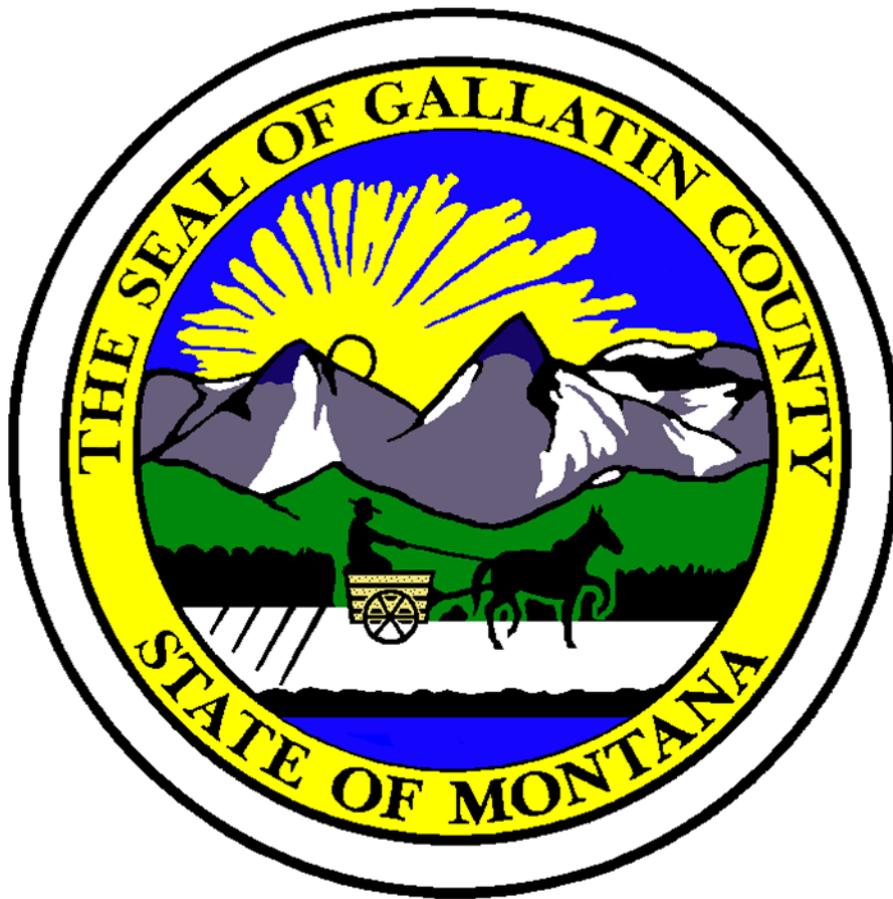


Gallatin County Transportation Design and Construction Standards



January 2020

Table of Contents

1.	General Provisions	1
1.1.	Authority and Intent.....	1
1.2.	Applicability.....	1
1.3.	Responsibility for Improvements	1
1.4.	Dedication of Public Rights-Of-Way.....	2
1.4.1.	Relation to Undeveloped Lands.....	2
1.4.2.	Relation to Adjacent Developed Lands.....	2
1.4.3.	Separation of Through and Local Traffic.....	2
1.4.4.	Distance Between Parallel Rights-Of-Way.....	3
1.4.5.	Road Names	3
1.5.	Modification of these Standards.....	3
1.6.	Severability.....	3
1.7.	Contradictions	3
1.8.	Definitions and References	3
2.	Administration	6
2.1.	Submittals.....	6
2.2.	Construction Observation	6
2.3.	Performance Guarantee, Insurance, and Warranty	6
2.3.1.	Performance Guarantee	6
2.3.2.	Insurance.....	7
2.3.3.	Warranty	7
2.4.	Variances	8
3.	Approaches and Encroachments	9
3.1.	Approaches.....	9
3.1.1.	Number and Arrangement of Approaches	9
3.1.2.	Construction and Maintenance	9
3.1.3.	Design of Approaches	9
3.1.4.	Penalties.....	11
3.2.	Encroachments.....	11
3.2.1.	Mailboxes.....	11
3.2.2.	Excavations	12
3.3.	Alternative Designs	15
4.	Road Design	16
4.1.	Accesses	16
4.1.1.	Number of Accesses.....	16
4.1.2.	Access Intersection Spacing.....	16
4.1.3.	Dead-End Roads.....	16
4.1.4.	Access Road Improvement and Paving Requirements	17
4.2.	Roadway Design	18

