

GUNNISON COUNTY
STANDARDS AND SPECIFICATIONS
FOR
NEW CONSTRUCTION OF
ROADS AND BRIDGES

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**GUNNISON COUNTY
STANDARD SPECIFICATIONS
FOR
NEW CONSTRUCTION OF
ROADS AND BRIDGES**

ARTICLE I

GENERAL PROVISIONS

1.1 Title

This document (as it may be amended by the Board of County Commissioners) shall be known as the "Gunnison County Standards and Specifications for New Construction of Roads and Bridges", and will be referred to herein as "these Standards and Specifications."

1.2 Purpose

The purpose of these Standards and Specifications is to provide for the uniform planning, design, construction, and permitting of new roads and related facilities and/or improvements to existing roads and related facilities in Gunnison County, and further, to provide for the administration of the Gunnison County Road System and public roads under the jurisdiction of Gunnison County in a manner consistent with applicable federal, state and local statutes, ordinances and regulations. These Standards and Specifications identify the minimum standard or specification necessary to achieve public safety, functional effectiveness, ease of maintenance, pleasing appearance, and to address environmental concerns.

1.3 Permit Required

Unless otherwise expressly excepted by these Standards and Specifications, no person shall engage in, cause or allow any construction of, or work on or in, any road under the jurisdiction of Gunnison County or approved by Gunnison County unless that person has first obtained each appropriate permit required by these Standards and Specifications. If such activity has begun before issuance of such permit(s), no permit shall be issued until the applicant ceases the activity, remedies any damage caused, and complies with all enforcement actions taken by Gunnison County. The following permits are required as appropriate according to the anticipated work:

1. Underground Utility Construction Permit (see Section 7.2)
2. Surface Alteration Permit/Road Cut Permit (see Section 7.3)
3. Access Permit (see Section 7.4)
4. Oversize/Overweight Permits (see Section 7.5)
5. Snow Removal Permit (see Section 7.6)
6. Revocable Right-of-Way Permit (see Section 7.7)

1.4 Scope and Application

These Standards and Specifications apply to County, public and private roads under the jurisdiction of Gunnison County.

1.5 Partial Exemptions

The following are partially exempt from the requirements of these Standards and Specifications:

1. Agricultural roads are exempt from these Standards and Specifications except that they require access permits as set forth herein. (see Section 4.5 and Section 7.4)

1.6 Authority

It is the intent of the Board in adopting and enforcing these Standards and Specifications to fully exercise all authority and power conferred on it by, and to rely on, Colorado law including but not limited to C.R.S. 43-1-101 et. seq., 43-2-101 et. seq. and 30-11-107 (i)(h).

C.R.S. Title 42, Article 4 authorizes the Board to regulate traffic on County roads and public roads under County jurisdiction. C.R.S. Title 42, Article, 4, and Title 43, Article 2 also authorizes local governments to regulate vehicular access to or from any public highway under their respective jurisdiction to or from property adjoining such highway in order to protect the public health, safety and welfare, to maintain smooth traffic flow, to maintain highway right-of-way drainage and to protect the functional levels of public highways. Colorado law, including but not limited to C.R.S. Sections 43-5-301 et. seq. prohibit anyone from obstructing a highway.

1.7 Amendments

These Standards and Specifications, may be amended, or repealed, in whole or in part, by the Board only after a public hearing on the proposed amendment, or repeal. Notice of such public hearing, setting forth the date, time, place and general purpose of such public hearing, shall be published in a newspaper of general circulation within Gunnison County at least once a week for two consecutive weeks immediately before the hearing; such notice need not include the specific language of the proposed amendment or repeal.

1.8 Severability

If any section, clause, provision, or portion of these Standards and Specifications should be found to be unconstitutional or otherwise invalid by a court of competent jurisdiction, such determination shall not affect the validity of these Standards and Specifications as a whole or any part of these Standards and Specifications other than the part determined to be unconstitutional or invalid. 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

- A. No waiver of these Standards and Specifications shall be valid unless approved by the Board in writing as set forth in this section.
- B. Only the Board may approve a waiver of these Standards and Specifications except that the Director of Public Works has the limited authority to waive these Standards and Specifications only for a driveway or for an insignificant extension of an existing road; the Director may refer such waivers to the Board. The Board, or if applicable the Director of Public Works, may place special conditions on the approval of a waiver. Such conditions may relate to the following:
 - 1. Seasonal use;
 - 2. Number of structures;
 - 3. Size of structures;
 - 4. Type of use;
 - 5. Existence of public utilities; and
 - 6. No increased risk to emergency services personnel, without limitation.
- C. A waiver shall be project specific and shall not establish a precedent for any other proposed waiver.
- D. No waiver shall be granted unless and until all fees and costs set forth on Exhibit A have been paid to Gunnison County.
- E. A request for a waiver must be made in writing and identify the following:
 - 1. The name, address and telephone number of the applicant;
 - 2. Identification of the subject property and road;
 - 3. A specific description of the requested waiver (including relevant, proposed construction plans);
 - 4. A detailed explanation of why the proposed waiver is warranted by site specific conditions which create an unusual aspect or feature not shared by property in general; and
 - 5. A detailed explanation of why the proposed waiver:

- a. Would not adversely affect the safe, efficient and orderly movement of motorized and non-motorized traffic;
- b. Would not adversely affect health or safety;
- c. Would not cause substantial injury to the owner or occupant of adjacent land(s);
- d. Would not cause substantial injury to the environment; and
- e. Would provide the functional equivalent of these Standards and Specifications.

6. Any other information required by the Board or Director of Public Works (e.g. survey).

- F. No public hearing is required for a determination of a waiver by the Director of Public Works.
- G. Within fourteen days of receipt by the Board of a complete petition for waiver, to be determined by the Board, the Board shall set a date, time and place for a public hearing on that petition. The Public Works Department shall publish, at a minimum, notice of such hearing once a week, for the two consecutive weeks immediately before the hearing. The applicant for the waiver must notify all property owners adjacent to the road, no later than fourteen days before the hearing, by mailing to each of them, by certified mail, return receipt requested, a complete copy of the request for a waiver and a copy of the notice of the public hearing; the applicant must provide proof of such notification to the Director of Public Works at least seven days prior to the public hearing.
- H. No waiver shall be granted unless the Board, or if applicable the Director of Public Works, determines in writing the applicant has established by clear and convincing evidence that:
1. The waiver is warranted by site specific conditions which create an unusual aspect or feature not shared by property in general; and
 2. The waiver will not adversely affect the safe, efficient and orderly movement of motorized and non-motorized traffic; and
 3. The waiver will not adversely affect health or safety; and
 4. The waiver will not cause substantial injury to the owner or occupant of adjacent land(s); and
 5. The waiver will not cause substantial injury to the environment; and
 6. The proposal will provide the functional equivalent of these Standards and Specifications.
- I. An application for a waiver may be considered concurrently with an application for a land use change unless staff believes there will be significant neighbor or public concern, in which case the waiver will be considered first.

The applicant must prepay the estimated cost of administrative fees, publication and certified mailings as identified in the Schedule of Fees (Exhibit A).

ARTICLE II
ADMINISTRATION

2.1 Road Systems

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

2.1.1 The Colorado State Highway System

The Colorado State Highway System in Gunnison 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 Gunnison County. Within incorporated areas, maintenance responsibilities may be assumed by a municipality 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 Gunnison County is administered by the Colorado Department of Transportation through the State Highway Access Code, and other applicable regulations.

NOTE: The portion of the access from the edge of the CDOT right-of-way to the building footprint must comply with the access requirements in Section 4.5 and Section 7.4.

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

The State of Colorado, by statute, authorizes the Board to administer the County Road System, including but not limited to planning, design, construction, maintenance and traffic regulation of County, public and private roads under County jurisdiction.

A. The Gunnison County Road Map. A Gunnison County Road Maintenance Map has been adopted by the Board of County Commissioners. This Map shall be updated periodically to reflect additions, deletions and alterations to the County Road System. Copies of the County Road Map shall be available from the County Public Works Department for a nominal fee. (See Exhibit A).

B. Road Administration. The Board shall determine the general policies and priorities of the County as to County roads, and public and private roads under County jurisdiction. The Board shall develop planning, design and construction standards, and regulate, inspect and enforce activity conducted pursuant to such standards.

1. The County Public Works Department is responsible for the maintenance, repair and improvement of certain designated County roads and bridges, and the inspection and regulation of utility installation and access points in County rights-of-way.
2. County Maintenance. Gunnison County shall maintain all roads under its jurisdiction for which the County receives gas tax monies pursuant to HUTF reporting. Nothing in these Standards and Specifications creates or shall be construed to create any obligation of Gunnison County to maintain, or to allow private maintenance, of any road or portion of a road; the quantity, quality and frequency of such maintenance shall be in the sole discretion of the Board.
3. County Snowplowing. Nothing in these Standards and Specifications creates or shall be construed to create any obligation of Gunnison County to snowplow, or to allow private snowplowing, of any road or portion of a road; the quantity, quality and frequency of such snowplowing shall be in the sole discretion of the Board.

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 by the public. 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. To reduce jurisdictional problems, municipalities are encouraged to annex full width roads when annexing new areas.

2.1.5 Other Public Roads

Colorado Revised Statutes, C.R.S., Section 43-2-401 declares the following to be public highways:

- A. All roads over private lands dedicated to the public use by deed, to that effect, filed with the County Clerk and Recorder of the county in which such roads are situated, when such dedication has been accepted by the Board of County Commissioners. 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 an order of the Board of County Commissioners duly entered of record in the proceedings of said Board;
- 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 Board of County Commissioners of any county from the incorporators or charter holders thereof and thrown open to the public;
- E. All roads over the public domain, whether agricultural or mineral.

2.1.6 Private Roads

Gunnison County assumes no maintenance responsibility on private roads, and does not regulate utilities on private roads. The use of the 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

No person shall install a traffic control device on a County road or public road under County jurisdiction without prior written permission from Gunnison County; all traffic control devices installed on County roads or public roads under County jurisdiction 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 County Public Works Department. The County Public Works 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. The cost of obtaining such information shall be borne in whole or in part by the project proponent as reasonably determined by the Director of Public Works.

If the need for such device is caused by additional traffic resulting from a new development, the project proponent shall be required to pay all or a pro-rata share of the necessary installation.

