feet approaching intersections, and for at least fifty (50) feet entering and leaving turn-around or cul-de-sacs. In mountainous terrain, all Grades shall flatten to four (4) percent or less for at least fifty (50) feet approaching intersections and entering switchbacks or cul-de-sacs.

C. Vertical Curves - All vertical curves shall be designed to provide adequate stopping and passing sight distance, headlight sight distance, comfortable driving, good drainage, and a pleasing appearance. Vertical curves shall be parabolic.

Vertical curves are not required where the algebraic difference of grades is less than 40%. The preferred minimum length of vertical curves, both crest and sag, is four hundred (400) feet.

The minimum length of a vertical curve shall be three hundred (300) feet for design speeds above thirty (30) miles per hour, and two hundred (200) feet for design speeds of thirty (30) miles per hour and lower. Unequal tangent vertical curves are permitted only in special circumstances as approved by the County.

Vertical curves that are long and flat are known to develop poor drainage at the level section. This shall be overcome by adjusting the flow line of the ditch section.

D. Sight Distance - Minimum lengths of crest vertical curves are controlled by stopping sight distance requirements as shown in Figure 4-1.

4.4 Cross Sections Standards

4.4.1 Typical Sections

Typical sections for each functional classification are given in Appendix B - D. Table 3-1 also provides a summary of design elements. The County may approve variations from these sections when there is sufficient evidence that certain design elements can be reduced or eliminated.

4.4.2 Right-of-Way Width

The basic minimum right-of-way width for each typical section is shown in Table 3-1. This width is sufficient only to accommodate the specific geometric cross-sectional elements that are required. Additional right-of-way may be required for snow removal and storage. Cut and fill slopes beyond the hinge point and right-of-way may require slope easements.

4.4.3 Crown Slope

On roads in tangent alignment, the high point of the crown shall be at the centerline of the pavement and the pavements sloped toward the edges of a uniform grade. In mountainous terrain, local roads may be insloped or outsloped on a constant two percent (2%) slope to alleviate surface erosion due to runoff, provided safe speed requirements are met. At intersections, or in unusual situations, the crown position may vary depending upon drainage or other factors.

Standard crown slopes to be used on the traveled way for different pavement and surface types are as follows:

Type of Surface	Crown Slope (Percent)
Bituminous Mix Pavements	2.0
Penetration Treated Earth or Gravel	4.0
Unsurfaced Graded Section	4.0

4.4.4 Side Ditches

Side ditches may be required in cut sections without curbs and gutters. The slope from the edge of the shoulder to the bottom of the ditch shall not be steeper than 3:1.

4.4.5 Curbs and Gutters

Curbs and gutters may be required as follows:

A. On urban roads

B. When drainage, traffic, or public safety necessitates

All curbs and gutters are to be constructed with Class B Concrete and shall conform to standards detailed in the latest edition of Colorado Division of Highway Standard Specifications for two feet curb and gutter Type 2, unless otherwise approved by the Road and Bridge Department.

4.4.6 Side Slopes

Cut and fill slopes shall be as shown in Table 4-5. Flatter slopes shall be required in unstable soils. Cut slopes that are steeper than the standard may be considered in special situations, such as in solid material, but require prior approval by the County.

The tops of all cut slopes shall be rounded with a minimum of a four (4) foot radius where the material is other than solid rock, and shall be reseeded with vegetation native to the area or as recommended by the United States Soil Conservation Service. The backslopes at the ends of all cuts, except rock, shall be widened gradually to discharge side ditch drainage away from base of adjacent fill slopes in order to avoid erosion and improve appearance.

Table 4-5 **Cut and Fill Slopes**

Height	Cut Slopes	Fill Slopes
0-5 feet	3:1	2:1
5-10 feet	2:1	1 ½:1
10-15- feet	1 ½ :1	1 ½:1
Above 15 feet	1:1	1 ½:1

4.4.7 Ramps for Physically Handicapped

All newly constructed, repaired or replaced sidewalks and curbs shall provide adequate and reasonable access for the safe and convenient movements of physically handicapped persons, including those in wheelchairs.

4.4.8 Horizontal and Vertical Clearance

The following are minimum clearances for structures or other roadside obstructions, including but not limited to mailboxes, shrubs, trees and fences. Additional clearances may be provided for sight distance and other requirements.

When roads or highways under the jurisdiction of other agencies are involved, the clearance as required by said agency, if more restrictive than these Standards, shall apply.

The minimum horizontal clearance shall be four (4') feet from the outside edge of the traveled way. The minimum vertical clearance for all overhead structures including signs, cables, etc. shall be in accordance with those specified in the applicable provisions of the latest edition of Colorado Department of Transportation Roadway Design Manual.

4.5 Driveway Access Control Standards

All driveways that access a County road or right-of-way shall have a minimum surface width of eighteen (18) feet at the edge of the pavement or road surface. All such driveways shall be constructed to the reference chart in Article VII, page 6, with the following minimum standards:

Driveway Material	Minimum Section Depths
Concrete	6 inches
HBP	2 inches with 6 inches Class 6 aggregate base course;
Gravel	6 inches Class 6 aggregate base course;

Class 6 aggregate base shall be installed in accordance with both an approved driveway permit and all applicable sections of these Standards. Access to a county road or right-of-way must be obtained as described in Section 7.3.

All final surface materials used in the construction of a driveway in the county road right of way shall match the existing surface material of the county road. Only the Road and Bridge Authority Team will approve exceptions.

Within the right-of-way, maximum grades for driveways shall be 8%. The grade of entrance and exit shall slope downward and away from the road surface at the same rate as the normal cross slope and for a distance equal to the width of the shoulder, but in no case less than ten feet from the traveled road way.

All driveways and approaches shall be constructed so that they shall not interfere with the drainage system of the roadway. The applicant will be required to pay for, install and maintain at their own expense, drainage structures at entrances and exits, which will become an integral part of the existing drainage system. The property owner is responsible for the repair and maintenance of any drainage structures Le. culverts permitted to be installed in the county right-of-way, the access beyond the edge of the road way and the removal or clearance of snow, ice or aggregate upon the access even though deposited on the access in the course of the Road and Bridge Departments snow removal or grading operations. The Park County Road and Bridge Department representative prior to installation must approve the dimensions of all drainage structures.

The Road and Bridge Department will maintain the roadway including auxiliary lanes and shoulders, except in those cases where the access installation has failed due to improper access construction and/or failure to follow permit requirements and specifications in which case the permittee shall be responsible for such repair.

The horizontal axis of an approach to the roadway shall normally be at right angle to the centerline of the roadway and extend a minimum of forty (40) feet beyond the traveled way. An angle between 90 and 60 degrees shall be permitted if it can be shown that physical constraints exist that require an approach angle of less than 90 degrees. An angle less than 60 degrees is not permitted.

No more than one approach shall be allowed on any parcel of property when there is less than two hundred (200) feet of property frontage.
In the case of flared driveway, the flared portion adjacent to the traveled way shall not encroach upon adjoining property.

An access approach that is gated shall be designed so that the longest vehicle using it can completely clear the traveled way when the gate is closed. In no event shall such distance be less than thirty (30) feet.

Driveways intersecting public roads shall not be located opposite each other. Where possible, an offset of one hundred twenty five (125) feet shall be required.

Snow removal from driveways shall follow conditions in Article VII Section 7-206 pg. 8 in the Use and Development Standards

4.5.1 Access to Arterial Roads

A. Direct Access - Direct access to an arterial road shall be permitted only when the property in question has no other reasonable access to the County road system. When direct access must be provided, the following shall be considered:

1. Access shall continue until such time that some other reasonable access to al lower functional classification road or highway is available and permitted. The access permit shall specify the future reasonable access location and, if known, the date the change will be made. Subdivisions shall be designed, if possible, to provide for alternative access at a future date.

2. No more than one access approach shall be provided to an individual parcel or to contiguous parcels under the same ownership unless it can be shown that additional accesses would be significantly beneficial to the safety and operation of the road or the local circulation system. Subdivision of a parcel shall not result in additional access unless shown as necessary for safety or operational reasons. Agricultural roads shall be exempt from this requirement.

B. Spacing and Signing

1. For rural road sections where significant development is not expected in the foreseeable future, minimum spacing of all intersecting public roads, Roads and highways shall be on one-half (1/2) mile intervals for paved arterial and one quarter (1/4) mile intervals for gravel arterial, plus or minus approximately 200 feet. Where topography makes such spacing inappropriate, location of public approaches shall be determined by topography, property ownership, property lines and physical design constraints. The final location should serve as many properties and interests as possible to minimize the need for direct private access to the road system.

2. In areas where development accesses an arterial road, a traffic engineering study shall be completed to properly locate all proposed approaches. These studies shall be submitted to the Road and Bridge Authority Team for review prior to the issuance of a Driveway Permit.

4.5.2 Access to Collector Roads

A. Direct Access - No more than one access approach shall be provided to an individual parcel or to contiguous parcels under the same ownership except adjacent platted subdivision lots unless it can be shown that additional access approaches would not be detrimental to the safety and operation of the road, and are necessary for the safe and efficient use of the property. Driveways designs, which only allow for backing off of or onto a County road, shall not be allowed in any circumstance.
Subdivision of a parcel shall not result in additional access unless shown to be necessary for safety or operational reasons.

Driveways located near an intersection shall be constructed so that the side nearest the intersection is no less than one hundred fifty (150) feet from the center line of the intersecting road for commercial driveways and one hundred (100) feet for residential driveways.

B. Access onto collector roads shall be spaced at a minimum one-quarter (1/4) mile intervals

plus or minus two hundred (200) feet.

4.5.3 Local Roads

A. Direct Access - No more than one access approach shall be provide to an individual parcel or to contiguous parcels under the same ownership except adjacent platted subdivision lots unless it can be shown that additional access approaches would not be detrimental to the safety and operation of the road, and are necessary for the safety and efficient use of the property. Driveway designs, which only allow for backing off of or onto a county road, will not be allowed in any circumstances. Driveways located near an intersection shall be constructed so that the side nearest to the intersection is no less than one hundred fifty (150) feet from the centerline of the intersecting road for commercial driveways and one hundred (100) feet for residential driveways.

4.6 Intersections

4.6.1 General Requirements

To minimize conflicts and to provide for the anticipated crossing-and turning movements, geometric design of each intersection must be given careful consideration.

Intersections occurring on horizontal curves or crest vertical curves are undesirable. When latitude exists in the selection of intersection locations, vertical or horizontal curvature shall be avoided when possible. A line or grade change may be warranted when major intersections are involved.