4.2.1.	Intersections	18
4.3.	Roadside Design	19
4.4.	Surface and Materials	19
4.5.	Pedestrian, Bicycle and Transit Facilities	21
4.5.1.	Pedestrian Facilities	21
4.5.2.	Bicycle and Trail Facilities	21
4.5.3.	Transit Facilities	22
5.	Drainage Features, Snow Storage, and Water Crossings.....	23
5.1.	Drainage	23
5.2.	Snow Storage.....	23
5.3.	Bridges and Culverts.....	23
5.3.1.	Bridge Width	23
5.3.2.	Design Flood and Bridge Freeboard	24
5.3.3.	Culvert Design	24
6.	Traffic Impact Analysis	25
6.1.	Level of Analysis	25
6.1.1.	Traffic Impact Letter	25
6.1.2.	Traffic Impact Study	26
6.2.	Review	27
6.3.	Waiver of Study Requirements.	27
7.	Appendix A: Access Permit	28
8.	Appendix B: Utility / ROW Work Permit	32
9.	Appendix C: Road Design Standard Drawings.....	35

1. GENERAL PROVISIONS

1.1. Authority and Intent

Gallatin County (the *County*), specifically the County Commission may lay out, maintain, control, and manage County roads and bridges under the limitations and restriction that are prescribed by law (Section 7-14-2101, MCA).

The intent of these Gallatin County Transportation Design and Construction Standards (the *Standards*) is to establish policies and procedures and define standards for transportation design and construction within the County that will contribute to orderly development and public health, safety and general welfare of County residents by:

- a) Providing for a safe and efficient transportation system;
- b) Providing for the appropriate dedication of land for the transportation system; and
- c) Providing for adequate improvement of the transportation system where impacts directly attributable to development can be mitigated.

1.2. Applicability

These Standards shall be applicable to all unincorporated areas of the County except where such areas or Rights-of-Way are under other governmental jurisdiction. These standards shall apply to:

- a) The construction and maintenance of transportation facilities (including but not limited to roads, trails, bridges, and culverts), appurtenant structures, and utility facilities built within road Rights-of-Way;
- b) The construction of all new approaches, existing approaches or where property improvements or development require approval of the County;
- c) The erection or placement of all new traffic control devices, mailboxes, and appurtenant structures within road Rights-of-Way;
- d) Nothing in these Standards shall be construed to require that the County construct, reconstruct, widen, maintain, or improve a road to these Standards;
- e) Nothing in these Standards shall be construed to require that those portions of new or existing private roads or approaches outside road Rights-of-Way be constructed, reconstructed, widened or improved to the Standards, unless subject to County approval;
- f) Nothing in these Standards shall be construed to obligate the County to accept any new or existing public or private roads or Rights-of-Way for maintenance.

1.3. Responsibility for Improvements

It is the responsibility of all Developers to provide improvements as follows:

- a) Any development, which will impact the service level, safety, or operational efficiency of roads serving such land development shall improve those roads in accordance with these Standards, County Subdivision Regulations, Zoning Regulations, adopted Transportation Plans and Trails Plans, Growth Policies, and County Capital Improvements Plans. The extent of improvements shall be based on an assessment of the impacts of the proposed land development on the transportation system.

- b) Any land development abutting and impacting existing roads shall improve the frontage of those roads in accordance with these Standards, County Subdivision Regulations, Zoning Regulations, adopted Transportation Plans and Trails Plans, Growth Policies, and County Capital Improvements Plans. The extent of improvements shall be based on an assessment of the impacts of the proposed land development on the transportation system.
- c) Any land development that contains internal public roadways shall construct or improve those roadways in accordance with these Standards, County Subdivision Regulations, Zoning Regulations, adopted Transportation Plans and Trails Plans, Growth Policies, and County Capital Improvements Plans.

1.4. Dedication of Public Rights-Of-Way

The County may require that additional road Rights-of-Way be dedicated as a condition of approval, in accordance with long term transportation goals and any requirements defined by these Standards, County Subdivision Regulations, Zoning Regulations, adopted Transportation Plans and Trails Plans, Growth Policies, and County Capital Improvements Plans. The determination of the Rights-of-Way widths and types will be made upon County review of the development.

All Access Roads and interior development roads shall be dedicated to the public. Roads dedicated to the public are accepted for public use, but the County accepts no responsibility for maintenance.

1.4.1. Relation to Undeveloped Lands

When a proposed development adjoins undeveloped land and access to the undeveloped land must pass through the proposed development, at a minimum, the Developer shall provide adequate road Rights-of-Way. This requirement may be waived if the Commission finds one of the following criteria is met:

- a) Topography or other physical conditions would make it impracticable to provide access to adjacent undeveloped land; or
- b) Adequate public access is otherwise available to the adjacent undeveloped land.

This requirement may be waived by the Commission if the adjoining undeveloped land is subject to a conservation easement or other legally restrictive covenant or deed restriction prohibiting development on the undeveloped land as confirmed by the Gallatin County Attorney's Office.

1.4.2. Relation to Adjacent Developed Lands

The Developer shall arrange Interior Roads to provide for continuation of roads between adjacent developed properties.