2.2.2 Cooperation with Other Entities

Insofar as possible, the County Public Works Department, and other officials of Gunnison 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 Enforcement

- A. These Standards and Specifications shall be enforced in accordance with the requirements of Colorado law and as provided herein. Each enforcement remedy can be invoked by Gunnison County independently or in conjunction with any or all of the other enforcement remedies.
- B. The Board, County Manager and designees, the Director of Public Works and designees, and such other persons as the Board may designate are charged with and authorized to enforce all the requirements of these Standards and Specifications.
- C. Notification To Correct Violation. When a person charged with enforcement of these Standards and Specifications has reasonable cause to believe that any activity is being conducted or any condition exists which is contrary to or in violation of these Standards and Specifications, or any permit issued pursuant to them, the Director shall give written notice to the responsible person, by certified mail, return receipt requested, at that person's last known address. The notification shall state which requirements are being violated, shall state the conditions that are to be satisfied for compliance, and shall state that the violator shall correct the violation within seven (7) days, or sooner, of receipt of the notification. Such written notification is cumulative to, and not a prerequisite to, any other enforcement remedies available to Gunnison County. The Director shall issue a written compliance letter only if the activity or condition that is the basis for the notice has been remedied and any required reclamation work completed.
- D. Stop Order. When a person charged with enforcement of these Standards and Specifications has reasonable cause to believe that any activity is being conducted or any condition exists which is contrary to or in violation of these Standards and Specifications or any permit issued pursuant to them, the Director may, by written notice ("Stop Order") order the activity stopped, and/or condition remedied immediately or by a time certain. The stop order shall be served by delivering it or mailing it certified mail, return receipt requested, to any person engaged in the activity or responsible for the condition. The stop order shall be complied with by all persons. The stop order shall remain in effect until the Director determines that the activity or condition that is the basis for the stop order has been remedied, and the Director issues a written compliance letter only if the activity or condition that is the basis for the notice has been remedied and any reclamation work completed. The issuance of a stop order is cumulative to, and not a prerequisite to, any other enforcement remedies available to Gunnison County.
- E. Suspension or Revocation of Permit. When a person charged with enforcement of these Standards and Specifications has reasonable cause to believe that any activity is being conducted or any condition exists which is contrary to or in violation of these Standards and Specifications or any permit issued pursuant to them, the Board may schedule a hearing to determine whether any relevant permit shall be suspended or revoked. The Board shall give written notice of the hearing to the holder of the permit by mailing notice by certified mail, return receipt requested at the last know address, postmarked at least 14 days before the hearing. The notice shall contain a summary of the grounds for the potential suspension or revocation. At the hearing, the Director shall have the burden to demonstrate, by credible evidence, that the permit should be suspended or revoked. The Board shall suspend or revoke the permit if, after the close of the hearing, and based on credible evidence, obtained at the hearing, either of the following findings is made by the Board:
1. The permit was issued in reliance on materially erroneous or misleading information from the applicant or his/her representative;
 2. Activity is being conducted or a condition exists that is a violation of these Standards and Specifications or a permit issued pursuant to them. Notification of the Board's decision shall be provided by the Director to the holder of the permit by certified mail, return receipt requested, within 7 days of the Board's decision. The suspension or revocation shall remain in effect until the Board determines that the activity or condition that is the basis of the suspension or revocation has been remedied and any required reclamation work completed, and the Board issues a written compliance order. The remedy of suspension or revocation is cumulative to, and not a prerequisite to, any other enforcement remedies available to the Board.
- F. No Processing of Applications. No permit application shall be processed or approved pursuant to these Standards and Specifications, and no Building permit or other permits shall be issued by Gunnison County, for persons or property that is the subject of an existing stop order or suspension order. This enforcement remedy is cumulative to, and not a prerequisite to, any other enforcement remedies available to the Board.

- G. Other Remedies. The Board may seek all civil, criminal and /or other legal or equitable remedies available to it for any violation of these Standards and Specifications. Such remedies are cumulative to, and not a prerequisite to, any other enforcement remedies available to the Board.
- H. Abatement and Reclamation. No compliance order shall be issued unless and until the activity or condition is abated and reclaimed to the satisfaction of the Director of Public Works at the cost of the violator; Gunnison County shall have the right to abate and reclaim the violation at the cost of the violator.

2.4 Inspection

- A. The Director 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 and Specifications 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 and Specifications or of any permit issued or required pursuant to these Standards and Specifications.

2.5 County Road System Additions and Improvements

- A. By the County. The Board may lay out, alter, or change any road in the County Road system under its jurisdiction, and acquire lands for County roads. The County Public Works Department has the primary staff responsibility 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 and Specifications.
- B. By Others. Any road proposed by other than the County to be added to the existing County Road System will ordinarily pass through six review steps: planning, acceptance of design, permitting, acceptance of right-of-way dedication, construction, and inspection. As a final step, the Board may accept maintenance and/or plowing responsibilities for the road. Such activities will comply with these Standards and Specifications.

2.5.1 Planning

The planning or layout of any new road subject to these Standards and Specifications and any improvements to any existing roads subject to these Standards and Specifications shall be in accordance with Article III as it may be amended. If a road is created through the land use change process, all provisions of these Standards and Specifications, and the Gunnison County Land Use Resolution shall be met.

2.5.2 Design

The design of any new road subject to these Standards and Specifications and any improvements to any existing roads subject to these Standards and Specifications shall be in accordance with Article IV as it may be amended. Road and bridge plans and specifications shall be prepared by a Professional Engineer in accordance with these Standards and Specifications and must be approved in writing by the Director of Public Works before any construction activity whatsoever commences. Any 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 and Specifications, as they exist at the time of the amendments, revision or resubmission.

2.5.3 Right-of-Way Dedication/Acceptance

Affirmative written action by the Board is required for County acceptance of any dedication to the public or the County of a road or road right-of-way. The road, however, shall not be maintained or snowplowed by the County until the requirements set forth in Section 2.8 are met.

2.6 Development Improvement Agreement Required

- A. Improvement Agreement Shall Be Required. This agreement is not intended to duplicate any other agreement, permit or financial security required by the County. Public utilities may post financial security such as bond or letter of credit acceptable to Gunnison County. When public or private improvements are a required component of a permit issued pursuant to these Standards and Specifications, the Board shall require as a condition of permit approval, that the applicant execute and fund with Gunnison County a Development Improvement Agreement acceptable to Gunnison County in form and substance, and amount and type of security. The

Improvement Agreement shall constitute the applicant's agreement to construct the public improvements and private improvements identified as requirements of project approval. The Development Improvement Agreement shall specifically identify such requirements including plans, drawings and schedules for completion and shall be substantially in the form referenced in Section E below.

- B. Financial Security. The Development Improvement Agreement shall require the applicant to provide to the County a guarantee of financial security, acceptable to the County, in an amount established by the Board based on no less than 125 percent of the estimated cost of the project, and payable on demand to the County. The purpose of the guarantee of financial security is to assure that the public improvements and private improvements identified as requirements of project approval are timely and fully completed, that all mitigation requirements and permit conditions are timely and fully performed, and that the development area is timely and fully reclaimed.
- C. Ensure Completion Of Improvements. The Development Improvement Agreement shall provide that if the Board determines that any of the required improvements are not timely and fully constructed or if any of the requirements of approval are not performed as provided in the Agreement, including reasonable requirements for the correction of deficiencies upon notice thereof, the Board may draw upon the financial security as may be necessary to complete the improvements in accordance with the specifications included in the Agreement and the Board may exercise any or all of the other remedies available to it pursuant to the Agreement and these Standards and Specifications.
- D. Certification Of Completion And Release Of Security. The Development Improvement Agreement may include requirements for certification of completion, partial releases of the security, and holdover of security to ensure repairs or replacement, demonstrated performance of required facilities, substitution of security, and other requirements deemed appropriate by the Board.
- E. Form Of Agreement. A general form of the Development Improvement Agreement is incorporated in these Standards and Specifications as Appendix J. This form of agreement may be modified from time to time by the County in its discretion without formal amendment to these Standards and Specifications.
- F. Access Permits. The Director of Public Works may waive the requirements for a Development Improvement Agreement, for an access permit only, if she determines in writing, that the permitted improvement and disturbance are minimal.

2.7 Construction

Construction of new County, public and private roads under County jurisdiction and reconstruction of same shall conform to the provisions of Article V of these Standards and Specifications. Surface Alteration Permits shall be obtained as per Section 7.3.

2.7.1 Inspection

Inspections and testing shall be performed to ensure compliance with these Standards and Specifications and any other requirements and conditions before any County Public Works Department recommendation is made to the Board 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.

2.8 Acceptance of Roads for Dedication to the County and for County Maintenance.

- A. Dedication can be statutory, by common law, express or implied, or by written instrument at the sole discretion of the Board.
- B. Conditions for new dedications by written instrument. Required Language – any instrument of dedication must be on a County form and include language approved by the Gunnison County Attorney.
- C. Requirements for acceptance.
 - 1. The road shall have been constructed in accordance with these Standards and Specifications.
 - 2. The Director of Public Works shall have completed final inspection and shall have approved the roads in accordance with Article V of these Standards and Specifications and shall have recommended acceptance.

3. The road must connect to another maintained County road, state highway, or municipal street of the same or higher functional classification.
4. A request for acceptance of the road shall have been submitted to the County Public Works Department. The application shall have been submitted at least two weeks before performance of the final inspection. An application for acceptance will not be accepted by the Director of Public Works, nor will any inspection be performed when, in the sole discretion of the Director, weather conditions prohibit a complete inspection.
5. All required road signs and traffic control devices shall have been installed in accordance with the Manual of Uniform Traffic Control Devices. Reflective signs showing road numbers or street names shall be installed to facilitate emergency services response.
6. A guarantee of financial security shall have been submitted to the County in an amount determined by the Board to warrant the integrity of the road construction for one (1) year after the date of the acceptance by the County. In the sole discretion of the Board, such time period may be enlarged. 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 shall have been installed in the roadway prior to finishing subgrade. All laterals crossing the roadway shall have been installed prior to the road inspection.
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 Specifications and as required by any permit shall have been submitted to and approved by the Director of Public Works 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 Director of Public Works. 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 Director, the copy shall become and remain the property of the County. An Ascii DXF file in any AutoCad Format (or other files as required by the County) shall be submitted (no proprietary information is necessary).
11. Such other conditions as the Board deems necessary for public health, safety, or budget constraints shall have been satisfied. The Director of Public Works in his/her sole discretion shall assign the road a Level of Service rating.

D. 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 and Specifications. 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 County Road System by the Board pursuant to the waiver process set forth in Section 1.9.

2.8.1 Private Road Construction and Inspection

The construction or extension of a new private road that is subject to the Gunnison County Land Use Resolution shall comply with the process and procedures set forth herein for a County road except that:

- A. Section 2.4 b, shall not apply;
- B. The guarantee required by Section 2.4 b, shall warrant the integrity of the road construction for no less than one year after such construction is completed and is accepted by Gunnison County.

2.9 Deletions from the Road System

2.9.1 Abandonment

- A. Abandoned State Highway. When a portion of a state highway is relocated and, because of such relocation, a portion of the route as it existed before such relocation is, in the opinion of the State Transportation Commission, no longer necessary as a State Highway, such portion shall be considered as abandoned. If it appears that the abandoned portion is necessary for use as a public highway, street or road, or other public purpose the abandoned portion shall become a County road, upon adoption of a resolution to that effect by the Board. Such resolution shall be adopted within ninety days after such abandonment. If the portion of the road is not needed for a public purpose, title to it shall revert to the owners of the land through which such abandoned portion may lie subject to the provisions of state law.
- B. Abandoned County Roads. A County road shall be abandoned only when a portion of the County Road System is relocated and because of such relocation a portion of the route as it existed before such relocation is, in the written and recorded opinion of the Board, or no longer needed for a public purpose; in such a case, such portion shall be considered as abandoned, and title to it shall revert to the owners of the land through which such abandoned portion may lie, subject to the provisions of state law.

2.9.2 Policy and Procedures Regarding Vacation of County Road or Public Road Under County Jurisdiction

A. Purpose.

The purpose of this section is to establish standards and a uniform process by which the Board will act on request to vacate a county road or public road under county jurisdiction.

It is the intent of the Board in adopting this section to exercise the Board's authority pursuant to, among other statutes, C.R.S. 43-2-301 et. seq.

On occasion, vacation of all or a portion of a county road or public road under county jurisdiction may be warranted due to specific circumstances or changes in traffic or development patterns. In those limited circumstances, the Board has discretion, but no obligation, to vacate all or a portion of a county road or public road under county jurisdiction. No such road shall be vacated so as to leave any parcel adjoining such road without an established public road connecting said parcel with another established public road.

The applicant for a vacation shall bear the burden to prove to the Board that the request meets the criteria of C.R.S. 43-2-301 et. seq. and these Standards and Specifications.

This wisdom of granting a vacation is a matter committed to the discretion of the Board and is not controlled by any one factor. In determining whether to grant a request to vacate all or a portion of a county road or public road under County jurisdiction, the Board shall consider the following criteria:

1. Requirements of C.R.S. 43-2-301 et. seq.;
2. Consistency with any comprehensive plan adopted by Gunnison County;
3. Vacation shall not restrict access to any parcel so that access is unreasonably difficult or costly;
4. Not disruptive to existing travel modes;
5. Changed conditions in traffic or development patterns;
6. Anticipated conditions in traffic or development patterns;
7. No adverse impact to natural environment;
8. Community needs;
9. Public health, safety and welfare;
10. No conflict with other established County roads or public roads under County jurisdiction;
11. No increased risk to emergency services personnel;
12. Benefits outweigh detriments;
13. Public benefits; and
14. Effect on maintenance of structures deemed necessary by the County.