4.6.2 Intersection or Access Approach Radii

A. Access approaches shall not have an equivalent turning radius less than fifteen (15) feet.

B. Access designed for use by single or multi use vehicles exceeding thirty (30) feet shall have a minimum fifty (50) foot turning radii.

C. The access approach equivalent turning radii shall not be less than that necessary to accommodate the turning radius of the largest vehicle for which the access approach is intended for use on a daily basis.

D. Based on the classification of intersecting roadway, adjacent corner property lines are required to have the following property line radius:

Type of Intersection	Class 5-7	Class 1-4
Local-Local	10'	20'
Local-Collector	20'	25'
Collector-Collector	20'	25'

Intersections involving Collector and Arterial roads are to be designed individually to accommodate expected use.

4.6.3 Sight Distance

A. The required stopping sight distance necessary, as measured from the travel vehicle to the intersection or access approach, shall be determine according to Section 4.3.1 (B).

B. Table 4-6 shall be used to establish the minimum sight distance necessary for the entering vehicle, based on the following criteria:

1. Sight distance shall be measured at a height of 3.5 feet between the Entering driver

and the oncoming vehicle.

2. The entering driver's eyes shall be considered to be fifteen (15) feet back from the edge of the traveled way.

3. The vehicle shall be the largest vehicle normally intended to use the access approach. Normally means in excess of an average of one per day.

4. After sight distance requirements are met and an access permit issued, a sign structure or parked vehicle shall not be permitted where it will obstruct the required sight distance.

Table 4-6 **Intersection Sight Distance**

*Vehicle expected to enter or cross highway	Sight Distance is given in feet per 10 mph of posted speed limit	
	2 Lane	4 Lane
Passenger Car	100	120
Single Unit Truck	130	150
Multi-Unit Trucks	170	200

4.7 Pavement Structure Design

4.7.1 General Design Procedure and Requirements

The requirements for the design of pavement structure sections shall be based on the most applicable section of the current edition of the Colorado Division of Highways Roadway Design Manual.

4.7.2 Pavement Structure Design

A professional engineer, as a requirement of road plan approval, shall prepare a pavement structure design report.

The pavement structure design report shall include at minimum the following information:

A. Soil logs along the proposed roadway alignment at a maximum of five hundred foot (500) intervals.

B. Each log shall have a soil profile of a least four feet below proposed sub grade elevation.

C. Representative samples for pavement design from each log shall be within two feet below proposed sub grade elevation.

D. Each representative sample shall be classified according to the AASHTO Unified Soil Classification Table, along with an Atterberg Limits Test and sieve analysis.

E. The pavement design procedure is based on the Hveem Stabilimeter Test or the Expansion Pressure Test which is used to compute a Resistance Value @ of the sub grade. The California Bearing Ratio test may also be used to determine design parameters.

F. Proposed average daily traffic volume (ADT) for each road shall be based on 100% of full

development build-out including an adjustment for construction traffic. Traffic analysis for the purpose of pavement design shall be part of submittal requirements as defined in Section 4.2.2.

G. Recommended structural sections, based on the design considerations, proposed typical sections, and sections of roadway which may require additional stabilization or treatment.

4.7.3 Flexible Pavement Design Considerations

The following elements are to be used in the design procedure:

A. The design procedure is based on the number of 18,000-pound single axle equivalent daily load applications (18k EDLA) per traveled lane. The 18k EDLA shall be equivalent to 100% of fully developed ADT adjusted for construction traffic (110%). In no case will the 18k EDLA be less than 5 on private roads, lane and place roads, and local roads and 25 on collectors.

B. The serviceability index (SI) for private roads, collector roads, local roads, and lanes will be 2.0, Figure 4-2. The SI for arterial will be 2.5, Figure 4-3.

C. The regional factor shall be summarized as per Table 4-7. In no case will regional factor be less than 2.00.

D. Evaluation of sub grade soils and pavement structure materials shall follow the procedure in the Colorado Division of Highways Roadway Design Manual and Table 4-8 of these Standards. Evaluation of sub grade soils shall be revised as per Section 4.7.2 (E).

E. An economic evaluation of alternate structure sections is encouraged. In making adjustments to the various layers of the pavement structure, a more economical design may result. For example, by increasing the asphalt thickness, a decrease in gravel and earthwork may result. By stabilizing a poor sub grade with lime or cement, a thinner structure section may result. Also, the use of asphalt treated base or cement treated sub base or ridge concrete pavement may be a more economical use of materials. Life cycle cost analysis will help determine most economic materials to use.

4.7.4 Minimum Structural Sections

The minimum compacted depths of Hot Bituminous Pavement (HBP) and Aggregate Base Course (ABC) Class 6 (3/4") per road type, which will be allowed, are as follows:

	HBP	ABC
Gravel Roads	0"	6"
Paved Roads	2"	6"
Collectors	dictated by project design	
Arterial	dictated by project design	

Evaluation of the pavement design as per Section 4.7.3 (e) may result in an increase in HBP or substituting ABC with Plant Mix Bituminous Base (PMBB) or Portland Cement Treated Base. In no case will substitute sections be any less than three inches in depth on an existing surface.

Minimum compacted depths of HBP and ABC shall only be used when all of the design consideration requirements and the pavement structure design report requirements have been fulfilled and show a section less than this minimum needed to support the design loads.

4.7.5 Rigid Pavement Design

The design of Rigid Pavements or portland cement concrete overlay for roadway surfaces shall conform to the applicable section of the latest edition of the Colorado Division of Highways Roadway Design Manual. Thickness shall be dictated by the project design, and in no case shall the pavement thickness be less than six inches, overlays shall have a thickness of at least 3.5 inches.

4.8 Drainage

4.8.1 Applications

This section presents minimum required standards for the design of road drainage systems. An engineer shall perform design of ditches, storm sewers, drainage courses and drainage crossings. Proper and adequate accommodation of drainage shall be provided for the protection of the roadway improvements and safety of the public.

4.8.2 Design Criteria

Design criteria for the collection of and movement of water through public roads are based on the size of the drainage basin.

4.8.3 Hydrology

One of the following four computational techniques must be used in the planning and engineering of a drainage system. In addition, a written explanation must be given by the applicant why the particular technique was used.

A. Rational Method - The rational method is recommended for storm sewer, culvert design, and overland flow of minor drainage basin. It is simple, and when used with adequate input parameters it provides reasonable results for use in project design. The basic equation is Q=CIA

Q - Peak discharge in cubic fee per second (cfs)
C - Coefficient of runoff (dimensionless)
I -Average rainfall intensity for a duration equal to the time of concentration of Concentration of the watershed (inches/hour)
A - Drainage area of the watershed (acres)

B. Soil Conservation Service (SCS) Unit Hydrograph Method and SCS Tabular Hydrograph Method - In most drainage basins, rainfall runoff data from which unit hydrographs can be derived is unavailable, thus a synthetic unit hydrograph must be developed. The USDA Soil Conservation Service has developed a method of hydrograph syntheses, which is now being widely used. The Tabular Hydrograph Method provides a tabular approach to estimating peak discharges from urban areas using the time of conceration and travel time. This method can readily predict the increase in peak flow when all or a portion of the watershed is to be developed.

C. Soil Conservation Service (SCS) Method - The SCS method was developed particularly for agricultural watersheds. This widely used method is applicable to the mountainous regions on areas from two hundred (200) acres up to ten square miles, and above 6,000 feet in elevation. The method is presented in Procedures for Determining Peak Flows in Colorado - 1980 Edition (U.S. Department of Agriculture, Soil Conservation Service, 1980), or the most recent update.

D. Regional Analysis - A statistical or regional approach appears to be most appropriate for

those areas in Park County where peak flows occur, and those areas undergo significant urbanization, computer simulation techniques should be utilized, such as the HECI AND HEC II Programs.

4.8.4 Drainage and Irrigation Structures within County Road Right-of-Way

A. Materials - Culverts shall be constructed from reinforced concrete, corrugated steel. The minimum pipe size shall be a 15-inch diameter round cross sectional area for other shapes, for cause shown the Authority Team may approve an alternate size.

B. Inlets and Outlets - Culverts may need to be designed either with headwalls and wingwalls, or flared-end sections at the inlet and outlet. Additional protection may also be required at the inlet and outlet due to the potential scouring velocities such as but not limited to sediment traps.

C. Velocity - a minimum culvert velocity of three feet per second is recommended in order to assure a self-cleaning condition. See Table 4-9

The maximum culvert velocity is dictated by the channel conditions at the outlet. Higher outlet velocities will require substantial more protection. The maximum outlet velocity shall be twelve (12) fps along with the proper erosion protection.

D. Structure - All culverts, as a minimum, shall be designed in accordance with the procedure of AASHTO Standard Specifications for Highway Bridges and with the pipe manufacturer's recommendations.

4.8.5 Roadside Ditches

In areas where no curb and gutter is required, the maximum allowable capacity for the roadside ditch shall be no more than that calculated through the use of Manning's formula with an appropriate roughness coefficient. If the natural channel slope would cause erosion velocity, suitable channel protection, as approved by the Road and Bridge Authority Team shall be installed.

The most desirable roadside drainage ditches are those lined with grass. The grass will stabilized the body of the ditch, consolidate the soil mass of the bed, and check the erosion on the ditch surface and the movement of soil particles along the ditch bottom. The presence of grass in ditches can result in turbulence, which means loss of energy and increased retardation of flows. Therefore, the design must give full consideration to sediment disposition and to scour, as well as hydraulics.

For velocities in excess of (12) FPS erosion protection shall be provided for the channel. The Road and Bridge Department must approve erosion protection design.

4.8.6 Bridges

A. Standards for Bridges - The design and supporting calculations for bridges must be prepared and certified by an engineer.

The following minimum standards shall apply to all bridges:

1. A minimum clear roadway width sufficient to provide service for proposed use.

2. Grade Criteria: Minimum of 0.5 percent
   Maximum of 4.0 percent

3. The bridge shall be designed to withstand a minimum HS 20 Loading. An alternative loading may be allowed by the County where it can be demonstrated that

anticipated loads will not exceed eight tons. In all cases the bridge load limit and bridge ownership shall be conspicuously posted by the Permit applicant. Posting shall be in accordance with the Latest edition of the Manual of Uniform Traffic Control Devices and the signs shall be owned, posted, and Maintained by the applicant or property owner.

4. Hydraulic criteria

A single clear span bridge.

Low steel shall be a minimum of one foot above the one Hundred (100) year water surface elevation for that stream.

Where bridge abutments and foundations are located below the on hundred (100) year water surface elevation, concrete wingwalls shall be required at forty (40) degree to sixty (60) degree angles tied to the existing side slopes to prevent erosion behind the abutments.

At no time shall the waterway section at the bridge cause a significant rise (one foot) in the intermediate regional flood surface elevation or cause flow to accelerate to velocities sufficient to scour and undermine the bridge's abutments and wingwalls.

5. Utilities attached to bridges shall not obstruct flows within the stream channel; or waterway users (i.e. boats, rafts); or sight distance to drivers using the structure. Attached utilities should not interfere or encumber the maintenance of the bridge.

6. All bridges on roads proposed for acceptance into the County Road System shall meet THE LATEST EDITION OF AASHTO Standards. Acceptance will be made in accordance with the following policies:

   a. New Structures - All structures shall be designed by a professional engineer in accordance with AASHTO Specifications for Highway Bridges. Design for said structures shall be reviewed for approval by the Road and Bridge Department. Upon approval of the plans, any person, partnership, association, or corporation desiring to have such bridge construction shall bear all costs associated with the construction and final inspection. All new bridges shall have a sufficiency rating greater than eighty (80) when evaluated by FHWA/CDOT procedures.

   b. Existing Structures - All structures being reviewed for acceptance shall meet current AASHTO Specifications. The petitioner shall present plans and specifications for review to the Authority Team. Upon approval of said plans and specifications, the subject bridge may be considered for acceptance subject to a final field inspection by the County. After it has been determined that the subject structure meets all requirements, the Road and Bridge Authority Team shall submit the petition to the BOCC for acceptance into the County road system.

4.9 Road Appurtenances

4.9.1 Road Signs and Traffic Control Devices

All road signs, striping, delineators, barricades, signals and other traffic control devices shall conform to the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD) published by U.S. Department of Transportation, Federal Highway Administration, and any applicable Colorado

supplement.

The permittee shall bear all expenses for the fabrication and installation of road name signs, permanent barricades, and/or signs for implementing the approved project design (ie. one way, no parking, dead end, private drive.) Road name signs shall be green in color. These signs shall be lettered and erected in accordance with the latest edition of the Manual on Uniform Traffic Control Devices. The selection of materials shall be consistent with Road and Bridge Departments' ability to maintain the signs after acceptance. Materials shall require the review and approval of the Park County Road and Bridge Department. Signs and barricades shall be in place prior to road acceptance.

4.9.2 Guardrail

Guardrail may be required by the Road and Bridge Department based on the following criteria:

A. To protect a fixed object

B. At a location with a high accident rate (vehicles accidentally leaving the traveled roadway)

C. In areas of steep terrain or high embankments

D. On an isolated sharp curve on a road otherwise built to higher standards

E. On curves requiring a reduction in approach speeds where one of the following conditions exists:

1. The height of embankment is more than ten feet

2. The side slope is steeper than 4:1

3. Substandard pavement and shoulder widths

4. Other roadside hazards

F. Bridge approaches when the approach shoulder width is less than 10 feet.

When a determination is made that guardrail shall be installed the installation shall conform to current Colorado Department of Transportation Standards and be approved by the Road and Bridge Department, and the permittee shall bear all expenses.

4.9.3 Cattle Guards

Cattle guards shall be installed where they are necessary for the control of livestock. The clear opening of the cattle guard shall extend from the edge of the shoulder to edge of shoulder for the standard roadway section approved. Each cattle guard location shall also have a gate installed to allow livestock passage. The Road and Bridge Authority Team shall approve cattle guard and gate design prior to installation.

1. All new and existing cattle guards will be installed and maintained by the permittee at the permittee's expense unless otherwise agreed to by the B.O.C.C.

2. All new cattle guards installations approved by the B.O.C.C. and/or the Authority team will be new material and meet County specifications.

3. Appendix E is a drawing of the standard 24-foot cattle guard specifications used by the Park County Road and Bridge Department.

4.9.4 Mail Boxes

Only multiple or cluster mailboxes approved and serviced by the U.S. Postal Service are allowed to be placed in any public right-of-way.

All multiple or cluster mail boxes shall be located off the actual driving surface and shoulder areas where a vehicle may pull off the road without hindering traffic.

All mail box designs and their sight locations must be approved by the Road and Bridge Department prior to installation. All new and existing mailboxes will be installed and maintained by the permittee and the permittee's expense.

4.10 Utilities (Note: Permit Procedure 7.2.1)

The County must first approve all utilities proposed to be installed in any public road right-of-way under the County's jurisdiction.

Before any construction, repair or maintenance on all new or existing utilities is allowed to commence, the utility, owner or any of its agents must first apply and obtain a permit. Agencies obtaining a permit must provide a letter or responsibility and certificate of insurance assuming full responsibility for the work performed. When a utility company must make an emergency repair on a county road to repair service, they may do so. The company shall notify the Road and Bridge Authority Team within 48 hours, and repair the site as soon as possible. All applicable permits shall be obtained within 48 hours of the emergency repair.

Requests for utility permits should allow 5 business days for a field review by the Road and Bridge Department prior to the issuance of any permits.

All requests for utility permits to the Road and Bridge Department shall be accompanied by a map showing where the utility is to be placed in the right way and signing plan as to how the traffic will be warned and controlled during construction, maintenance or repairs.

A copy of the fee schedule for Underground Utility Permits is available from the Road and Bridge Department. Failure to obtain a permit when working within the county right-of-way will result in a fee five (5) times the regularly scheduled fee.

Any utility within a road right-of-way must be designed and located primarily to maximize public safety and secondarily to minimize road maintenance and snowplowing costs. All utilities requiring above-ground risers or boxes at intersections shall locate them twenty-eight (28) feet from the centerline of all existing roads or the edge of the right-of-way, whichever is the farthest from the centerline.

All utility cuts shall be covered with the proper material and in accordance with the proper specifications by the end of the working day. Any deviation from this requirement must be pre approved by the Authority Team.

All utility installations once completed will require a final inspection before the installation can be subject to the warranty period. At the time the request for a final inspection is called for, the permittee must submit a complete set of as-built plans to the Road and Bridge Department.
In the event that the permittee neglects to apply for a final inspection, he shall be responsible for any road repairs due to the utility installation for an indefinite period of time.

Once the final inspection has been completed with the results satisfactory, the project will go into the warranty period for a time not to exceed five (5) years. Any road repairs required during the warranty period due to the installation of the utility will be at the permittee's expense. At the end of the five (5) year warranty period, the Road and Bridge Department will perform the final inspection at which time, any repairs required will be at the expense of the permittee before the final inspection can be approved.

4.10.1 Underground Utilities

A. Where the installation crosses a paved roadway, it shall be made by boring or jacking beneath the road surface. Open cutting shall be allowed to the edge of the shoulder portion of the road. No water shall be used in boring and no tunneling shall be permitted. In no circumstance shall an existing culvert be used for an installation of a new underground utility. The Road and Bridge Authority Team may, in its sole discretion, authorize pavement cuts based on the condition of the asphalt and known soil conditions in the area.

B. Pavement cuts are permitted when: an unsuccessful attempt has been made to bore or jack the installation; conflicting utilities place constraints as to elevation or alignment on the proposed installation; connecting to an existing utility located beneath the paved portion of the roadway; must be approved in advance by the Road and Bridge Authority Team.

Cutting existing asphalt shall be accomplished so as to provide a neat even line.

C. When an open cut is allowed, the permittee is responsible for restoring the disturbed roadway to its original condition. The disturbed area shall be repaired within the same working day. When conditions prohibit complete repair, the permittee must first get permission from the Road and Bridge Authority Team and the cut must be left in an acceptable condition for public use. All open cuts must be properly barricaded and in conformance to the current MUTCD guidelines. The final repair must be done as soon as weather permits.

Backfilling within the roadway prism shall be made in six-inch lifts and mechanically compacted and densified to 90% density around the utility, and 95% density for the remaining portion of the trench between the base course and the utility. Backfill outside the roadway prism shall be compacted to a density consistent with the adjoining area. Relative densities shall be determined by AASHTO T -99, with the material within one percent of optimum moisture. Backfill material shall be of clean, random (non-granular) material. Bedding material may be granular. Imported backfill meeting standards defined by the Department of Highways, Division of Highways, State of Colorado, Standard Specifications for Road and Bridge Construction, latest edition, may be used or required when existing material is unsuitable.

Permittee shall be required to perform compaction control testing. The compaction testing schedule is as follows:

1. One test at % trench depth from zero to five feet deep, and one test at finish grade.

2. Two tests, one at each third point for trenches five to ten feet deep, and one test at finish grade.

3. Three tests, one at each quarter point for trenches ten feet/deep and over, and one test at finish grade.

Tests shall be performed at thirty (30) foot intervals for trenches one to one hundred twenty (120) feet in length, fifty (50) foot intervals for trenches one

hundred twenty (120) to three hundred (300) feet, and one hundred (100) foot intervals for trenches over three hundred (300) feet in length. Permittee shall bear all expense for testing fees and repair costs. The county reserves the right to conduct in-place density tests to confirm the permittee's density test results, and require retesting of areas where conflicting test results are obtained.

Compaction control testing and documentation of results may be waived by the Road and Bridge Authority Team upon submittal of an acceptable surety guaranteeing repair or replacement of failures within a two-year (2) period after completion of the last repair.

Structural backfill (flow-fill) meeting an approved design containing portland cement water, coarse aggregate and fine aggregate and, resulting in a maximum of 60 psi in 28days may be used at the approval of the Road and Bridge Authority Team. Compaction of this type of structural backfill will not be required if material meeting the approved design is used.

Hot Bituminous Pavement Mix Grading C, CX, G, OR F as defined by the Department of Highways, Division of Highways, State of Colorado, Standard Specifications for Road and Bridge Construction, latest edition, shall be used for patching material, except when unavailable, during which time a temporary cold mix patch shall be allowed. Temporary patches shall be replaced with hot mix patches within five (5) working days after material becomes available. All disturbed areas to be patched shall be prime-coated with MC-70, or the equivalent, applied at a rate of 0.15 to 0.30 gallon per square yard. The layer of patching shall be as thick as the original road surface, and in no case less than two inches. Asphalt cuts shall be twenty-four (24) inches wider (twelve inches per side) than the width of the excavation.

Permittee shall be responsible for patch failure and subsequent surface settlement for a period of twenty-four (24) months after completion of patching.

Repairs to failed patches may be made by the County and billed directly to the permittee.

D. No underground utility may be installed within a road right-of-way if such installation would interfere in any fashion whatsoever with any existing utility installation or water course, including a ditch or culvert, except with the prior written authorization of the owner of the existing utility installation or water course.