B. Application Process.

The applicant shall complete and file with the Director of Public Works three copies of an application in the form required by the Director with ten copies of all attachments.

At a minimum the request must contain:

1. Applicant's name, address and phone number.
2. Legal description if not a platted street or alley.
3. Name, address, phone number for person or firm authorized to represent the applicant.
4. Map showing location of section to be vacated which also shows names and addresses of all owners of property adjacent to the section or street or alley to be vacated.
5. If any portion of the street or alley is within a subdivision or is adjacent to a subdivision lot the applicant must provide the names and addresses of all property owners within the subdivision.
6. Survey by a Colorado licensed surveyor of adjacent properties and street right-of-way.

The Director of Public Works will forward copies of all information to the County Attorney and the County Planning Director and other County Departments that might have an interest.

The applicant for the vacation must notify all property owners adjacent to the road, postmarked no later than fourteen days before the hearing, by mailing to each of them, by certified mail, return receipt requested, a complete copy of the request for a vacation and a copy of the notice of the public hearing; the applicant must provide proof of such notification to the Director of Public Works at least seven days prior to the public hearing.

As applicable, letters of consent to the vacation from utility companies whose facilities are located in legal easements in or adjacent to the proposed vacation, and a copy of the easement agreements, if such agreements exist, must be provided to the Director of Public works at least seven days prior to the public hearing.

A staff recommendation based on information available will be prepared for the Board before a public hearing is held (the recommendation may change based on public input).

The County Attorney's office will finalize the necessary documentation if the street vacation is approved by the Board.

Any condition required by the Board must be completed before the vacation shall be made effective.

A precondition to granting any vacation shall be the granting and recording of perpetual easements for all existing and proposed utilities on the right-of-way being vacated.

The applicant for a vacation shall will be required to prepay all estimated costs, including but not limited to administrative costs, costs of publication of legal notice of public hearing, travel time and cost of certified and regular mailings, pertinent to application, whether or not the application is granted. (See Exhibit A).

2.10 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 Director of Public Works. 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 Gunnison County Land Use Resolution. No road names or numbers shall be used which will duplicate, or be confused with, the names of any existing street or road in Gunnison County.

The County will be responsible for changing the applicable road 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.

2.11 Snowplowing

Gunnison County shall not snowplow any road unless and until such road has been dedicated to the public use and accepted for County maintenance by the Board except that it shall be in the sole discretion of the Board to determine from time to time which such roads so dedicated and accepted will be plowed by the County.

A. Policy and Procedures for Requests for Gunnison County to Provide Snow Removal Services on County Roads.

It is the policy of the County not to provide snow removal services on private non-public roads.

In addition to the requirements of the Gunnison County Land Use Resolution, Section 5-210, a request for the County to provide snow removal services on a County road, or public road under County jurisdiction, to an area not currently being served shall be submitted in written form to the Director of Public Works. The written request shall include at a minimum:

1. The applicants name, address and telephone number.
2. The name and number of the road requested to be plowed.
3. If necessary, a map designating the portion of the road to be plowed.
4. The distance to be plowed.
5. If required, evidence that the road is a public road.
6. Other information that may be required by the Director of Public Works.
7. A list of property owners benefiting from the proposed service.
8. The reason the plowing is being requested.

All requests shall be submitted to the Director of Public Works before September 1 of the year when plowing is requested to begin. Requests received after September 1 will be considered as requests for the following winter season.

Upon receipt of the request, the Director of Public Works shall conduct a site visit and prepare evaluation report for the Board. 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 Director of Public Works shall be submitted to the Board. All requests shall be considered in a public meeting of the Board. At its discretion, the Board may approve or deny the request for the County to plow the road. The Board may conditionally approve the request based on, but not limited to, the following conditions:

1. The frequency, duration and extent of snow plowing services to be provided.
2. Property owners' financial participation in preparing the road for snow removal.
3. A time limit with periodic review for continuation of the service.

The County shall exercise its appropriate, lawful authority to ensure compliance with this section.

B. County Policy and Procedures for Requests by Private Individuals to Plow a County Road or Public Road under County Jurisdiction

The purpose of this section is to outline the procedures and criteria by which the Board will consider requests presented to perform private snow removal on a County road, and public roads under County jurisdiction.

No person shall remove snow from a County road, or public road under County jurisdiction without first receiving permission from the Board and a Snow Removal Permit issued by the Director of Public Works.

If an applicant is requesting permission to plow all or a section of road that has not been previously plowed they must first obtain a Land Use Change Permit per section 5-210 of the Gunnison County Land Use Resolution. After that permit is obtained, the applicant will only need apply for the yearly permit from the Director of Public Works.

The requirements and procedures set forth herein and in the permit shall 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 Director of Public Works may allow a private individual or company to remove snow from all or part of a County, or public road under County jurisdiction. If issued, the permit will be for a single season. The applicant must apply yearly.

A request to plow a County road, or public road under County jurisdiction, shall be made in writing to the Director of Public Works. The written request shall 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, address, and telephone number of the person(s) responsible for snow removal.
6. The names and mailing addresses 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.

Requests to provide snow removal must be submitted to the Director of Public Works no later than September 1 of the year when plowing is requested.

Upon receipt of the request, the Director of Public Works shall conduct a site visit and prepare an evaluation report for the Board. 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 allowing snow removal service.

If the plowing is authorized by the Board, the Director of Public Works 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 applicant unless otherwise agreed to by the County.

For the purposes of this section, snow removal work shall include: (1) removal of snow from all the traveled way, including sufficient turnouts for safe and efficient use of all emergency and other 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, the Board may request a bond or a cash deposit to secure performance according to this section. The amount of security required will be relative to the distance being plowed, and the surface of the road.

The applicant shall acknowledge in writing that he/she has read, understands and agrees to comply with the conditions set forth in this section 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 section.

Nothing in this section is, or shall be construed to be, an obligation of the Board to permit the private snowplowing of all or part of any particular road.

2.12 No Personal Liability

Any County official, employee or agent charged with enforcement of these Standards and Specifications who acts in good faith in the discharge of the duties required herein or by any permit, other pertinent law, ordinance or regulation shall not thereby be rendered personally liable for any damages that may accrue to any person or property as a result of an act or by any permit, omission to act in the discharge of these duties.

2.13 No County Liability

These Standards and Specifications do not make, and shall not be construed to make, Gunnison County or any of its officials, employees or agents responsible for or liable for any injury to person or property resulting from any action taken pursuant to these Standards and Specifications.

2.14 Responsibility Not Lessened

These Standards and Specifications do not, and shall not be construed to, relieve from or lessen or eliminate the responsibility of any person acting pursuant to a permit issued hereunder for any damages to person or property.

2.15 No Waiver of Governmental Immunity

Nothing in these Standards and Specifications is, or shall be construed to be, a waiver by Gunnison County, or any of its officials, employees or agents, of governmental immunity under the Colorado Governmental Immunity Act or otherwise.

ARTICLE III

TRANSPORTATION PLANNING AND DEVELOPMENT POLICIES

3.1 Functional Classification of Roads

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

Major Arterial (Paved)

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

Commercial/Industrial Collector (Paved or Gravel)

13 to 500 ADT Heavy duty traffic - significant economic importance to County (example: Landfill Road/Industrial Park Roads)

Suburban Lane (Paved or Gravel)

13 to 500 ADT Primarily residential traffic -- width needed for parking and other density factors (example: Crested Butte South)

Rural Arterial (Paved)

1,000 to 2,999 ADT Residential, commercial and recreational traffic - significant economic importance to County (example: Gold Basin, Marble, Brush Creek, Cement Creek, and Taylor River)

Rural Collector (Paved)

500 to 999 ADT Primarily residential or recreational traffic, but some commercial (examples: Cottonwood, Gold Basin after KOA, Washington Gulch, Slate River, Antelope, Kebler, and Lower Quartz Creek)

Rural Local (Paved or Gravel)

200 to 499 ADT Primarily residential, recreational, and ranching uses (examples: Powderhorn, Upper Quartz Creek, Kebler over the top, Brush Creek after Avion, and Gothic Road after Mt. Crested Butte)

Rural Lane (Gravel Road)

91 TO 199 ADT Primarily residential or agricultural use (examples: Little Cimarron, Pine Creek, Sap Mesa, and Steuben Creek)

Local Intermittent (Native surface/Gravel)

13 TO 90 ADT Primarily recreational, residential or commercial traffic (logging). May be joint jurisdiction, such as forest service and county and maintained by county under agreement. Can be access to National Forest and Bureau of Land Management lands. (Examples: Rainbow lake, Alpine Tunnel, Red Creek and Upper Taylor River above reservoir.)

Primitive Recreation (Native Surface)

No ADT Available - Limited use only

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 Gunnison County Land Use Resolution and, if applicable, the Gunnison 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 Director of Public Works and shall align with the centerline of existing rights-of-way.

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.

Environment – design should minimize the impact of road construction in sensitive areas.

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, patterns 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 Arterials. 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 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 should normally not be longer than six hundred (600) feet. All cul-de-sacs shall have a minimum radius of forty five (45) feet of maintained and plowed area as measured to the outside edge of the traveled surface.

Roads which do not connect or intersect with other roads shall have a cul-de-sac, loop design, or a "Y" or a "T" turn around at the end of the road segment. 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 dwellings or other structures. "T" turnarounds shall be a minimum of twenty (20) feet from any flammable structure. (See Appendix E for Turnaround Standards.)

ARTICLE IV

Design Standards

4.1 Application of Design Standards

4.1.1 Minimum 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 Director upon review and approval by the Director of plans submitted and signed by a professional engineer. Life cycle cost shall be considered in meeting minimum acceptable values.

4.2 Design Factors

4.2.1 Road Classification

Each road proposed for construction or improvement shall receive from the Director a functional classification as defined in Section 3.1. 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. This report is available for review in the Gunnison County Planning Department.

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 Gunnison County Planning Director shall be used to adjust average daily traffic volumes to design hourly volumes.

The Director of Public Works shall consult with the County Planning Director 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 road developer.

4.2.3 Terrain Classification

For the purpose of these Standards and Specifications, the terrain in Gunnison 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	
<u>Functional Classification</u>	<u>Design Speed</u>	<u>Posted Design Speed</u>	<u>Design Speed</u>	<u>Posted Design Speed</u>
Arterial	60	45-55	50	30-40

Collector	45	30-40	40	30
Local Road	25	20-25	25	20
Lane or Place	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:

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

In some cases, passing sight distance may be required on collectors or arterials. 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 superelevation for the various functional classifications. The tables are based on design speed, friction factors, and superelevation, and do not consider sight distance.

Sudden reductions in speed introduce the element of surprise to the driver and should be avoided. 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 a 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. Superelevation. 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 superelevation rates shown on Table 4-1 through Table 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 superelevation is usually the centerline. Where curves are preceded by long relatively level tangents, the plane of superelevation may be rotated to about the edges of the pavement to improve the perception of the curve.

A superelevation transition is variable in length depending upon the amount of superelevation. 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 superelevation 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 Roadway Design Manual.

- 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.

Maximum permissible sustained grades (expressed in percents) for new roads are related to design speed and shall be as follows:

(Design Speed - MPH)

Terrain Classification	15	20	25	30	40	50	60
Flat and Rolling	6	6	6	6	6	5	4
Mountainous	11	10	9	9	8	6	NA

The maximum design grade should be used infrequently rather than as a value to be used in most cases. For short grades less than three hundred (300) feet, the maximum gradient may be increased by one percent.