E. The traveling public must be protected during the repair or installation of utilities with proper warning signs or signals. Warning signs and signals shall be installed and maintained by and at the expense of the permittee, in accordance with latest edition of The Manual on Uniform Traffic Control Devices. The Road and Bridge Department shall require a construction signing plan prior to the granting of this permit. If proper signs are not in place during the work, the Road and Bridge Authority Team or authorized representative shall immediately stop work until proper signs are in place.

F. Utility placement by plowing shall be allowed. Plowing shall not occur across paved roads. Where plowing operations occur across the roadway prism and result in an open cut, backfilling shall be done in accordance with paragraph 4.1 0.1.C.

G. When a road closure due to utility installation becomes necessary, the permittee shall notify the Park County Sheriff's Department and/or State Patrol, ambulance, fire department, and school district stating duration of all road closures. The County Road and Bridge Authority Team must approve all road closures in writing in advance of road closure.

H. No cleated or track equipment shall work on or move over asphalt surfaces without mats.

I. Any materials excavated, as the result of utility installation shall be removed from road surface each day unless material is signed per the MUTCD and is serving as a barrier to an open excavation. The Road and Bridge Authority Team may require that road surfaces be washed. (C.R.S. Section 42-4-1207)

J. Construction of underground installations shall require the services of an inspector approved by the Road and Bridge Department to certify that the depth requirements have been met. All extraordinary costs related to such inspection will be borne by the permittee. A signed certification shall accompany the as-built plans.

K. Road cuts for utility installation or repair made parallel to the centerline of the road, and which cause damage to, or require the removal of asphalt in any traffic lane, require the replacement of asphalt to the full lane width throughout the disturbed section unless a waiver is obtained from the Road and Bridge Authority Team.

L. When utilities are to be located behind the curb, the trench or excavation shall be located at a distance away from the back of curb or edge or asphalt equal to the depth of the trench or excavation.

M. No placement of underground utilities will be allowed when there is more than four (4) inches of frost.

N. Reclamation of Disturbed Areas: The permittee shall be responsible for the complete reclamation of areas disturbed within the right-of-way to prevent the introduction and/or spread of noxious weeds and soil erosion. Soil disturbance of 100 square feet or greater must be revegetated. Revegetation requirements for soil disturbance less than 100 square feet will be at the discretion of Park County. See Appendix G

O. Noxious Weed Control: The permittee shall be responsible for noxious weed control in disturbed areas utilizing Integrated Weed Management (IWM) practices. State Law, C.R.S. 35-5.5 et seq., and the Park County Basin Integrated Weed Management Plan; legal instrument 95-74, required that certain noxious weeds be controlled. Noxious weed infestations to be controlled should be properly identified to determine proper control measures. Noxious weeds can be controlled by utilizing one or more of the following IWM practices: 1) biological control, 2) cultural control, 3) herbicide control, 4) physical control. Contact the Park County Extension Office for the current list of noxious weeds mandated by law to be controlled and for assistance in weed identification and control methods.

P. All utilities must be buried to a depth of at least thirty-six (36) inches below the point of grade where the utility is to be buried. Utilities such as water lines shall be buried at least nine (9) feet, sewer/septic lines, underground electric and fiber optic lines shall be buried at least forty-eight (48) inches in accordance with and approved by a licensed engineer to assure the proper operation of the utility.

Q. All utility main lines and any gas, electric or fiber optic lines will be buried with a warning tape placed twelve (12) inches above the actual utility.

R. All underground installations must be done by the utility owner and the utility owner must be a member of the Utility Notification Center of Colorado.

S. All overhead electric must be at least eighteen (18) feet.

ARTICLE V

CONSTRUCTION SPECIFICATIONS

5.1 General Policies

5.1.1 Park County Construction Specifications

During the execution of road and bridge construction and related work, all materials, performance, and quality of work shall conform to the requirements of these Standards, the applicable sections for the most current edition of the Division of Highways, State of Colorado Standard Specifications for Road and Bride Construction, Colorado Standards Plans, Division of Highways M & S Standards, American Associations of State Highway and Transportation Officials, and the Standard Specification for Highway Bridges.

If these Standards or the Division of Highway Standard Specifications do not cover a specific situation during the course of work, applicable specifications must be approved by and obtained from the county. In the event that there is conflict between the various reference specifications, they shall govern in the following order:

A. Park County Standard Specifications for Road and Bridge Construction

B. Division of Highways, State of Colorado, Standard Specifications for Road and Bridge Construction; Standard Plans; M & S Standards

C. AASHTO Standard Specifications for Highway Bridges

The county shall have the final authority on all matters pertaining to specifications.

5.1.2 The Project Engineer

Each road developer shall designate to the Road and Bridge Department a person who shall be responsible for general compliance with these Standards, approved permits, and development improvement agreements, and the following:

A. To provide to the county any engineering details, documentation, or any other information regarding the prosecution of the work;

B. To apply to the county for written approval by the county any proposed alternations to the approved plans and specifications prior to construction;

C. To provide reproducible as-built plans and specifications to the Road and Bridge Department upon completion of all work to be performed on the project as a condition of final approved of the work;

D. To furnish and set construction stakes and marks establishing all lines, grades, and measurements necessary to the proper prosecution of the work in its final location as shown on the approved plans and specifications;

E. To make sure all survey monuments disturbed or removed are replaced in kind at their original locations; and

F. To provide all materials testing necessary to establish parameters required to inspect work for compliance with approved plans and specifications.

G. To stop dirt work when frost levels reach four (4) inches.

5.1.3 Inspection and Testing

All work done on county roads and those roads required to be in compliance with approved land use change permits may be inspected by the Road and Bridge Department to ensure compliance with these Standards, and the applicable provisions of the land use change conditions, approved plans or subdivision agreement.

The county shall suspend the work totally, or in part, due to the failure of the contractor to carry out provisions of these Standards, approved permits and development improvement agreements.

To ensure compliance with these Standards and approved plans, adequate in process inspection and testing is required. The project engineer shall be responsible for certifying all work is completed in accordance with the approved plans and specifications.

The county shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the project engineer and contractor as required to make a complete and detailed inspection. The county may require that any work done or materials used without inspection must be ordered, removed, or replaced. The county may, at any time before acceptance of the work, direct the contractor to remove or uncover any such portion of the finished work. After examination, and approval of the work by the county, the contractor shall restore the disturbed portions of the work to the standard required by the specifications. Inspection by the county shall not relieve the developer and/or contractor, or their designated representatives of the responsibility to control the work and insure compliance with the approved plans and specifications. The county shall not be responsible for insuring project compliance with the approved plans and specifications.

When the construction specifications of other jurisdictions are involved in the work, written approval shall be provided by the other jurisdictions and made available to the county prior to final acceptance of the work. Regular in progress materials testing shall be provided to the county in a timely manner during the course of the work, and should be a requirement of final acceptance.

An independent laboratory, under the supervision of a professional engineer, shall perform all materials testing. All testing shall be at the expense of the developer, the project engineer, or the contractor.

Prior to acceptance by the county, all work not in compliance with these Standards, approved permits, and/or development improvements agreements shall be brought into compliance at the contractor's owner's sole expense.

For the minimum requirements for compaction of embankments, sub-grades, and utility trenches, see Table 5-1. For required quality tests, see Table 5-2.

Roads constructed to a Local Intermittent Standard shall be exempt from controlled compaction testing and the following shall apply. Embankment shall be by layer placement. Surfaces steeper than a ratio of 3 horizontal to 1 vertical (3:1) upon which embankment is to be placed, shall be roughened or stepped to provide permanent bonding of new and old materials.

Embankment shall be layer placed, except over rock surfaces, in which case material may be placed by end dumping to the minimum depth needed for operation of spreading equipment.
Each embankment layer shall be leveled and smoothed before placement of subsequent layers. Hauling and spreading equipment shall be operated uniformly over the full width of each layer.

Suitable material shall be placed in layers no more than 12 inches thick, except when the material contains rock more than 9 inches in diameter, in which case layers may be of sufficient thickness to accommodate the material involved. No layer shall exceed 24 inches before compaction.

Placing individual rocks or boulders greater than 24 inches will be permitted provided the embankment will accommodate them. Such rocks and boulders shall be at least 6 inches below sub-grade. They shall be carefully distributed and the voids filled with finer material to form a dense and compacted mass.

Material shall have a moisture content suitable to obtain a mass that will not visible deflect under the load of hauling and spreading equipment.

5.1.4 The Use of Approved Plans and Specifications

Any work performed without approved plans and specifications shall be considered unauthorized and may be ordered removed and the pre-existing conditions restored.

Standard drawings for a proposed road and/or bridge for approval shall be drawn on standard plan and profile sheet 23"x36".

Plan drawings shall be on a scale of not less than one (1) inch equals one hundred (100) feet. Bearings and distances shall be shown in plan view.

Profile drawing shall be on a scale of not less than one (1) inch equals ten (10) feet vertically and one (1) inch equals one hundred (100) feet horizontally. Length of vertical curves and percent of grade shall be shown on profile. Size, length and station location of pipe shall be shown on profile.

A typical roadway cross section of a scale not less than one (1) inch equals ten (10) feet shall be furnished with all road plans. Cross section shall show road width, surfacing type, width and depth, cut and fill slopes and other special treatments such as top soiling or rip rap. A cross section shall be drawn for each culvert installation showing size and length of pipe, height of cover over pipe and grade of pipe.

All standard drawings shall be drawn on reproducible quality paper.

The approved plans, specifications, supplementary specifications, standards, supplementary standards and any special provisions required or approved by the county shall be considered consistent, to describe and provide for the complete work.

The contractor shall not take advantage of any error or omission in the approved plans, standards, and specifications. In the event and apparent error or omission is discovered, the project engineer and the County shall be notified. The developer and/or contractor, acting through the project engineer, shall make any corrections required, subject to approval by the county.

5.1.5 Acceptance of Work

A. Partial Acceptance - Immediately after a section of the work is completed such as a section of the sub grade, structures, trench backfill, etc., acceptance of that element is required prior to proceeding with the next element. An example would be acceptance of sub grade prior to the placement of sub base. If, after partial acceptance of an element of work, conditions change and the next element is not constructed for a period of time, the County may require a re-inspection and acceptance as per Section 5.1.3.

B. Final Acceptance - Immediately upon completion of the project the road developer shall notify the Road and Bridge Department and schedule a final inspection.

If the Road and Bridge Department determines that construction is in compliance with these Standards, approved permits and/or development improvement agreements it shall initiate the procedure for acceptance by the Board for maintenance or release of the performance guarantee securing the completion of the work.

If the Road and Bridge Department determines that construction is not in compliance with these Standards, the County will provide written notification of the deficient items to the road developer and to the Park County Planning Department. In the event the work is not done, the developer or owner is responsible for maintenance of the work until such time as all such items are completed or corrected and a satisfactory re-inspection is made, and the work approved in writing by the Park County Road and Bridge Department.

5.1.6 Cooperation with Utilities

The developer, acting through the project engineer, shall be responsible for coordinating the location, relocation, installation or removal of all utilities involved with the construction of the project.

The construction plans for the proposed project shall be submitted to the affected utilities as soon as possible. Adequate notice shall be given to utilities for utility locations required for the work to avoid damage to existing utilities and conflicts in the work.

ARTICLE VI

TRAFFIC STUDIES

6.1 Guidelines for Traffic Studies

Traffic consultants are invited to discuss projects with the Road and Bridge Department and/or Planning Department prior to initiation of the study. This should provide a firm base of cooperation and communication between the County, the owner/developer and the consultant in creating traffic characteristics that are in the best interest of the total community.

All traffic studies shall contain, as a minimum, the following information:

A. A summary table listing each type of land use by development within each development, and on surrounding public lands; the number of units involved, generation rates used, and the resultant trip generation. Trip generation should be calculated from the latest data utilized by the Colorado Department of Transportation and approved by the Park County Road and Bridge Department.

B. Site location map(s) showing location of each land use and a network map that shows all existing and proposed road facilities.

C. Proposed improvements (including roadway widening, channelization, signalized intersections) should be identified, and preliminary design schematics submitted.

D. Traffic graphics should show:

1. Peak hours site (in and out and on adjacent facilities).

2. Peak hour total traffic (current traffic plus site traffic in and out and on adjacent facilities).

3. Peak hour total traffic (twenty (20) year projection) in and out and on adjacent facilities.

4. Total daily traffic (with site traffic shown in parenthesis) both existing and twenty (20) year projected.

5. Turning movements before and after project at major intersections. In the absence of any meaningful peak hour data, peak hour trips shall be assumed to be twenty (20) percent of total daily trips.

6. Estimated total daily construction traffic associated with construction of residential, recreational, commercial and/or industrial projects within any development project.

ARTICLE VII

PERMITS

7.1 Issuance of Permits

Permit fees and bonds for any permit named in this section shall be set by the BOCC. No fees or bonds may be imposed on special districts; however such districts shall be required to obtain all necessary permits. ALL PERMITS ARE VALID FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ISSUANCE. Permit fees as adopted by the BOCC can be obtained from the Road and Bridge Department. Also see table 7-1

Permits may be renewed before the original permit expires at no charge. Upon the renewal of an existing permit, the permittee will have an additional six (6) months to complete the task in which the permit was issued for. If a permit expires before the task has been completed, the permittee will be responsible to renew the original permit for a fee of twenty-five (25) dollars and the permit will be extended for a period of six (6) months from the re-instatement date. ONLY ONE (1) RENEWAL PER ORIGINAL PERMIT IS ALLOWED.

7.1.1 Disclaimer

Construction improvements or structures within the County right-of-way shall be permitted through application to the County. All permits issued are in fact revocable encroachment licenses. Any improvements constructed or installed within the County right-of-way shall be installed, maintained and repaired at the permit holder, his/her heirs, successors-in interest, assigns and occupants sole cost and expense. The County shall not be held responsible for any improvements located on the County's right-of-way. The permit holder, his/her heirs, successors in interest, assigns and occupants further acknowledges and agrees that the County is not and will not assume any liability, responsibility, or costs for any damage, maintenance or repair of any improvements or structures erected or maintained by permit holder within the County right-of-way.

7.2 Utility Permit

No individual, company, corporation, or public agency shall modify, install, or otherwise change any utility located within any portion of any county road right-of-way without first obtaining a Utility Construction Permit from the Road and Bridge Department. Financial security will be required to insure conformance with these Standards.

Utility permits shall be obtained at least forty-eight (48) hours prior to commencement of the road cut. The applicant must notify the Road and Bride Department at least twenty-four (24) hours in advance of scheduled work.

Wherever a financial security is required, Park County shall hold the financial security for a period two (2) years after the final inspection has been completed.

7.2.1 Permit Procedure

The applicant must file for a permit with Park County Road and Bridge along with the proper fee and site map showing where the utilities are to be placed. After completion of the above, the office staff will process the permit and forward it to the utility inspector. The utility inspector will then do a pre inspection of the area which will include photographs. After completion of the inspection a recommendation will be made to the Road and Bridge department. The contractor will receive a fax of the recommendations within five (5) business days. The applicant must have a valid permit displayed on the work site. If any alteration of the original permit occurs, Park County Road and Bridge must be notified and a

new site plan with alterations must be presented. Additional fees will e incurred for an amended permit. On the completion of the project, photographs will be taken.

A. Fees – Refer to Table 7-1 on page 50.

B. Penalty Assessments (within one calendar year period)

1st Offence – Five (5) times the amount of the permit plus a $50.00 re inspection fee (Ex.: $50.00 X 5 = $250.00 + $50.00 re inspection fee = total of $300.00)

2nd Offence - Five (5) times the amount of the permit plus $500.00 plus a $50.00 re inspection fee. (Ex.: $50.00 X 5 = $250.00 + $500.00 + $50.00 re inspection fee = total of $800.00)

3rd Offence - Five (5) times the amount of the permit plus $1000.00 plus a $50.00 re inspection fee. (Ex.: $50.00 X 5 = $250.00 + $1000.00 + $50.00 re inspection fee = total of $1300.00)

Upon the 3rd offence the contractor will receive a mandatory six (6) month probationary period. During this time period the contractor will incur the following:

1. An on site utility inspector will be required per Article J page 41.
2. All cost of the inspector and other incurred costs will be borne by the contractor.
3. Any violation during this six (6) month probationary period will result in Park County requesting removal of the contractor from doing any type of utility work.

C. Other Violations

These violations would include, not restoring the area to its previous condition, not installing a trench to proper depth, improper settling, improper road repair, etc. This list is not all-inclusive.

1st Violation – Written warning

2nd Violation - $50.00 fine and a $50.00 re inspection fee

3rd Violation - $100.00 fine and a $50.00 re inspection fee

Upon the thirds offence the contractor will receive a mandatory six (6) month probationary period. During this time period the contractor will incur the following:

1. An on site utility inspector will be required per Article J page 41.
2. All cost of the inspector and other incurred costs will be borne by the contractor.
3. Any violation during this six (6) month probationary period will result in Park County requesting removal of the contractor from doing any type of utility work.

7.3 Driveway Permit

No person shall construct any driveway without a County Driveway Permit issued by the Development Services Department. No Driveway Permit shall be issued without there having been a site inspection by the Development Services Department. For any driveway accessed off of a public road, a Site Evaluation will need to be done by the Development Services Department. The Authority Team may, at the Authority Team's sole discretion, specify certain

conditions, in addition to those set forth in these Standards (4.5 *et. seq.),* for issuance of a Driveway Permit.

Any significant repairs such as culvert replacement, resurfacing or changes in design or specifications, requires authorization in the form of a Driveway Permit from the Road and Bridge Department.

7.4 Surface Alteration Permit

No individual, company or corporation, or public agency shall construct or alter any road, driveway, drainage, or other improvements within a County right-of-way without a Surface Construction Permit from the Road and Bridge Department. Road construction shall be in accordance with engineering plans prepared by a professional engineer, in conformance with these Standards, with said plans to be approved by Park County.

No individual, company or corporation, or public agency shall construct any new private or public road with out first obtaining a New Road Construction Permit.

Refer to Article VII Section 7-205 Page 7 Use and Development Standards.

Driveway paving shall refer to Article VII Section 7-205 pg.7 Use and Development Standards for procedures associated with the paving.

Surface Alteration Permits shall be obtained at least forty-eight (48) hours prior to commencement of the road cut. The applicant must notify the Road and Bridge Department at least twenty-four (24) hours in advance of scheduled work. A list of required field tests and inspections would be attached to the permit. The applicant shall submit a written schedule of the work, including quantities of materials and length in feet of surface disturbance, and total time area will be disturbed.

Approved permits shall not be changed without the written consent of Park County.

Park County may hold the financial security for two years. It may be refunded earlier, if in the sole discretion of the Road and Bridge Authority Team, it is determined that the cut is stable and no further work will be needed.

7.5 Oversize/Overweight Permits

The Road and Bridge Department Authority Team may, upon application in writing and good cause being shown, issue an Oversize/Overweight Permit to operate or move a vehicle or combination of vehicles of a size or weight of vehicle or load exceeding the maximum legal load permitted by the State of Colorado. The Road and Bridge Department may limit the number of trips and/or the hours of operation, or otherwise prescribe conditions of operation of such vehicles to ensure against undue damage to road foundations, surfaces, or structures, and to ensure the safety of the motoring public. Further, the Road and Bridge Department may require such undertaking, bonding, or other security as may require such undertaking, bonding, or other security as may be deemed necessary to compensate for any damage to any roadway or structure.

7.6 Snow Removal Permit

The Road and Bridge Authority Team may, after an application has been submitted, an evaluation has been prepared, and the Board of County Commissioners has approved the plowing, issue a Snow Removal Permit. The Snow Removal Permit may contain such conditions as necessary to preserve the integrity of the road and provide for the safety of the

road users. Further, the Road and Bridge Department may require financial security as may be deemed necessary to repair any damage to the roadway or structures within the right-of-way.

7.7 Suspension or Revocation of Permits

A. When it comes to the attention of the Road and Bridge Authority Team that provisions of any permit on the terms of any regulation for the administration of that permit have been violated by the permittee, upon written or oral notice to the permittee or an agent or employee of the permittee, the Authority Team may immediately suspend the permit for a period not to exceed seven (7) days. Such notice must include the particulars of the violation. If such notice was oral, written notice must be mailed forthwith to permittee by first class mail. There shall be no more than two immediately consecutive suspensions without review or further action by the BOCC.

If the permittee does not concur that it is in violation, it must, within forty-eight (48) hours of the issuance of the suspension, request in writing a hearing before the BOCC. The BOCC shall hold a hearing within seventy-two (72) hours of receipt of such request. At such hearing, the Authority Team shall have the burden to prove, by a preponderance of the evidence that the permittee is not in compliance with the applicable requirements, regulations, standards and conditions.