In flat or rolling terrain, all grades shall flatten to four percent for at least one hundred (100) feet approaching intersections, and for at least fifty (50) feet entering and leaving turn-arounds or cul-de-sacs. In mountainous terrain, all grades shall flatten to six 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 may develop poor drainage at the level section. This must 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 Section 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. Variations from these sections may be approved by the County 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)
Portland Cement	1.5
Bituminous Mix Pavements	2.0
Penetration Treated Earth or Gravel	2.0
Unsurfaced Graded Section	2.0

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 Department of Transportation Standard Specifications for two feet curb and gutter Type 2, unless otherwise approved by the County Public Works 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 flattened. The ditch at the lower end of the cut shall be widened gradually to discharge side ditch drainage away from base of adjacent fill slopes in order to avoid erosion and improve appearance.

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 movement of physically handicapped persons, including those in wheelchairs.

4.4.8 Trails

Recreation path standard specifications may be developed by Gunnison County. All submittals for trails will be reviewed by the Trails Commission and should conform to the Gunnison County Trails Master Plan as amended.

4.4.9 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 and Specifications, 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 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, and taper to a minimum surface width of sixteen (16) feet at a distance of six feet from the edge of the road, and maintain this surface width to the end of the driveway. All such driveways shall be constructed with the following minimum section dimensions:

<u>Driveway Material</u>	<u>Minimum Section Depths</u>
Concrete	6 inches;
HBP	2 inches with 6 inches Class 6 aggregate base course;
Gravel	6 inches Class 6 aggregate base course;
Native Material	Permissible only if access road is native material or native material provides structural stability and an all-weather driving surface.

and shall be installed in accordance with both an approved driveway permit and all applicable sections of these Standards and Specifications. Access to a County road or right-of-way must be obtained as described in Section 7.4.

The maximum grades for driveways shall be 11%. 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 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 and install, at his own expense, drainage structures at entrances and exits which will become an integral part of the existing drainage system. The dimensions of all drainage structures must be approved by the Gunnison County Public Works Department representative prior to installation. The minimum size of culvert installed parallel to the road will be 12" diameter. Maintenance of the culvert shall be the responsibility of the property owner.

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 new 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 one hundred (100) feet of property frontage.

In the case of flared driveways, 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 five (35) feet.

Intersecting public and private roads shall be located opposite each other where possible or be offset by a minimum of one hundred twenty five (125) feet.

Driveways shall have an all weather driving surface. In the case of a native material road, the driveway shall match the existing surface.

Driveways shall have a minimum surface width of 18 feet at the edge of pavement or road surface and taper to 16 feet at a distance 6 feet from the edge of the road and maintain this surface width to the end of the driveway.

Driveways which are in excess of 600 feet in length and are single lane shall be required to have standard inter-visible turnouts. (See Appendix D).

Driveways at the End of the Road – Driveways 150' or longer in length that end at a private residence, a business or structure larger than 600 square feet, shall have a cul-de-sac, loop design or a "Y" or "T" turn around adequate to accommodate emergency service vehicles. "T" turnarounds shall be a minimum of 20' from any flammable structure. All turn around areas shall be kept open and clear, and shall have sufficient area for snow storage outside of road prism, and shall be plowed by the owner in the winter. (See Appendix E).

Driveway designs that allow for backing onto or off of a county road shall be evaluated on a case-by-case basis. Lot size, proposed house location and traffic volume and speed can be used as determining factors. The Director of Public Works will make the final determination.

Any driveway permit application that is over 250 feet in length and has the potential to be used for a road for future development may be referred to the planning office for proper review.

Driveways shall be constructed to meet all Standards and Specifications from the edge of the County road, or public road, or private road under County jurisdiction, to the building footprint.

Driveways on steep uphill or downhill will require a flat landing area for a minimum of 30 feet before the intersection with the edge of the road.

A temporary access road as defined herein shall be required to meet all Standards and Specifications only from the edge of the road to the property line.

Adequate vehicle parking must be provided on the private parcel. No parking along the road will be permitted.

Any overhead entry structures shall be at least 13' 6" high, measured from the road surface.

4.5.1 Access to Arterial Roads

- A. Private Direct Access. Private direct access to major and rural arterial roads 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 a 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 arterials and one-quarter (1/4) mile intervals for gravel arterials, plus or minus approximately 200 feet. Where topography makes such spacing inappropriate, location of public approaches shall be determined by topography, property ownerships, 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 Director of Public Works for review prior to the issuance of a Driveway Permit and shall be paid for solely by the applicant.

4.5.2 Access to Collector Roads

- A. Private 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.

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 (100) feet from the centerline of the intersecting road for commercial driveways and fifty (50) 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/Lanes

- A. Private 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 safety and efficient use of the property.

Driveways located near an intersection shall be constructed so that the side nearest the intersection is no less than one hundred (100) feet from the centerline of the intersecting road for commercial driveways and fifty (50) 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 should be avoided. 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 twenty (20) 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.

4.6.3 Sight Distance

- A. The required stopping sight distance necessary, as measured from the traveling vehicle to the intersection or access approach, shall be determined according to Section 4.3.1 (B).
- B. Table 4-7 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.

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 Department of Transportation Roadway Design Manual.

4.7.2 Pavement Structure Design Report

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

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

- 1. Soil logs along the proposed roadway alignment at a maximum of five hundred (500) intervals.
- 2. Each log shall have a soil profile of a least four (4) feet below proposed subgrade elevation.
- 3. Representative samples for pavement design from each log shall be within two (2) feet below proposed subgrade elevation.
- 4. Each representative sample shall be classified according to the AASHTO Unified Soil Classification Table, along with an Atterberg Limits Test and sieve analysis.
- 5. The pavement design procedure is based on the Hveem Stabilimeter Test or the Expansion Pressure Test, which is used to compute a Resistance Value (R) of the subgrade. The California Bearing Ratio test may also be used to determine design parameters.
- 6. Proposed average daily traffic volumes (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.
- 7. 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:

1. 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.
2. The serviceability index (SI) for private roads, collector roads, local roads, and lanes will be 2.0. (See Figure 4-2). The SI for arterial, will be 2.5. (See Figure 4-3).
3. The regional factor shall be summarized as per Table 4-8. In no case will regional factor be less than 2.00.
4. Evaluation of subgrade soils and pavement structure materials shall follow the procedure in the Colorado Department of Transportation Roadway Design Manual and Table 4-9 of these Standards and Specifications. Evaluation of subgrade soils shall be revised as per Section 4.7.2 (E).
5. 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 subgrade with lime or cement, a thinner structure section may result. Also, the use of asphalt treated base or cement treated subbase or ridged 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.

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 Department of Transportation 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 1/2 inches.

4.8 Drainage

4.8.1 Applications

This section presents minimum required standards for the design of road drainage systems. Design of ditches, storm sewers, drainage courses and drainage crossings shall be performed by an engineer. 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.

1. Minor Drainage Basin. A minor drainage basin will consist of a surface area less than one hundred (100) acres. All water courses and structures in a minor drainage basin shall be designed for ten year storms.
2. Major Drainage Basin. Drainage basins with surface areas greater than one hundred (100) acres shall be classified major drainage basins, in which one hundred (100) year storms shall be used as design criteria.

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 $Q=CIA$

Where:

Q - Peak discharge in cubic feet per second (cfs)

C - Coefficient of runoff (dimensionless)

I - Average rainfall intensity for a duration equal to the time 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 concentration 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 Gunnison County where peak flows occur from seasonal snow melt. Also, where large watersheds are expected to undergo significant urbanization, computer simulation techniques should be utilized, such as the HEC I 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 aluminum, corrugated steel, or acceptable polymers. The minimum pipe size installed perpendicular to the road shall be an 15 inch diameter round pipe or shall have an equivalent 15 inch diameter round cross sectional area for other shapes.
- 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.
- C. Velocity. A minimum culvert velocity of three feet per second is recommended in order to assure a self-cleaning condition.

The maximum culvert velocity is dictated by the channel conditions at the outlet. If the outlet velocities are less than seven fps for grassed channels, then only a minimal amount of protection is required. Higher outlet velocities will require substantially more protection. The maximum outlet velocity shall be twelve (12) fps along with the proper erosion protection.

- D. Structures. All culverts, as a minimum, shall be designed in accordance with the procedures of AASHTO Standard Specifications for Highway Bridges and with the pipe manufacturer's recommendations.
- E. Irrigation Ditches. All ditches may cross roads, but shall not parallel a road within the road right-of way.

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 Director of Public Works shall be installed. (See Table 4-10).

The most desirable roadside drainage ditches are those lined with grass. The grass will stabilize 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. Erosion protection design must be approved by the County Public Works Department.

4.8.6 Bridges and Low Water Crossings.

All private or public bridges over waterways will meet legal load limit requirements, have an Army Corp 404 permit, and obtain a Flood Development Permit from the Gunnison County Planning Department before construction may begin.

- 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 equal to width of the approach road sufficient to provide service for proposed use.
 - 2. Grade Criteria: Minimum of 0.5 percent / Maximum of 4.0 percent
 - 3. 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 or other spanning material 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 one 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 AASHTO Standards for the use being served. 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. Designs for said structures shall be reviewed for approval by the Gunnison County Public Works Department. Upon approval of the plans, any person, partnership, association, or corporation desiring to have such a bridge constructed 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/CDOH 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 County Public Works Department. 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 County Public Works Director shall submit the petition to the Board for acceptance into the County Road System.
7. All bridge abutments shall be located to avoid adversely affecting the natural hydraulics and inundation characteristics of wetland areas.

B. Standards for Low Water Crossings. The design and supporting calculations for all low water crossings must be prepared and signed by an engineer. The following are minimum standards for private low water crossings.

1. A minimum clear roadway width sufficient to provide service for proposed use.
2. Grade criteria: Minimum of 0.5 percent / Maximum of 10.0 percent
3. Side slopes shall not be steeper than 3:1 and shall be protected by a six-inch concrete facing or by eighteen (18) inch rip-rap.
4. The culverts used must be a minimum of fifteen (15) inches in diameter.
5. Minimum cover over the culverts will be as follows:

Round pipe – twelve (12) inches or as recommended by the manufacturer

Arch pipe – twelve (12) inches or as recommended by the manufacturer.
6. Hydraulic criteria: Culverts shall have the capacity to carry the ten-year peak discharge from

that stream, with a HW/D ratio not to exceed 1.5.

At no time shall the waterway section at the crossing cause a significant rise (one foot) in the intermediate regional flood elevation or cause flows to accelerate to velocities greater than those expected during the intermediate regional flood.

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 Millennium 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 (i.e. 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 the County Public Works Department's ability to maintain the signs after acceptance. Materials shall require the review and approval of the Gunnison County Public Works Department. Signs and barricades shall be in place prior to road acceptance.

4.9.2 Guardrail

Guardrail may be required by the Public Works Department based on to 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 exist:
 - 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. Approach guardrail for bridges on roads classified as Major Arterial, Suburban Collector, Suburban Lane, Rural Arterial or Rural Collector shall conform to current Colorado Department Standards. Approach guardrail for bridges on roads classified as Rural Local, Rural Lane, Local Intermittent or Primitive Recreation shall conform to these Standards and Specifications. (See Appendix I).

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. Cattle guard and gate design shall be approved by the Director of Public Works prior to installation.

Appendix H is a drawing of the standard 24 foot cattle guard built and used by the Gunnison County Public Works Department.

4.10 Utilities

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 feet (28') from the centerline of all existing roads.

When a utility company must make an emergency repair on a County road to restore service, they may do so. The company should notify the Director of Public Works within 48 hours, and repair the site as soon as possible.

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 Director of Public Works may, in her 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: two unsuccessful attempts have 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; approved in advance by the Director of Public Works.

Cutting existing asphalt shall be accomplished so as to provide a neat even line perpendicular to the centerline of the roadway, unless otherwise approved by the Director of Public Works in advance.

- C. When an open cut is allowed, the permittee is responsible for restoring the disturbed portion of the roadway to its original condition. The disturbed area shall be repaired within forty-eight (48) hours from the time of excavation, or twenty-four (24) hours from completion of the project within the roadway. When weather conditions prohibit complete repair the cut must be left in an acceptable condition for public use. The final repair must be done as soon as weather permits. Any repairs not completed within 48 hours must be pre-approved by the Director of Public Works. (See Figure 4-4).