B. The BOCC may, after such hearing, further suspend or permanently revoke a permit.

7.8 Transfer of Permits

A permit may be transferred only with the written consent of the Authority Team whose consent shall be at the Authority Team's sole discretion. The Authority Team, before consenting to any transfer, may condition or restrict such transfer to ensure that the health, welfare and safety of the public are protected. Each prospective transferee must ensure, before approval of any transfer, that the proposed transferee can and will comply with all of the applicable requirements, regulations, standards, and conditions.

7.9 Financial Security

As a condition of the issuance of any permit, the Authority Team, at the Director's sole discretion, may require the permittee to file a guarantee of financial security in an amount established by the Authority Team and payable to the County. The guarantee may be in the form of cash, federally-insured Certificates of Deposit, irrevocable letters of credit issued by a bank acceptable to the BOCC, surety bonds issued by a company authorized to do business in Colorado, written guarantees backed by collateral acceptable by the BOCC, or any other form, or combination of forms, established by the BOCC.

Table 7-1 **Permit Fee Schedule**

Permit Type	Permit Item	Fee	Unit	Minimum
UTILITY	Service Cuts	$ 150.00	Each	$ 50.00
	Mains	$ 00.30	Foot	$ 50.00
	Potholing	$ 50.00	Each	$ 50.00
DRIVEWAY (Env. Health)	Driveway	$ 50.00	Each	$ 50.00
SURFACE ALTERATION	New Road	$ 00.40	Foot	$ 50.00
	Driveway	$ 50.00	Each	$ 50.00
	Bridges	$400.00	Each	$400.00
	Box Culverts	$400.00	Each	$400.00
	Pipe Culverts	$ 50.00	Each	$ 50.00
	Cattle Guards	$ 50.00	Each	$ 50.00
	Signage	$ 50.00	Each	$ 50.00
	Vegetation/Soil	$ 25.00	Each	$ 25.00
	Mail Boxes	$ 25.00 [1]	Each	$ 25.00
OVERSIZE/OVERWEIGHT	(same)	$100.00 [2]	Each	$ 50.00
SNOW REMOVAL - Private	(same)	No fee	Each	No fee
SNOW REMOVAL - Contract	(same)	$ 25.00	Each	$ 25.00

* Re-inspection fees for permits applicable for inspections shall be $50.00 per inspection.
* One time renewal fee per permit $50.00
* Road re-construction fees will be based on the type of re-construction required and not to exceed .40 per foot.

* All unit charges that refer to (foot) indicate lineal footage.

1: Should be clustered and out of county right of way.

2: Determined on the situation – minimum $100.00

REFERENCED REPORTS

1. Park County Land Use Regulations, Park County Planning Department.

2. State Highway Access Code, State of Colorado, Department of Transportation.

3. Manual on Uniform Traffic Control Devices, U.S. Department of Transportation, Federal Highway Administration.

4. Colorado Vehicle Code, Colorado State Patrol Troop Office, Grand Junction, Colorado.

5. Geometric Design of Highways and Roads, The American Association of State Highway and Transportation Officials.

6. Roadway Design Manual, Colorado Division of Highways.

7. Trip Generation, The Institute of Transportation Engineers, P.O. Box 9234, Arlington, Virginia.

8. Standard Specifications for Road and Bridge Construction, State of Colorado, Division of Highways.

9. Gunnison County Flood Damage Prevention Resolution, Gunnison County, Colorado. Gunnison County Planning Department.

10. Procedures for Determining Peak Flows in Colorado, U.S. Department of Agriculture, Soil Conservation Service, 1980.

11. Concrete Pipe Design Manual, ACPA Arlington, Virginia, February, 1974.

12. Handbook of Steel Drainage and Highway Construction Products, A 151, Washington, D.C. 1971.

13. Standard Specification for Highway Bridges, The American Association of State Highway and Transportation Officials.

14. Colorado Standard Plans, Division of Highways M and S Standards.

15. Standard Plans for Highway Bridges, U.S. Department of Transportation, Federal Highway Administration.

16. Uniform Construction Standards for Colorado Public Works, Colorado Contractors Association, Inc.

TABLE 3-1

SUMMARY OF DESIGN ELEMENTS

FUNCTIONAL CLASSIFICATION	AVERAGE DAILY TRAFFIC	MINIMUM RIGHT OF WAY WIDTH	RIGHT OF WAY WIDTH SNOW	# OF LANES	LANE WIDTH	SHOULDER WIDTH EACH SIDE	CURB & GUTTER PEDESTRIAL PATH
MAJOR ARTERIAL (Paved)	3000+	100′	100′	2-3	12′	4′	2′/5′ (Optional)
RURAL ARTERIAL (Paved/unpaved)	500-2999	80′	100′	2	12′	4′	2′/0 (Optional)
COLLECTOR	100-499	60′	80′	2	12′	4′	
LOCAL	20-99	60′	80′	2	12′	2′	
LOCAL OTHER	To 19	60′	60′	2	11′	0′	

TABLE 4-1

MINIMUM CURVE RADIUS FOR DESIGN SPEED
ON LOCAL ROADS AND LANES
(Without super-elevation)

$$e + f = 0.067 \chi v^2$$

R	v	e	f	Radius
e= Super elevation	15	0	.19	80
f= side friction factor	20	0	.18	150
v= design speed	25	0	.17	250
R= curve radius	30	0	.16	375

TABLE 4-2

MINIMUM CURVE RADIUS FOR DESIGN SPEED
ON COLLECTORS AND ARTERIALS

Design speed v	e	Max f	Min R	e	Max f	Min R	e	Max f	Min R
40	.04	.15	561	.06	.15	508	.08	.15	464
50	.04	.14	926	.06	.14	833	.08	.14	758
60	.04	.13	1412	.06	.13	1263	.08	.13	1143

TABLE 4-3

MAXIMUM SUPER-ELEVATION RATES

Road Type	Rural	Urban
Arterials	.08	.06
Collector	.06	.06
Local Roads	.06	.04
Lanes	.04	.04

TABLE 4-4

SIDE FRICTION FACTORS FOR DESIGN SPEED

V	f
15	.19
20	.18
25	.17
30	.16
40	.15
50	.14
60	.13

TABLE 4-7

PAVEMENT DESIGN REGIONAL FACTOR

ANNUAL PRECIPITATION	
Over 34"	1.00
24 – 34"	0.50
18 – 23"	0.00
14 – 17"	-0.25
Less than 14"	-0.50
ELEVATION	
Over 9500	1.50
8500 – 9500	1.00
7500 – 8500	0.50
Less than 6500	0.25
DRAINAGE	
Very Poor	1.00
Poor	0.50
Fair	0.25
Good	-0.25
High groundwater table	
FROST	
Frost boils in area	3.00
Frost susceptible soil, frost penetration over 28"	1.00
Frost susceptible soil, frost penetration under 28"	0.25
Moisture available when subject to frost action	

The minimum regional factor shall be 2.00

Other conditions that may influence the choice of regional factors are:

(1) Elevation of the grade line, especially in the swampy areas where the roadbed soils may be saturated for long periods of time.

(2) Number of freezing and thawing cycles during winter and early spring.

(3) Steep grades with large volume of heavy trucks.

(4) Areas of concentrated turning and stopping movements, such as bus stops, etc.

TABLE 4-8

PAVEMENT DESIGN
STRENGTH COEFFICIENTS

Component	Limiting Test Criteria	Coefficient
Plant Mix Seal		0.25
Hot Bituminous Pavement	$R_t \geq 95$	0.44
" "	$R_t = 90\text{-}94$	0.40
" "	$R_t = 87\text{-}89$	0.35
" "	$R_t = 84\text{-}86$	0.30
" "	$R_t \leq 83$	0.25
Road Mix Bit. Pavement		0.20
Existing Bituminous Pavement		0.20 – 0.44
Plan Mix Bit. Base	$R_t \geq 90$	0.34
" "	$R_t = 85\text{-}89$	0.30
" "	$R_t = 80\text{-}84$	0.25
" "	$R_t \leq 79$	0.22
" "		
Aggregate Base Course [A.B.C.]	"R" ≥ 84	0.14
" "	"R" = 78-83	0.12
" "	"R" = 70-77	0.11
" "	"R" ≤ 69	0.10
Emulsified Base Course [A.B.C.]	$R_t \geq 95$	0.23
" "	$R_t = 90\text{-}94$	0.20
" "	$R_t = 84\text{-}89$	0.15
" "	$R_t \leq 83$	0.12
Cement Treated A.B.C.	7-day test ≥ 650 psi	0.23
" "	7-day test = 400-649 psi	0.20
" "	7-day test ≤ 399 psi	0.15
Hydrated Lime Treated A.B.C.	"R" = 84	0.14
" "	"R" = 78-83	0.12
Borrow Material		0.10*

**Used only to determine a value of strength for layers of soil and/or borrow material which is located above the soil layer from which the soil support value of the subgrade is determined.*

NOTE: The minimum strength coefficient for the Base Course on highways having a current ADT volume of 750 or greater shall be 0.12.

TABLE 4-9

PERMISSABLE VELOCITIES FOR ROADSIDE DRAINAGE DITCHES

Roadside channels with erodible Linings (earth- no vegetation):

Minor and Major Design Storm

Soil Type or Lining	Permissible Velocity (fps)
Fine sand (noncolloidal)	2.5
Sandy loam (noncolloidal)	2.5
Silt loam (noncolloidal)	3.0
Ordinary firm loam	3.5
Fine gravel	5.0
Stiff clay (very colloidal)	5.0
Graded, loam to cobbles (noncolloidal)	5.0
Graded, silt to cobbles (noncolloidal)	5.5
Alluvial silts (noncolloidal)	3.5
Alluvial silts (colloidal)	5.0
Coarse gravel (noncolloidal)	6.0
Cobbles and shingles	5.5
Shales and hard pans	6.0

Roadside channels, lines with various grass covers (uniform stand; well maintained):

Cover	Slope Range (%)	Soils that are Erosion Resistant	Easily Eroded
Bermuda grass			
Crested Wheatgrass			
Buffalo Grass	0 – 5	6.0	5.0
Kentucky Bluegrass	5 – 10	5.0	4.0
Smooth Brome	Over 10	4.0	3.0
Blue Grama			
Grass mixture	0 – 5	4.0	3.0
	5 – 10	3.0	2.5
Lespedeza Serocea			
Weeping Lovegrass			
Yellow Bluestem			
Alfalfa	0 – 5	3.0	2.0
Crabgrass			
Common Lespedeza			
Sudan Grass			