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 Transportation, Division of Highways, State of Colorado, Standard Specifications for New Road and Bridge Construction, latest edition) may be used or required when existing material is unsuitable.

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

1. One test at 1/2 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 Director of Public Works upon submittal of an acceptable surety guaranteeing repair or replacement of failures within a one year 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 28-days may be used at the approval of the Director of Public Works. 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 Transportation, State of Colorado, Standard Specifications for New 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 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 twelve 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 corral, 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 County Public Works Department may require a construction signing plan prior to the granting of this permit. If proper signs are not in place during the work, the Director of Public Works or authorized representative shall immediately stop all work until proper signs are in place.
- F. Utility placement by plowing may 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 Section 4.10.1.C.
- G. When a road closure due to utility installation becomes necessary, the permittee shall notify the Gunnison County Sheriff's Office and/or State Patrol, ambulance, fire department, and school district stating duration of all road closures. All road closures must be approved by the Director of Public Works in writing in advance of road closure.
- H. No cledated 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 Director of Public Works may require that road surfaces be washed. (C.R.S. Section 42-4-1207)
- J. Requests for utility permits should allow **48 HOURS** for a field review by the County Public Works Department prior to the issuance of any permit.
- K. Construction of underground installations will generally require the services of an inspector approved by the County Public Works Department. All extraordinary costs related to such inspection will be borne by the permittee.
- L. A copy of the fee schedule for Underground Utility Permits is available from the County Public Works Department. Failure to obtain a permit when working within the County road right-of-way will result in a fee five (5) times the regularly scheduled fee.
- M. 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 Director of Public Works.
- N. 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.
- O. No placement of underground utilities will be allowed when there is more than four inches (4") of frost present.

- P. Utility Locate Markers. All flagging feathers used for utility locates shall be removed by the applicant before release of financial security.
- Q. As Built Plans. All applicants for surface alteration or road cut permits will be required to submit a complete set of as built plans before the final release of financial security.
- R. 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 500 square feet or greater must be revegetated. Revegetation requirements for soil disturbance less than 500 square feet will be at the discretion of Gunnison County. (See Appendix G).
- S. 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 Gunnison Basin Integrated Weed Management Plan; Board Resolution 95-74, require 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, or 4) physical control. Contact the Gunnison County Weed Specialist for the current list of noxious weeds mandated by law to be controlled and for assistance in weed identification and control methods.

4.11 Procedures for Improvements in Right-of-Way

A. Purpose and Procedure.

The purpose of this section is to establish public works, engineering, inspection, permitting and other requirements that must be met before a structure, repair or other improvement (including but not limited to or temporary construction parking) can be placed by a public or private property owner within the right of way of a County road, or public road under County jurisdiction, or private road under County jurisdiction while a Development Improvement Agreement for such road is in effect.

No person or persons shall begin work on a proposed structure, repair or improvement, or make substantial renovation to an existing structure, repair or improvement, within a County Right-of-Way, a County road, or public road under County jurisdiction, or private road under County jurisdiction while a Development Improvement Agreement for such road is in effect, except as specifically permitted herein, without first obtaining a Revocable Right of Way Permit to erect or maintain a structure, repair or improvement on a right-of-way from the County. A separate permit will be required for each structure, repair or improvement proposed, unless a group or series of structures are proposed at one time.

Note: Installation, maintenance, or improvements of a utility in, on or below a County Road or public road under the jurisdiction of Gunnison County shall require:

1. **A revocable permit for improvement in the right-of-way**
2. **A road cut or surface alteration permit.**

A permit will not be required, and the structure, repair or improvement considered exempt, for the following:

1. Minor or insubstantial maintenance to an existing specific structure. Such work includes, but may not be limited to, cleaning, painting or other minor resurfacing to an existing structure or structures; repairing or mending an existing structure or structures.
2. Any work within the right-of-way to repair or maintain existing irrigation ditches or impoundments.
3. The only person who can determine that a proposed structure, or improvement or maintenance is exempt, shall be the Director of Public Works.

Whenever Gunnison County determines that an existing structure or structures, improvement or improvements, approved or not approved, becomes a hazard to public safety or interferes with the County's maintenance or structure plans for the right-of-way on which it is placed, the owner of the property which the structure benefits, upon receipt of written notice from the Director of Public Works or his representative shall, within the period specified therein, repair or eliminate said structure(s) or improvement (s), so as to eliminate the hazard or impedance and be in conformance with the requirements contained herein.

Requirements contained herein may be enforced as set forth in Section 2.3.2.

To receive a permit to erect or maintain a structure or improvement in a public right-of-way, each applicant is required to submit a Revocable Right-of-Way permit application form and any associated plans or specifications required by the County. The applicant is advised to meet with the County Public Works staff members prior to application submission to insure that all necessary information is provided.

Two (2) sets of plans and specifications shall be submitted for review by the Director of Public Works or her representative. If required by the County, these plans and specifications shall be prepared and signed by a Colorado Registered Professional Engineer. In all cases when they are requested, the plans and specifications shall show the following:

1. Structure(s) plan and profile;
2. If the structure(s), repair(s), or improvement(s) impact existing roadside drainage, a plan showing how such impacts shall be mitigated by the applicant;
3. Map or letters from utility companies detailing utility placement in the area of the proposed structure(s);
4. Any relevant current land use approvals;
5. Map showing property ownership and easements. Director of Public Works may require a survey.
6. Proposed structure(s), repair(s), or improvement(s) design and site plan, showing reclamation/revegetation plan if hillsides are to be disturbed or if fill or cut is to take place as part of the plan;
7. Signage plans, if any; and
8. Maintenance requirements and plan.

Supplemental reports and data (i.e., geology, soils, water, drainage, wildlife, etc.) may be required. Supplemental reports are to be prepared by qualified professionals as required by the Director of Public Works or her representative.

Gunnison County shall have the reasonable right to have all plans, specifications and supplemental reports reviewed by qualified professionals identified by Gunnison County at the cost of the applicant.

As a condition of approval, the applicant shall execute and fully fund a security agreement in the form and amount determined by the Director of Public Works and County Attorney.

Neither the issuance of a permit nor compliance with the provisions hereof or with any conditions imposed in the permit issued hereunder shall relieve the applicant from the full responsibility for any damage whatsoever caused to persons or property, nor impose any liability upon any official, appointee, or employee of Gunnison County for damage to person or property. Nothing herein is or shall be construed to be a waiver by Gunnison County of governmental immunity.

The application shall be denied if the Director of Public Works determines that it is not in the public interest or that it will adversely affect public health, safety, or welfare.

Whenever a permit is required by this section and the permit is denied by the Director of Public Works, or his/her designee, the applicant for the permit may, within fifteen (15) days from the date of such denial, request in writing to the Director of Public Works, an appeal of the denial to the Board. The Director of Public Works shall, within fifteen (15) days of receiving the request, submit to the Board the written request for the appeal, and any administrative record consisting of documents considered by the Director of Public Works in her denial, including the application for the permit and all relevant documents. The Board will then decide, based upon a review of the record, whether to accept or reject the decision of the officer, within thirty (30) working days of receiving the permit application and all relevant documents. The Board may, in its discretion, request additional or other information from the applicant, the county officer who issued the denial, or other county staff. The decision rendered by the Board is the final decision of the County. For Gunnison County "Revocable Right-of-Way Permit" application information please refer to Section 7.7.

For fee information see Exhibit A.

ARTICLE V

CONSTRUCTION SPECIFICATIONS

5.1 General Policies

5.1.1 Gunnison 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 and Specifications, the applicable sections for the most current edition of the Department of Transportation, State of Colorado Standard Specifications for New Road and Bridge Construction, Colorado Standards Plans, Division of Highways M & S Standards, American Association of State Highway and Transportation Officials, and the Standard Specification for Highway Bridges.

If these Standards and Specifications or the Department of Transportation 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:

1. Gunnison County Standards and Specifications for New Road and Bridge Construction
2. Department of Transportation, State of Colorado, Standard Specifications for New Road and Bridge Construction; Standard Plans; M & S Standards
3. AASHTO Standard Specifications for Highway Bridges

The County shall be the final authority on the meaning or interpretation of all specifications.

5.1.2 The Project Engineer

Each road developer shall designate to the County Public Works Department a person who shall be responsible for general compliance with these Standards and Specifications, 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 County Public Works Department upon completion of all work to be performed on the project as a condition of final approval 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 inches (4").

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 County Public Works Department to ensure compliance with these Standards and Specifications, and the applicable provisions of the land use change conditions, approved plans, or subdivision agreement.

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

To ensure compliance with these Standards and Specifications 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.

All materials testing shall be performed by an independent laboratory, under the supervision of a professional engineer. 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 and Specifications, approved permits, and/or development improvement agreements shall be brought into compliance at the Contractor's or 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 be 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 proposed road and bridges submitted to Gunnison County for approval shall be drawn on standard plan and profile sheet 23" x 36".

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

Profile drawing shall be on a scale of not less than one inch (1") equals ten feet (10') vertically and one inch (1") equals one hundred feet (100') 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 inch (1") equals ten feet (10') 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 subgrade, structures, trench backfill, etc., acceptance of that element is required prior to proceeding with the next element. An example would be acceptance of subgrade prior to the placement of subbase. 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 County Public Works Department and schedule a final inspection.

If the County Public Works Department determines that construction is in compliance with these Standards and Specifications, 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 County Public Works Department determines that construction is not in compliance with these Standards and Specifications, the County will provide written notification of the deficient items to the road developer and to the Gunnison 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 Director of Public Works.

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 Public Works 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 Gunnison County Planning 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 widenings, channelization, signalized intersections) should be identified, and preliminary design schematics submitted.
- D. Traffic graphics should show:
 1. Peak hours site traffic (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.

ARTICLE VII

PERMITS

7.1 Issuance of Permits

Permit fees and bonds for any permit named in these Standards and Specifications shall be set by the Board. No fees or bonds may be imposed on special districts; however such districts shall be required to obtain all necessary permits.

7.2 Underground Utility Construction Permit (Road Cuts)

No individual, company, corporation, or public agency shall modify, install, or otherwise change any utility located within thirty (30) feet of the centerline of any County Road, or public road under County jurisdiction, or private road under County jurisdiction while a Development Improvement Agreement for such road is in effect without first obtaining an Underground Utility Construction Permit from the Director of Public Works. Financial security will be required to insure conformance with these Standards and Specifications.

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

Gunnison County may hold the financial security for one year. It may be refunded earlier, if in the sole discretion of the Director of Public Works, it is determined that the cut is stable and no further work will be needed.

7.3 Surface Alteration Permit (Work Within Right-of-Way)

No individual, company or corporation, or public agency shall construct or alter any road, drainage, or other improvements within a County road right-of-way, County road, or public road under County jurisdiction, or private road under County jurisdiction while a Development Improvement Agreement for such road is in effect without a Surface Alteration Permit from the Director of Public Works. Road construction shall be in accordance with engineering plans prepared by a professional engineer, in conformance with these Standards and Specifications, with said plans to be approved by Gunnison County.

Surface Alteration Permits shall be obtained at least forty-eight (48) hours prior to commencement of the road cut. The applicant must notify the Public Works Department at least twenty-four (24) hours in advance of scheduled work. A list of required field tests and inspections will 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 Gunnison County. Gunnison County may hold the financial security for one year after completion of the work. It may be refunded earlier, if in the sole discretion of the Director of Public Works, it is determined that the cut is stable and no further work will be needed.

7.4 Access Permits

No person shall construct any access providing vehicular access to or from any public highway or right-of-way, or County road or public road, or private road from or to property adjoining such road without a County Access Permit issued by the Director of Public Works. No access permit shall be issued without there having been a site inspection by the Director of Public Works or her representative. The Director, or her representative, may, specify certain conditions, in addition to those set forth in these Standards and Specifications, for issuance of an access permit.