Figure 4-1 **STOPPING SIGHT DISTANCE ON CREST VERTICAL CURVES**

Height of Eye: 305 feet

Height of Object: 6 inches

Figure 4-2 **SERVICEABILITY INDEX = 2.0 TO BE USED ON COLLECTORS, LOCAL ROADS, AND LANES**

DESIGN NOMOGRAPH – Flexible Pavements

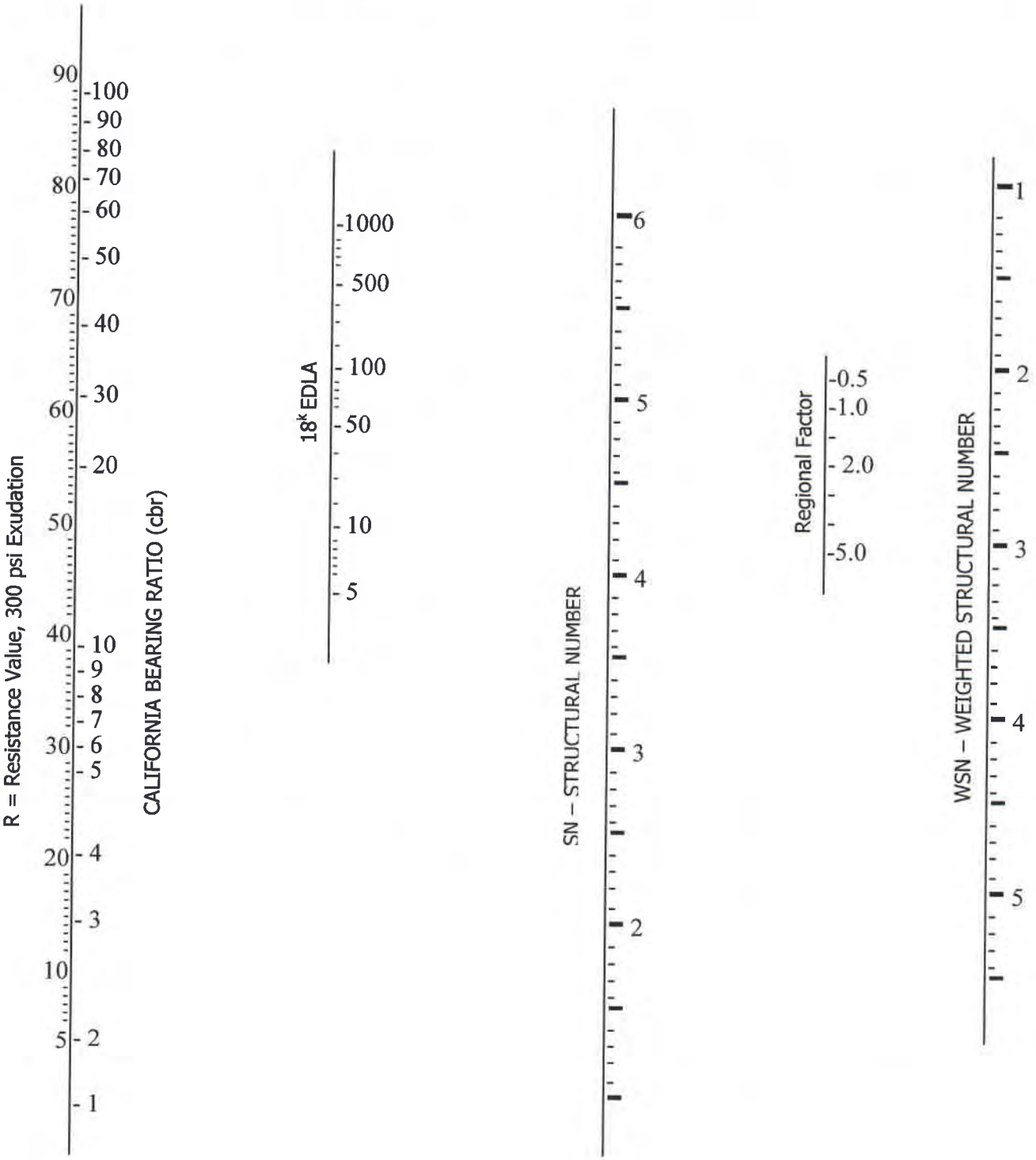


Figure 4-3 **SERVICEABILITY INDEX = 2.5 TO BE USED ON ARTERIALS**

DESIGN NOMOGRAPH – Flexible Pavements

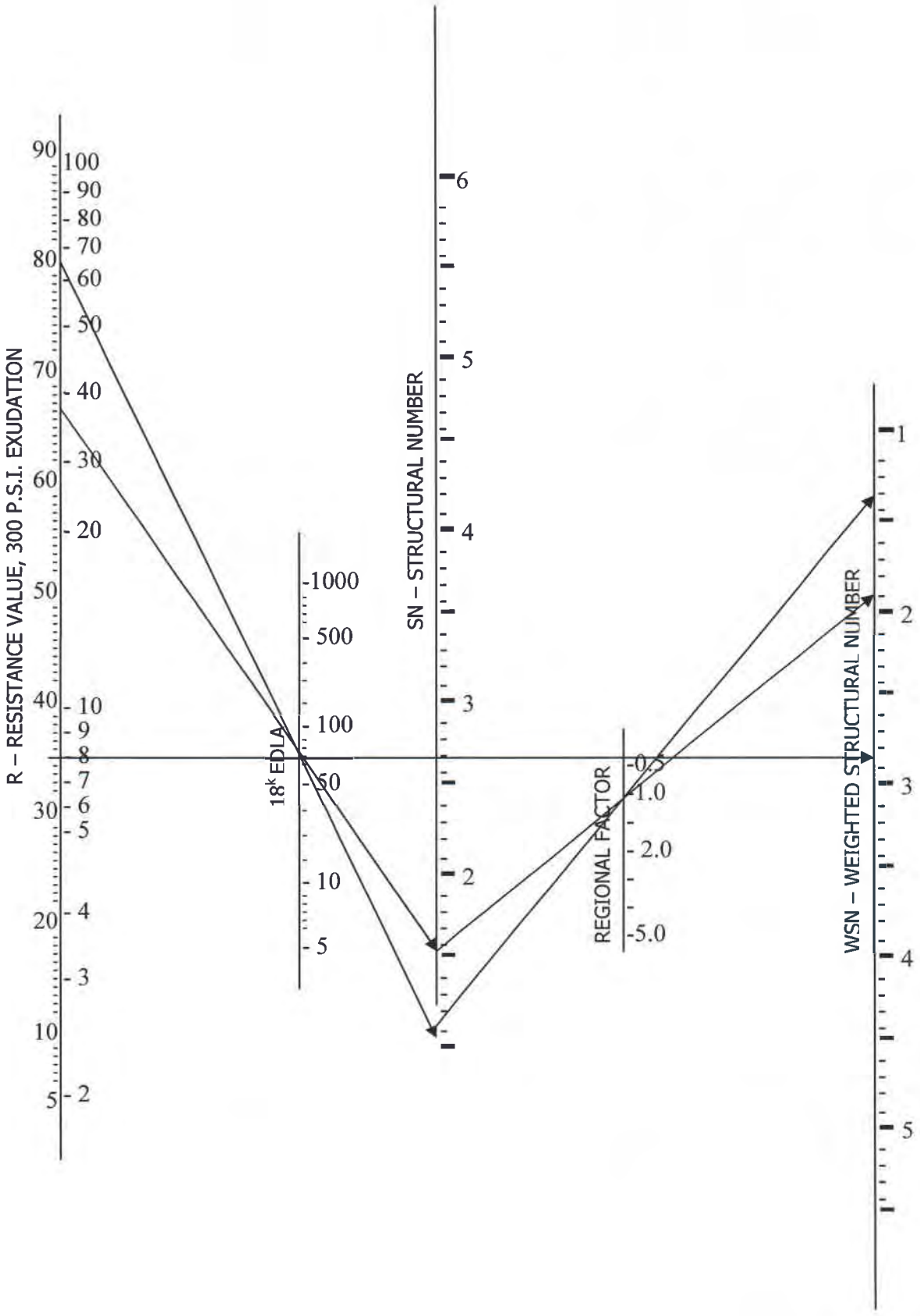


Table 5-1 **MINIMUM REQUIREMENTS FOR COMPACTION OF EMBANKMENTS AND SUBGRADES**

Density, Percent of AASHTO Standard T-99

Embankments Class of Soil (ASSHTO M145)	Under 50 ft. (a) High	50 ft. & Over	Subgrade
A-1, A-3	95	95	100
A-2-4, A – 2-5	95	95	100
A-2-6, A-2-7	95	(b)	95
A-4, A-5, A-6, A-7	95	(b)	95

(a) 1 ft. = 0.3048 m.

(b) Use of these materials requires special attention to design and construction, and shall be specified by the design engineer and approved by the County Road & Bridge Department

MINIMUM REQUIREMENTS FOR COMPACTIONS OF UTILITY TRENCHES

Material	Density Percent	AASHTO std.
Bedding Material	90%	T-99
Backfill	90%	T-99

Table 5-2 **REQUIRED QUALITY CONTROL TESTS**

Item	Type of Test	Minimum Test Frequency
Subgrade and Embankment	Moisture Density Curve	1 per soil type
Compaction	In-Place Density	1/3, 400 sq. ft./lift*
Aggregate Base Course or Subbase Course	Gradation	1/1,000 ton or fraction thereof on each class
	Moisture-Density Curve	1/source on each class
	In-Place Density	1/200 ton*
Hot Bituminous Pavement	Asphalt Content	1/500 tons or 2 per project whichever is the lesser
	Gradation	Aggregate- minimum of 2/source
Sidewalks and Curbing (Concrete)	Compressive Strength	1 set cylinders (4) per 1,000 sq. yds. of Sidewalks and/or 2,000 in front of curbing, minimum 1 set per project.
	Slump & Air Content	1 per set of cylinders and as often as needed for quality control.
Utility Trench Backfill	In-Place Density	1/400 In. ft. of trench; or 1/branch of section if < 400 ft. ½ ft. vertical lift of backfill material. (First test ≤ 2 ft. above the pipe, last test at pavement subgrade or 6 in. below ground surface on unpaved areas.)
Manholes/Structures	In-Place Density	1/structure per 2 ft. vertical lift.

*Failing areas are to be retested.

All testing shall be done in accordance with the most recent edition of AASHTO Test Standards.

APPENDIX A

LEGAL RESPONSIBILITIES

The latest edition of the Division of Highways, State of Colorado, Standard Specifications for Road and Bridge Construction; Section 107 – Legal Relations and Responsibilities to the Public, shall be considered Supplement Specifications to these Standards with the additions, deletions, or revisions noted in Sections one and two as supplied annually by the Division of Highways, State of Colorado.

Section I **Definitions**

State – Shall be redefined as Park County, Colorado.