7.5 Oversize/Overweight Permits

The Director of Public Works 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 County Public Works 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 County Public Works Department 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 Director of Public Works may, after an application has been submitted, an evaluation has been prepared, and the plowing has been approved by the Board of County Commissioners, issue a Snow Removal Permit. The Permit will be valid for only one plowing season. 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 County Public Works Department may require financial security as may be deemed necessary to repair any damage to the roadway or structures.

7.7 Revocable Right-of-Way Permit

The Director of Public Works may, after an application has been submitted and evaluated, issue a Revocable Right-of-Way permit for the placement of a structure, repair or improvement in the road right-of-way of a County road, public road under the jurisdiction of Gunnison County, or private road under the jurisdiction of Gunnison County while a Development Improvement Agreement for such road is in effect. The Revocable Right-of-Way Permit may contain such conditions as necessary to preserve the integrity of the road and the right-of-way, and provide for the safety of the road users. Further, the County Public Works Department and/or County Attorney may require financial security as may be deemed necessary to repair any damage to the road, structure, or right-of-way.

7.8 Transfer of Permits

A permit may be transferred only with the written consent of the Director which consent shall be in the Director's sole discretion. The Director, 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 Director, at the Director's sole discretion, may require the permittee to file a guarantee of financial security in an amount established by the Director 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 Board, surety bonds issued by a company authorized to do business in Colorado, written guarantees backed by collateral acceptable by the Board, or any other form, or combination of forms, established by the Board.

REFERENCED REPORTS

1. Gunnison County Land Use Resolution, Gunnison 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 Department of Transportation.
7. Trip Generation, The Institute of Transportation Engineers.
8. Standard Specifications for New 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, A151, Washington, D.C. 1971.
13. Standard Specifications 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.

APPENDIX A

LEGAL RESPONSIBILITIES

The latest edition of the Division of Highways, State of Colorado, Standard Specifications for New Road and Bridge Construction; Section 107 - Legal Relations and Responsibilities to the Public, shall be considered Supplemental 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 1 Definitions

State - shall be redefined as Gunnison County, Colorado.

Division - shall be redefined as the Gunnison County Public Works 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 Public Works 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 these Standards; or in exercising any power or authority granted to them by Gunnison County; or performing their duties within the scope of their employment, there shall be no personal liability upon the Board, Director of Public Works, 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 2 of section - (c) Measurement and Payment.

APPENDIX B

APPENDIX C

APPENDIX D

APPENDIX E

APPENDIX F

APPENDIX G

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 a dormant seeding for areas that cannot be irrigated. Spring seeding can be successful if rainfall is above the historical average. Late summer seedings (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

Late Summer Seeding (Marginal) – July 15-August 15

Seeding Methods: Drilling the grass seed is the best method. Drill depth should be placed between $\frac{1}{2}$ and $\frac{3}{4}$ inch below the soil surface. For slopes that are greater than 3:1 slope, seeding may be broadcast by hand or mechanical spreader and rated into the upper soil layer (no deeper than $\frac{3}{4}$ 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 seral species (such as summer and winter annuals) will occupy the area before the desired perennial stand dominates. Each year the revegetated sites will be reviewed by the Gunnison County Weed Specialist upon which time the permittee will be advised as to the management practices that are expected to insure reclamation success.

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 not less than three years).

SEEDS RECOMMENDED

DRY AREA RECOMMENDATION

This recommendation covers most of the land area below 8500 feet in elevation.

<u>Species</u>	<u>Variety</u>	<u>lbs./ $\frac{1}{4}$ acre</u>
Smooth Bromegrass	Manchar	2
Crested Wheatgrass	Ephriam	2
Slender Wheatgrass	San Luis	1
Russian Wildrye	Bozoisky	1
Sheep Fescue	Big Horn	1
Total		7 lbs. Pure Live Seed

MOIST AREA RECOMMENDATION

This recommendation covers most of the land area above 8500 feet in elevation.

<u>Species</u>	<u>Variety</u>	<u>lbs./ ¼ acre</u>
Smooth Bromegrass	Manchar	2
Timothy	Climax	1
Slender Wheatgrass	San Luis	1
Canadian Bluegrass	Ruebens	1
<hr/>		
	Total	5 lbs. Pure Live Seed

Sometimes certain varieties of seed can be substituted, but the above varieties are suited to our area.

This seeding recommendation was provided by the Natural Resources Conservation Service. Seed can be ordered through the Gunnison Soil Conservation District by calling, (970) 641-0494.

APPENDIX H

APPENDIX I

APPENDIX J

DEVELOPMENT IMPROVEMENTS AGREEMENT

This Development Improvements Agreement is entered into this ____ day of _____, 20__ between the Board of County Commissioners of Gunnison County, Colorado (herein the "County"), and (herein the "Permittee") as follows:

1. PURPOSE. The Permittee has submitted to the County the Permittee's application for a permit pursuant to the Gunnison County Standards and Specifications regarding _____ (herein the "Project"). The legal description of the Project is attached hereto and incorporated herein as Exhibit "A". As valuable and sufficient consideration for this Agreement, the County and the Permittee agree that approval of such application by the County is expressly conditioned on completion of the improvements described in paragraph 7, below (herein the "Improvements") to the specifications described herein and by the times specified herein. The County and the Permittee further agree that such Improvements are appropriate and necessary requirements to be required by the County, and to be performed by the Permittee and which Permittee shall perform. The County and Permittee further agree that an agreement guaranteeing the Permittee's performance secured by suitable security to protect the interests of the County, and the public in the amount set forth herein is an appropriate condition to the County's approval of such permit. The parties have entered into this agreement to memorialize such understandings and agreements. The relationship of the parties to this Agreement is contractual; Permittee is an independent contractor and is not an agent of the County.
2. DEVELOPER BOUND. The Permittee agrees to accept and be bound by the terms and conditions of the County's issuance of its approval of the Permit and the terms and conditions of this agreement. Permittee accepts the County's review and permitting authority; process and performance of same in connection with the permit as legal and valid and waives any defect therein.
3. CONSTRUCTION.
 - A. The Permittee agrees to complete construction of the Improvements within the Project in the locations set forth on the plans attached hereto as Exhibit __, and in accordance with the specifications thereof by not later than _____, 200__, acts of God and any cause beyond the reasonable control of the Permittee excepted, including without limitation labor disputes, laws, regulations, or orders of any governmental entity, orders of court, inability to obtain any required authorization, act of war or donations arising out of or attributable to war, riot, civil strike, insurrection or rebellion, fire, explosion, earthquake, storm, flood or other adverse weather condition, delay or failure by suppliers or material men, contractors, or subcontractors, shortage of or inability to obtain labor, supplies or materials.
 - B. The completion deadline set forth in this paragraph 3 may be extended by the County in its sole discretion upon written request of Permittee if the County determines that: (1) such extension of time will not operate to the detriment of the County, the public or the owners of property within the Project; and (2) the County's security is adequate to ensure full performance by Permittee by the extended completion date; and (3) that such an extension would not be in conflict with the conditions of the approved Permit. The County may require Permittee to provide, at Permittee's cost, supplemental estimates by Permittee's engineer of the costs of completion and to provide additional security as a prerequisite to its extension of any completion date. Any extended completion date granted by the County hereunder may be further extended in like manner.
 - C. Each contract entered into by Permittee for construction of the Improvements shall provide that the County is a third party beneficiary with all rights to enforce such contracts in place of Permittee in the event of a default by Permittee. Permittee shall provide to County a copy of each such contract upon its execution.
4. ESTIMATED COST. The total cost of the Improvements to be constructed by the Permittee is estimated currently to be \$ _____ plus a contingency amount.
5. SECURITY. In order to secure of obligations of the Permittee herein, the Permittee and the County agree that the Permittee shall, at Permittee's sole cost, and before starting work on any phase of the Project or Improvements, and before conveying any portion of the Project, obtain and provide to the County a bond, and irrevocable letter of credit or other performance guarantee in a form and content satisfactory to the County to the benefit of the county in the amount of \$ _____ which is 124 percent of the currently estimated cost of the Improvements to include a reasonable contingency amount.

If the contract(s) provided to the County pursuant to paragraph 3C indicate a substantially different total cost than estimated in paragraph 4, the amount of security may be increased or decrease. For the purposes of this paragraph 5, substantial is defined as 10 percent or more.

Pending full performance of all of the terms and conditions hereof by the Permittee, the County shall retain said security and shall remain the beneficiary of such security. In the event of any uncured default hereunder the County in its sole discretion, and without any other authority required, may draw upon said security up to the full amount of \$_____ upon presentation by the County to the _____ of a written statement by the County that such uncured default exists. Upon timely performance of all terms and conditions hereof, said security shall be tendered by the County to the Permittee.

6. CERTIFICATION.

- A. Not later than _____, 200__, a registered Colorado engineer retained by the Permittee at its expense shall certify to the County whether the Permittee's construction obligations regarding Improvements under this agreement have been fully and faithfully performed according to design and time specifications. Upon receipt of such certification and a complete copy of as built specifications and drawings, the County shall review the same and shall make an independent judgment whether to accept the same in the sole discretion of the County. Permittee agrees not to cover or otherwise prevent inspection of the Improvements constructed hereunder until Permittee's engineer and the County's representative have had reasonable opportunity to inspect such Improvements.
- B. Not later than _____, 200__, Permittee shall provide to the County Attorney a sworn affidavit, signed by the Permittee's authorized representative, that the Improvements completed have been paid for, in full, by the Permittee. The Permittee shall be responsible for the information so provided. Said written certification will be reviewed by the County, but the County shall have no responsibility or liability to any part regarding the veracity of the information so provided.

7. SCOPE OF WORK.

- A. The scope of work to be done by the Permittee shall include, but not be limited to: 7.1 (Fill in applicable details)
- B. The conditions of this agreement and the permit are such that if the obligations hereunder of the Permittee are well, truly, faithfully and timely performed by Permittee, inspected and certified to by the Permittee's engineer, and such performance is accepted by the County in the County's sole discretion, the Permittee's obligations to the County under this agreement except as set forth in 7C below shall be at an end; otherwise such conditions and obligations shall remain in full force and effect.
- C. For a period of one year from and after the acceptance of all of the work described in paragraph 7A, above, Permittee shall, at its own expense, make all needed repairs and replacements to such work as shall, in the County's reasonable opinion, become necessary. The County shall have the right to retain up to \$_____ of the security for up to one year following the acceptance of all of the work described in paragraph 7A. above, as security to ensure such repair and replacement.

8. PARTIAL RELEASE OF SECURITY.

- A. The County recognizes that as work proceeds upon the Improvements, the County's need or security shall be reduced. Accordingly, the County agrees to a reasonable partial release of the security to be delivered to the County pursuant to paragraph 5 hereof upon receipt of a written certification, by Permittee's engineer, stating the estimated cost of remaining completion, in which event the County shall retain security equal to 125 percent of such estimated cost of remaining completion plus 20 percent of the original estimated cost of the Improvements and shall release the balance of all security held by the County.
- B. Upon Permittee's entering into a contract or contracts for construction of improvements hereunder, Permittee and County may negotiate an addendum to this Agreement setting forth such reasonable schedule for partial releases of the security in accordance with the anticipated construction schedule. In such circumstance, the County shall designate and authorize the County Manager, Director of Public Works or County Attorney to make the partial release(s) hereunder after consultation with appropriate County staff.

9. PERMITTEES' DEFAULT. In the event of any default hereunder by the Permittee, the County shall give notice to the Permittee specifying the nature of such default, which notice shall be given by facsimile transmission or by certified mail with return receipt requested addressed to the Permittee at _____. In the event the Permittee does not remedy such default to the satisfaction of the County within 14 days following such notice, the County may elect, in its discretion to exercise all remedies available to it, including but not limited to:

- 9.1 To specifically enforce the terms and conditions of this agreement;
- 9.2 To draw upon or otherwise obtain the benefit of the security;
- 9.3 To exercise any other rights and obtain any other remedies provided by law;
- 9.4 To obtain from the Permittee either an extension of the County's security hereunder to guarantee the completion of the improvements only on the conditions (1) that suitable additional security is provided the County to guarantee the construction of said Improvements within the new time period determined by the County, and (2) that the County determines that it would not be detrimental to the interest of the County, the public or the owners

of property within the Project to allow such extension (3) that the County determines that it would not be in conflict with the conditions of the approved Permit.

10. RECORDING OF AGREEMENT. Upon its execution, this Agreement shall be recorded by the Permittee and shall be a covenant running with the property herein described in order to put prospective purchasers or other interested parties on notice as to the terms and provisions hereof.
11. RETENTION OF POLICE POWERS. The County retains the power and right to impose additional requirements upon Permittee with regard to the Project if the failure to do so would place the public or owners of property within the Project in a perilous condition, or in the event of substantially changed conditions; that is, nothing in this Agreement is or shall be construed to be a bargaining away of the County's police power.
12. TRANSFER OR ASSIGNMENT. No transfer or assignment of any of the rights or obligations of the Permittee under this Agreement shall be permitted without prior written approval of the County which approval shall not unreasonably be withheld.
13. TITLE AND AUTHORITY. The Permittee expressly warrants and represent to the county that it is the record owner of the real property constituting the Project, and further represents and warrants, together with the undersigned individual, that the undersigned individual has full power and authority to enter into Agreement. The Permittee and the undersigned individual understand that the County is relying on such representations and warranties in entering in to this Agreement.
14. LITIGATION. Nothing contained herein shall prevent either party from obtaining a judicial determination of the violation of its rights hereunder; provided however, that written notice to the other party advising the other party of the alleged violation, and advising that in the event the matter is not resolved by the parties within 14 days thereafter, shall be a condition precedent to the commencement of any litigation.
15. TIME OF ESSENCE. It is mutually agreed that time of performance is an essential part of this agreement and that all terms, covenants and conditions herein shall extend to and become obligatory upon the successors and assigns of the respective parties hereto.
16. VENUE AND CHOICE OF LAW. This agreement is entered into in Gunnison County, Colorado and it I agreed that the exclusive jurisdiction and venue of any action pertaining to the interpretation or enforcement of this agreement shall be in the District Court of Gunnison County, Colorado. The exclusive choice of law pertaining to this transaction shall be that of the State of Colorado without giving effect to Colorado choice of law principles.
17. SEVERABILITY. If any term or provision of this agreement shall be invalid or unenforceable, the remainder of this agreement and the terms and provisions thereof shall not be affected thereby and all other terms and provisions of the agreement shall be valid and enforceable to the full extent permitted by law.
18. ATTORNEYS' FEES. If any action is brought in a court of law by either party to this agreement as to the enforcement, interpretation or construction of this agreement or any document provided for herein, the prevailing party in such action shall be entitled to reasonable attorneys' fees as well as all cost incurred in the prosecution of defense of such action.
19. HOLD HARMLES CLAUSE. The Permittee shall indemnify, defend and hold harmless the County, its officials, employees and agents from and against liability for damages, injury or death which may arise from the direct or indirect operations of the owner, Permittee, contractors or subcontractors, which relate to the Project.
20. ENTIRE AGREEMENT. This agreement contains the entire and only agreement between the parties regarding development improvements, and no oral statements or representations not contained in this agreement shall be of any force and effect between the parties. This agreement shall not be modified or amended in any manner except by written instrument executed by the parties.
21. BINDING AGREEMENT. This agreement shall be binding upon and inure to the benefit of the heirs, personal representatives, successors and assigns of the parties hereto.

22. NOTICE. All notices and other communications required or permitted under this Agreement shall be in writing and shall be, as determined by the person giving such notice, either hand delivered, mailed by registered or certified mail, return receipt requested or by telecopier or telegraphic communication to the required party at the following addresses:

COUNTY: Board of County Commissioners
200 East Virginia
Gunnison, CO 81230 Telecopier: (970) 641-3061

DEVELOPER: (Name, Address, Etc.)

IN WHEREOF the parties have executed this agreement the date first above written.

BOARD OF COUNTY COMMISSIONERS OF
THE COUNTY OF GUNNISON COUNTY

Attest: _____ By: _____
County Clerk Chairperson or Designee

DEVELOPER

By: _____

STATE OF COLORADO)
)
COUNTY OF)

The foregoing instrument was acknowledged before me this _____ day of _____, 20____.
By _____.

My commission expires: _____
Witness my hand and official seal.

Notary Public
Address:

APPENDIX K

DEFINITIONS AND ABBREVIATIONS

The following words, terms and abbreviations shall have the following meanings when used in these Standards and Specifications:

A. Definitions

ABUT means adjacent or contiguous to, having a common border or point with, or separated from a common border by, a road or highway right-of-way or easement.

ACCESS means the place, method or way by which vehicles and pedestrians obtain usable ingress and egress to a property or land use.

- Residential Access means ingress or egress to no more than two residential units, including any that includes a home occupation, or a multiple-family residence as defined by the Gunnison County Land Use Resolution. Residential access is a private vehicular access, for the exclusive use of the owners-occupants and their invitees, and is not considered a road or highway.
- Agricultural Access means the access providing ingress and egress exclusively to an agricultural operation and not to any residence(s).
- Commercial Access means the access providing ingress and egress to any activity defined by the Gunnison County Land Use Resolution as commercial.
- Industrial Access means the access providing ingress and egress to any activity defined by the Gunnison County Land Use Resolution as industrial.

ADJACENT means the same as “abut”.

AGRICULTURAL OPERATION means an activity that primarily involves agriculture as defined herein.

AGRICULTURAL ROAD means any road whose primary use is to serve an agricultural operation.

AGRICULTURE means the use of the land for the primary purpose of making a profit from farming or ranching as it may include:

- The production, cultivation, growing, and harvesting of plant crops, but not including the harvesting of trees unless incidental to other agricultural operations; or
- The raising and/or the breeding of livestock including horses, dairy and beef cattle, sheep, goats, fur-bearing animals, poultry and swine, so long as they are not large confined animal feeding operations (CAFO); or
- The production of nursery products and sod; and
- The harvesting, storage, grading, packaging, processing, distribution, and sale or trade of such commodities where such activities occur at the point of production.
- It specifically does not include the uses, structures and retail services normally associated with kennels, veterinary hospitals, the commercial slaughter of animals, and commercial riding stables. For purposes of this Resolution classification of the use of the property by the Gunnison County Assessor’s Office is not definitive or binding for purposes of this definition, nor shall the existence of a conservation easement on the property otherwise defined as agricultural affect that definition.

ALTERNATIVE TRANSPORTATION FACILITY means a trail, sidewalk, public bus or van, rail, or other facility that provides an alternative mode of transportation to travel by private automobile.

ARTERIAL ROAD - See Article III section 3.1

AS BUILT (OR RECORD) DRAWINGS means a complete and accurate set of construction plans, with all pertinent information superimposed on them to identify the road or related facility as it actually has been constructed.

AVERAGE DAILY TRAFFIC means 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. The term is commonly abbreviated as ADT.

AXLE LOAD means 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 (or BACK FILLING) means the dumping of earthen materials into excavated holes, or covering exposed features with soil. This can be done to protect features, or to level ground for construction of a road or building.

BASE COURSE means the layers of specified or selected material of designated thickness placed on a subbase or a subgrade to support a surface course.

BEST MANAGEMENT PRACTICES means those conservation techniques and management measures that:

- Control soil loss and reduce water quality degradation caused by nutrients, human and animal waste, toxins, and sediment; and
- Minimize adverse impacts to groundwater and surface-water flows; and
- Minimize adverse impacts to the chemical, biological, and physical characteristics of wetlands, ponds, streams, and riparian areas.

BOARD means the Board of County Commissioners of Gunnison County, Colorado, or its designee.

BRIDGE means 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.

BUILDING FOOTPRINT means the outline of the total area that is covered by a building at ground level.

CEMENT TREATED BASE means 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 means 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 movement of traffic, both vehicular and pedestrian.

CITY STREET means 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

CONSTRUCTION PLANS means a complete and accurate set of detailed plans, including but not limited to profile, specifications, details, notes and any other information necessary for complete and timely construction of the road or related facility.

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

COUNTY means Gunnison County.

COUNTY PRIMARY ROAD SYSTEM means County roads selected by the Board on the basis of greatest general importance; the County primary system as selected shall constitute an integrated system within itself and/or with the state highway system and other roads identified by the Board.

COUNTY ROAD means a public road which the Board has placed on the Country Road System under the authority of C.R.S. 43-2-109,110.

COUNTY SECONDARY ROAD SYSTEM means all County roads not on the County primary road system.

CROSS SLOPE (ROADWAY) means 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 means a local road open at one end only, and with special provisions for turning around.

CURBWALK means monolithic combination of curb and gutter and sidewalk.

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

DAYS means calendar days, not normal working days unless expressly identified as working days.

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

DEPARTMENT means the Gunnison County Public Works Department.

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

DESIGN PERIOD means geometric design generally based on estimated traffic requirements 20 years after construction.

DESIGN SPEED means a speed determined for design and correlation of the physical features of a road that influence vehicle operation; the maximum safe speed maintainable on a specified section of road when conditions permit design features to govern.

DIRECTOR OF PUBLIC WORKS means the Gunnison County Public Works Director, or designee.

EASEMENT means a conveyance or reservation of an incident of ownership in real property for one or more specific purposes, public or private.

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

ENGINEER means Professional Engineer registered in the State of Colorado.

EROSION means 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 means 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 means a pavement structure which maintains intimate contact with and distributes loads to the subgrade and depends upon aggregate interlock, particle friction and cohesion of stability.

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

GRADE means the rate expressed in terms of percent, ascent or descent by length.

GUARDRAIL means a protective device intended to make highways safer by reducing accident severity.

GUNNISON COUNTY means Gunnison County, Colorado.

GUNNISON COUNTY ROAD SYSTEM means all roads in the Gunnison County primary or secondary systems.

HIGHWAY, STREET, OR ROAD means an open way reserved for the passage, generally, of people, vehicles, animals and goods and includes trails and non-motorized ways 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 is ordinarily called a road.

HORIZONTAL ALIGNMENT means horizontal geometrics 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 means 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.

IMPROVEMENTS means an addition to or enhancement of property or its condition, amounting to more than mere repairs, including, but not limited to, structures, infrastructure, habitat compensation, restoration, reclamation, general landscaping, or such other installations as may be designated by the County.

INCLUDE means including without limitation.

INSPECTOR means the Gunnison County Public Works Director, or designee.

INTERSECTION means 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

LEGAL LOT means a lot, parcel or tract of land that meets the definition of a "subdivision," or "subdivided land" as defined in C.R.S. 30-28-101 (10) (a) as it may be amended, or that is one of the exceptions to the definition of "subdivision" or "subdivided land" set out in the definition of "Subdivision or Subdivided Land" in C.R.S. 30-28-101 (10) (b), (c) or (d) as they may be amended, and that was created in compliance with all applicable laws, ordinances and regulations in effect at the time of its creation, and the legal description of which was recorded at the time of its creation in the records of the Clerk and Recorder of Gunnison County. A parcel as mapped for tax assessment records is not necessarily a legal lot.

LIME TREATED BASE means 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

LOT means a parcel or tract of land. Also see definition of "Legal Lot".

LOW WATER CROSSING means a structure used to cross a drainage course that provides only for limited conveyance of run-off under the traveled way with higher flows passing both under and over the traveled way.

MAY means a permissive condition.

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

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

NON-MOTORIZED TRAIL means a dirt, gravel or paved trail suitable for bicycle, pedestrian or equestrian travel.

PARCEL means a tract or lot of land. Also see definition of "Legal Lot".

PASSING SIGHT DISTANCE means 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 means that part of a roadway having a constructed surface for the facilitation of vehicular movement.

PAVEMENT STRUCTURE means the combination of subbase, base course and surface course placed on a subgrade to support the traffic load and distribute it to the roadbed.