Division – Shall be redefined as the Park County Road and Bridge Department.

Engineer – Shall be the project engineer as defined in Section 5.1.2 when acting as the authorized agent of the developer or contractor or the County as defined in Section 5.1.3 when acting in behalf of the Road and Bridge Department.

Contract – Shall be redefined as these Standards.

Section 2 **Section 107, Legal Relations and Responsibility to Public**

Payment – Delete any reference to payment for the use of these Standards.

107.04 – Delete Subsection.

107.07 – Delete "as specified under subsection 104.04."

107.09 – Delete Subsection.

107.16 – Paragraph one, line eight, revise to read the following: "The contractor or developer shall be required to assume any expenses entailed in maintaining traffic." Delete last sentence. Delete paragraphs two, three, and four.

107.19 – Delete Subsection.

107.10 – Is hereby revised as follows: Paragraph one – "In carrying out any of the provisions of the Standards; or in exercising any power or authority granted to by Park County; or performing their duties within the scope of their employment, there shall be no personal liability upon the BOCC, Road and Bridge Authority Team, or their authorized representatives due to injuries sustained from an act or omission of such employee, except as may be provided by law."

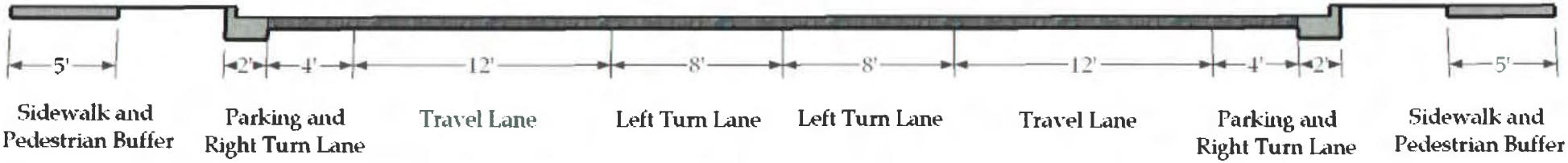
107.22 – Delete Subsection.

107.23 – Delete Subsection.

107.25 – Delete paragraph two of section – Measurement and Payment

APPENDIX B

ROAD SECTIONS - MAJOR ARTERIAL AND RURAL ARTERIAL



MAJOR ARTERIAL

Centered in 100' R.O.W.

RURAL ARTERIAL

Centered in 80' or 100' R.O.W.

APPENDIX C

ROAD SECTIONS – COLLECTOR, LOCAL, AND LOCAL OTHER

COLLECTOR

Centered in 60' or 80' R.O.W.

LOCAL

Centered in 60' or 80' R.O.W.

LOCAL OTHER

Centered in 60' or 80' R.O.W.

APPENDIX D

CATTLE GUARD SPECIFICATIONS

CATTLE GUARD SPECIFICATIONS

Precast Concrete

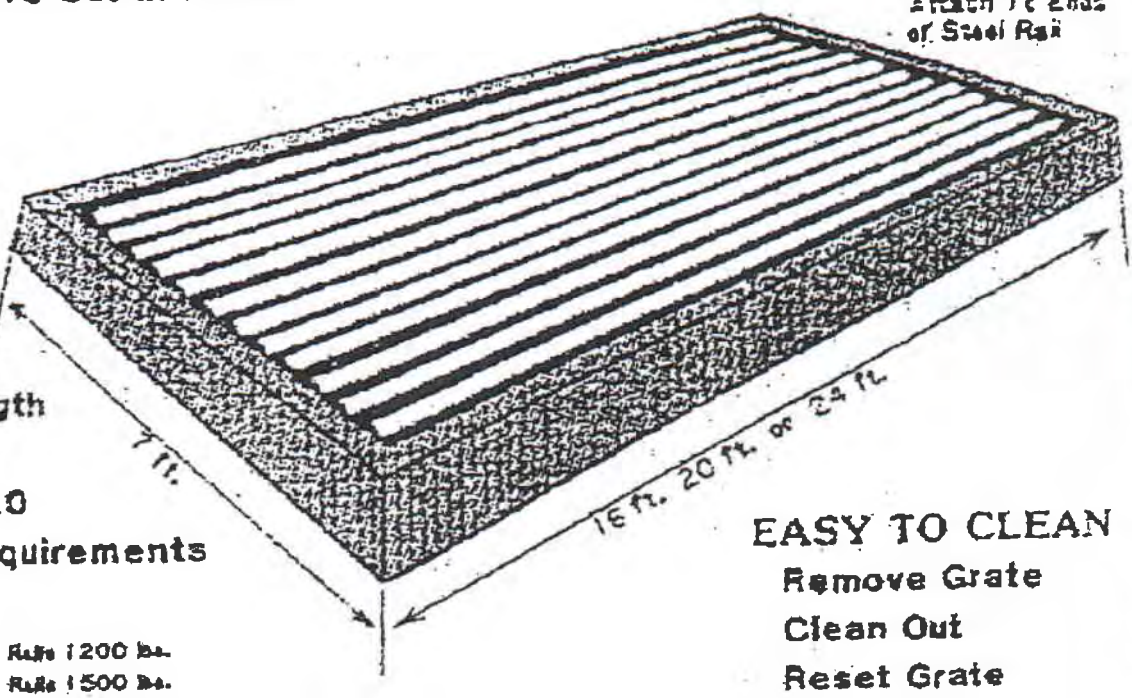
CATTLE GUARD BASE

NO DELAY
IMMEDIATELY USEABLE

READY TO USE
WITH YOUR STEEL GRATES
OR OURS

Complete Unit is
Ready To Set In Place

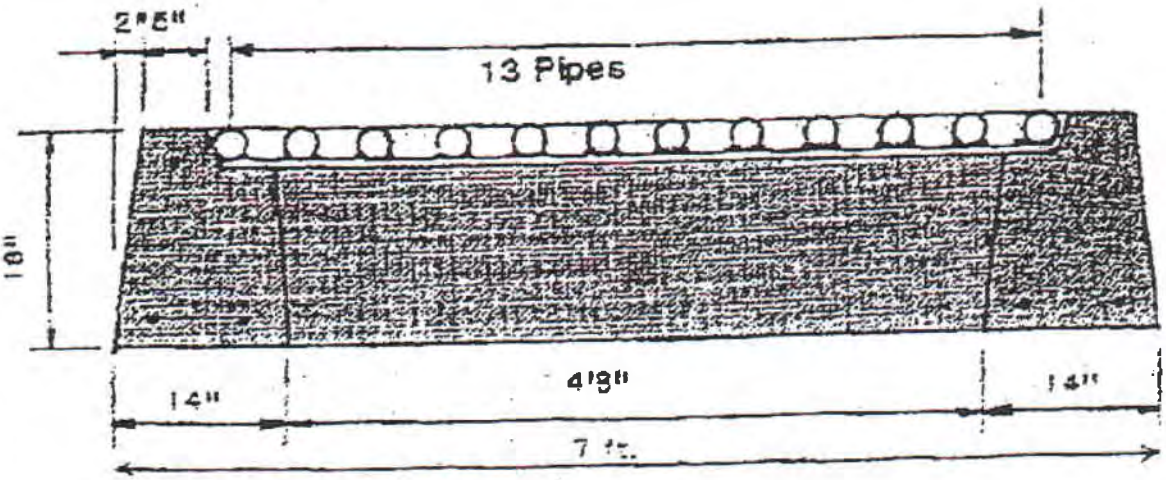
Optional Wing Extensions
Attach To Ends
of Steel Rail



Base is
cast with
steel
reinforced
high-strength
concrete
Meets H-20
loading requirements

EASY TO CLEAN
Remove Grate
Clean Out
Reset Grate

Weights:
7'x16'–9,440 lbs. Rails 1200 lbs.
7'x20'–11,850 lbs. Rails 1500 lbs.
7'x24'–14,220 lbs. Rails 1800 lbs.



Concrete
Cross
Members
On 4 ft.
Centers

Actual dimensions of concrete products may vary slightly

Concrete – 4000 P.S.I. (Minimum)
Reinforcing – Grade 60 (Minimum)

UPDATED 11/97

APPENDIX E

RECLAMATION RECOMMENDATIONS FOR NEW EXPOSED EARTHWORK

LAND PREPARATION: Replace the disturbed soil as close to the original soil profile as possible prior to revegetation. After the topsoil is replaced, a firm seedbed is required before planting grass seed. The seedbed should be firm enough to allow good seed-to-soil contact.

SEEDING TIME: The seeding time with the greatest success is dormant seeding for areas that cannot be irrigated. Spring seeding can be successful if rainfall is above the historical average. Late summer seedlings (late July to mid-August) have shown success in some areas since August and September have historically been the highest rainfall months.

Suggested seeding times (without irrigation) based on Major Land Resource Area (MLRA):

7500-9500 feet elevation
Dormant Seeding (Best) - October 1 - November 15 Spring Seeding - not recommended
Late Summer Seeding (Marginal) - August 1-31

Alpine Zone (10,000 feet elevation and above)
Dormant Seeding (Best) - September 1-30 Spring Seeding - not recommended
Summer Seeding (Marginal) - July 15-August 15

SEEDING METHODS: Drilling the grass seed is the best method. Drill depth should be placed between ½ and ¾ inch below the soil surface. For slopes that are greater than 3:1 slope, seeding may be broadcast by hand or mechanical spreader and raked into the upper soil layer (no deeper than 3/4 inch). Seed should not be incorporated and applied simultaneously with the hydromulch slurry.

RATE OF SEEDING: When seeds are drilled use 10 pounds per acre of pre-mixed grass seed. When seed is broadcast by hand or mechanical seed spreader, use 20 pounds per acre of pre-mixed grass seed.

MULCHES: Straw and/or hay used for mulch must be certified weed free. A hydromulch can be applied to the area after the seed has been drilled in or broadcast. On steep slopes where crimping is not possible, jute matting (biodegradable mesh) may be used as a mulch over the newly seeded areas.

TIME FRAME OF RECLAMATION PROCESS: Reclamation can require several years (1 to 5) to determine stand establishment. It should be expected that early serial species (such as summer and winter annuals) will occupy the area before the desired perennial stand dominates. Each year the Park County Weed Specialist upon which time the permittee will be advised as to the management practices that are expected to insure reclamation success will review the revegetated sites.

Unreasonable demands will not be placed on the expected outcome of the reclamation, but it is expected that the reclaimed areas will be ecologically comparable to the surrounding, undisturbed land. This would be defined by the percentage of desired grass species compared to weedy annual broadleaf species (which usually requires no less than three years).