PERSON/PERSONS means any individual, partnership, corporation, association, company, or other public or corporate entity, including the state or federal government, and any of their political subdivisions, agencies, instrumentalities.

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

PORTLAND CEMENT CONCRETE PAVEMENT means a pavement composed of portland cement concrete on a prepared subgrade or base course in accordance with plans and specifications.

PRIME COAT means 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.

PRIMITIVE ROAD means a road that has all of the following characteristics:

- The road does not have the physical capacity to allow ready access to emergency services providers (e.g. medical emergency or fire suppression vehicles);
- No public utility has been extended after May 7, 2002, or is proposed to be extended, to any lot served by the road;
- There is no more than one single family residence existing or proposed on any lot served by the road;
- Does not currently serve, and is not proposed to serve, average daily traffic more than the minimum threshold for a local intermittent road;
- Any residential use established after May 7, 2002, shall be limited to seasonal use only by deed restriction or other instrument acceptable to Gunnison County

PRIVATE ROAD means any road that is not a public road.

PRIVATE ROADS UNDER COUNTY JURISDICTION means roads that have been permitted through the County Land Use Process.

PUBLIC ROAD means:

- All roads over private lands dedicated to the public use by deed to that effect, filed with the office of the Gunnison County Clerk and Recorder when such dedication has been accepted by the Board; and
- All roads over private or other lands dedicated to public uses by due process of law, including a subdivision plat approved by Gunnison County and recorded in the office of the Gunnison County Clerk and Recorder, and not heretofore vacated by an order of the Board duly entered of record in the proceedings of the Board; and
- All roads over private lands that have been used adversely without interruption or objection on the part of the owners of such lands for 20 consecutive years; as defined by Colorado law; and
- All toll roads or portions of them that may be purchased by the Board from the incorporators or charter holders of them, and thrown open to the public; and
- All roads over the public domain whether agricultural or mineral.

R VALUE means 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 means a numerical factor expressed as a summation of the values assigned for precipitation, elevation and drainage. This factor is used to adjust the structural number.

RESIDENTIAL DRIVEWAY - See "Access"

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

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

ROADSIDE means 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 means 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 means the portion of a highway, including shoulders, for vehicular use. A divided highway has two or more roadways.

ROADWAY PRISM means 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) degrees to horizontal.

RURAL means the character of an area that is primarily agricultural, low-density residential, unimproved and open.

SEASONAL USE means use limited to those months when snow normally is not on the ground in Gunnison County, that is, the months of May through October inclusive.

SENSITIVE AREAS means those areas identified by the Board that contain, or in which activity will have a significant impact on, human, historical, natural, environmental or archeological resources of great significance; a sensitive area shall be a specific geographic location that is defined with specific boundaries.

SERVICEABILITY INDEX means a number which is indicative of the pavement's ability to serve traffic at any specific time.

SHALL means a mandatory condition.

SHOULD means a recommended but not mandatory condition.

SHOULDER means 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 means 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.

SIGNIFICANT means of considerable or substantial consequence.

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

SLOPE EASEMENT means an easement for cuts or fills.

STANDARDS means the Standards identified in this Gunnison County Standards and Specifications for Road and Bridge Construction as it may be amended.

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

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

STOPPING SIGHT DISTANCE means 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.

STRUCTURE means anything constructed or erected, that requires location on the ground, or is attached to something having location on the ground, including portable shelters for human habitation or use, recreational vehicles and tents, storage, transmission or distribution facilities or public utilities, but not including transmission lines of less than 45 kilovolt capacity, or fences.

SUBBASE means the layer or layers of specified or selected material of designed thickness placed on a subgrade to support a base course.

SUBGRADE means the top surface of a roadbed upon which the pavement structure and shoulders, including curbs, are constructed.

SUPERELEVATION means 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.

SUSTAINED GRADE means a continuous highway grade of appreciable length and consistent or nearly consistent gradient.

TEMPORARY ACCESS ROAD means a road that is limited in scope, duration and frequency to serve only a vacant parcel and which does not require any cut and fill.

TERRAIN means 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 trucks in terms of their passenger cars are equivalent under the different geometric conditions.

TOPOGRAPHY means the configuration of the earth surface including the shape and position of it's natural and man-made features.

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

TRAIL means an open way reserved for the passage, generally, of people, non-motorized vehicles, animals and goods.

TRAVELED WAY means the portion of the roadway for the movement of vehicles, exclusive of Shoulders and auxiliary lanes.

VERTICAL ALIGNMENT means properly designed, should provide adequate sight distance, safety, comfortable driving, good drainage, pleasing appearance. Minimum lengths of crest vertical curves are controlled by stopping sight distance requirements.

WATERWAY means a stream, river or creek, or any other natural channel or other topographic feature through which "live" water flows, but does not mean ditches used for agricultural purposes.

WETLAND means an area inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under usual circumstances, supports a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known a hydrophytic vegetation. Wetland areas generally include marshes, bogs, seeps, riparian and similar areas, but do not include those artificial wetlands intentionally created from non-wetland areas, including irrigation and drainage ditches, grass-lined swales, canals, detention facilities, ranch ponds and landscape amenities. Exempt from the definition are areas in which there are wastewater treatment systems, including treatment ponds and lagoons designed to meet the requirements of the Clean Water act (33 U.S.C. Sec. 1341), treated water distribution and storage facilities or treated water that otherwise meet the criteria in this definition, and areas created by irrigation-related activities from agriculture and ranching. However, wetlands may include those artificial wetlands intentionally created from non-wetland areas created for the purpose of mitigating conversion of wetland, if permitted by the County.

B. Abbreviations

AASHTO means American Association of State Highway and Transportation Officials

CDOT means Colorado Department of Transportation

FHWA means Federal Highway Administration

HUTF means Highway Users Tax Fund

ITE means Institute of Traffic Engineers

EXHIBIT A

GUNNISON COUNTY PUBLIC WORKS DEPARTMENT SCHEDULE OF FEES

Adopted by the Gunnison County Board of Commissioners
March 6, 2018

Maps

County Maintained/Plowed Roads (set of 3) \$ 30.00

Publications

Gunnison County Standards and Specifications
for New Road & Bridge Construction \$ 15.00
Postage – if mailed \$ 5.00

Public Works Fees – All Fees Must be Paid in Advance.

Access Permit	\$250.00
Review of existing access or modified site plan	\$100.00
Final re-inspection (per re-inspection)	\$500.00
Reclamation Permit (within sage grouse habitat) Under 10,000 square feet of total ground disturbance	\$ 75.00
Reclamation Permit (in or out of sage grouse habitat) At or above 10,000 square feet of total ground disturbance	\$150.00
Reclamation Permit Bonding	
Initial 10,000 square feet of ground disturbance	\$500.00
Each additional 1,000 square feet of ground disturbance	\$100.00
Special Transport Permit (Oversize/Overweight)	
Single Trip Permit	\$30.00 - \$125.00 plus \$10 per axle for overweight
Annual Permit	\$250.00 - \$650.00
Revocable Right-of-Way Permit	\$100.00
Surface Alteration Permit (Financial Security is required/calculated per project)	\$ 50.00 or 5% of financial security
Underground Utility Construction Permit (Road Cut) (Financial Security is required/calculated by road type)	\$ 50.00
Vacation of a Street or Alley	
Administrative Cost	\$500.00
Advertising of Legal Notice	Actual cost of advertising
Certified/RRR Mailing (if done by County)	Actual cost of mailing
Waiver of Standards (Decision by BOCC)	
Administrative Cost	\$500.00
Advertising of Legal Notice	Actual cost of advertising
Waiver of Standards (Decision by Public Works Director) Administrative Cost	\$100.00 - if a site visit is required

FIGURE 4-1

FIGURE 4-2

FIGURE 4-3

FIGURE 4-4

TABLE 3-1SUMMARY OF ROAD WAY 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 PED. PATH
Major Arterial (Paved)	3000+	100'	100'	2-3	12'	4'	2'/5' (Optional)
Suburban Com/Ind Collector (Paved or Gravel)	0-500	60'	80'	2	12'	4'	2'/0' (Optional)
Suburban Lane (Paved or Gravel)	13-500	60'	80'	2	12'	4'	
Rural Arterial (Paved)	1000-2999	80'	100'	2	12'	4'	2'/0' (Optional)
Rural Collector (Paved)	500-999	60'	80'	2	12'	3'	
Rural Local (Gravel/Paved)	200-499	60'	80'	2	12'	3'	
Rural Lane (Gravel)	91-199	60'	80'	2	11'	2'	
Local Intermittent *(Native/Gravel)	13-90	60'	80'	1	16'	0'	
Primitive Recreation Road	N/A	20'	N/A	1	8-16'	0'	

* Single lane roads with turnouts used for low volume traffic. Turnouts shall be intervisable

Right-of-way width – Snow requirements based on snow load maps in Gunnison County Building Inspector's Office

TABLE 4-1
 MINIMUM CURVE RADIUS FOR DESIGN SPEED ON LOCAL ROAD AND LANES
 (without superelevation)

	$e + f = \frac{0.0'67V'}{R}$	v	e	f	Radius
e – superelevation		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,
 MINOR ARTERIALS AND PRINCIPAL 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 SUPERELEVATION RATES

Road Type	Rural	Urban
Principal Arterial	.08	.06
Minor Arterial	.08	.06
Collector	.06	.06
Residential Sub Collector	.06	.04

TABLE 4-4
 SIDE FRICTION FACTORS FOR DESIGN SPEED

v	f
15	.19
20	.18
25	.17
30	.16
40	.15
60	.13

TABLE 4-5CUT AND FILL SLOPES

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

TABLE 4-6SUMMARY OF DRIVEWAY DESIGN ELEMENTS

TYPE OF ACCESS (driveway)	# OF LANES	LANE WIDTH
1. Residential	1	16 feet
2. Agricultural	1	16 feet
3. Commercial	2	11 feet
4. Industrial	2	11 feet

TABLE 4-7INTERSECTION 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

TABLE 4-8PAVEMENT 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 swampy areas where the roadbed soils may be saturated for long time periods.
- (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 4-9**PAVEMENT DESIGN STRENGTH COEFFICIENTS**

<u>Component</u>	<u>Limiting Test Criteria</u>	<u>Coefficient</u>
Plant Mix Seal		0.25
Hot Bituminous Pavement	$R_t \geq 95$	0.44
“ “ “	$R_t = 90-94$	0.40
“ “ “	$R_t = 87-89$	0.35
“ “ “	$R_t = 84-86$	0.30
“ “ “	$R_t \leq 83$	0.25
Road Mix Bituminous Pavement		0.20
Existing Bituminous Pavement		0.20 to 0.44
Plant Mix Bituminous Base	$R_t \geq 90$	0.34
“ “ “	$R_t = 85-89$	0.30
“ “ “	$R_t = 80-84$	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 Asphalt Treated A.B.C.	$R_t \geq 95$	0.23
“ “ “	$R_t = 90-94$	0.20
“ “ “	$R_t = 84-89$	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 are 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 4-10

PERMISSIBLE VELOCITIES FOR ROADSIDE DRAINAGE DITCHES

Roadside channels with erodible linings (earth; no vegetation):		Minor and Major Design Storm	
<u>Soil Type or Lining</u>		Permissible velocity (fps)	
Fine sand (noncolliodal)		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)			
<u>Cover</u>	<u>Slope range (%)</u>	<u>Soils that are</u>	
		<u>Erosion resistant</u>	<u>Easily eroded</u>
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
Lispedeza sericea			
Weeping lovegrass			
Yellow bluestem			
Alfalfa	0-5	3.0	2.0
Crabgrass			
Common lespedeza			
Sudan grass			

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 Public Works Department.

MINIMUM REQUIREMENTS FOR COMPACTIONS OF UTILITY TRENCHES

Material	Density Percent	AASHTO Std.
Bedding Material	90%	T-99
Backfill	95%	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 ln. ft. 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 ln. 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 Compaction	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.