1.4.3. Separation of Through and Local Traffic

Where a development abuts or contains an existing or proposed Arterial or Collector road, the County may require the Developer to provide additional Rights-of-Way, frontage roads, reverse frontage with a reservation prohibiting access along the rear property line (no access strip),

screen planting, or such other treatment as may be necessary for protection of residential properties and to afford separation of through and local traffic.

1.4.4. Distance Between Parallel Rights-Of-Way

Where a development borders on or contains a railroad, limited access highway, Watercourse, or Water Conveyance Facility the County may require the Developer to provide a road approximately parallel to and on each side of such Rights-of-Way to allow for the appropriate use of the intervening land. The separation distances shall allow for the requirements of approach grades and future grade separation.

1.4.5. Road Names

All new road names shall be assigned by the County GIS Office.

1.5. Modification of these Standards

For the purposes of providing for the public health, safety, and general welfare and as policies, procedures and standards change within the County, this document will change accordingly. Modification to these Standards will not become effective until after a public hearing has been held before the Commission, legal notice of which shall have been given in compliance with Section 7-1-2121, MCA.

1.6. Severability

If any word, phrase, clause, sentence, paragraph, section, or other part of these Standards is held or made to be invalid or unenforceable, the remainder of these Standards will be considered valid and enforceable to the fullest extent permitted by law.

1.7. Contradictions

If the requirements of this Regulation conflict with the requirements of any other lawfully adopted laws, rules, or regulations the most restrictive (or higher standard) shall govern.

1.8. Definitions and References

Whenever the following words or phrases appear in this text, they shall have the meaning assigned to them by this subsection.

Access Roads: All off-site roads that connect to an interior development road or a direct driveway approach to a lot. An Access Road may be an Arterial, Collector, Local, or County maintained road.

Arterial Road: The highest mobility, lowest accessibility functional classification of road that connects communities and activity centers, and connects communities to major state and interstate highways.

Collector Road: A principle route to promote the free flow of traffic within residential or commercial areas that carries relatively high traffic volumes and conveys traffic from Arterial Roads to lower-order roads.

Concrete: Unless otherwise specified within, concrete shall refer to Portland cement concrete.

County Road Right-of-Way: Any road Right-of-Way under the jurisdiction of Gallatin County, including those dedicated for public use and approved by the County Commission.

Developer: Any person or entity that causes land to be developed through division, subdivision, or the construction of four or more buildings or Units located thereon.

Encroachment: Including but not limited to any tower, pole, poleline, pipe, pipeline, driveway, private or public road, fence, walkway, path, trail, stand or building, gate, or any structure or object of any kind or character not particularly mentioned herein, which is placed in, under or over any portion of a County Road Right-of-Way.

Engineer: A person licensed in conformance with the Montana Professional Engineers Registration Act (Title 37, Chapter 67, MCA) to practice engineering in the state of Montana.

Interior Road: A road contained within the exterior boundaries of a development.

Local Road: The highest accessibility, lowest mobility functional classification of road characterized by their many points of direct access to adjacent properties, and with typically lower traffic volumes and speeds with short trip distances.

Net Density: The number of residential dwelling units per unit of land, excluding any land used or to be used as road Rights-of-Way and dedicated parkland/open space.

Right-of-Way: A public way established or dedicated for public purposes by a duly recorded plat, deed, easement, grant, prescription, condemnation, governmental authority or by operation of law, intended to be occupied by a road, Trail, motorized or non-motorized vehicle path, railroad, electric transmission lines, water line, sanitary sewer line, storm sewer line, or other similar uses.

Structure: A combination of materials to form a building, edifice or any piece of work for use, occupancy, or ornamentation whether installed on, or below the surface of land or water.

Unit: An individual residential or non-residential defined space for rent, lease, or purchase including but not limited to: an apartment, condominium, townhouse, commercial condominium, light industrial space, office.

Watercourse: Any natural stream, river, creek, drainage, waterway, gully, ravine or wash in which water flows either continuously or intermittently and has a definite channel, bed and banks, and includes any area adjacent thereto subject to inundation by reason of overflow. The term watercourse shall not be construed to mean any facility created exclusively for the conveyance of irrigation water.

Water Conveyance Facility: Agricultural water user facilities and other facilities that convey water for agriculture, stock, domestic, fish and wildlife, industrial, irrigation, mining, municipal, power, recreation, aquifer recharge or mitigation, and all other beneficial uses set forth in § 85-2-101, et seq., MCA. These facilities include, but are not limited to, ditches, canals, pipelines, flumes, wells, infiltration galleries, diversion structures, headgates, pumps, blowoffs, swales and associated infrastructure. This term is not intended to include a “watercourse” as defined in these regulations or any man-made structure the primary purpose of which is to convey stormwater.

Except where these standards provide otherwise, design detail, workmanship and materials shall be in accordance with the current edition of the following specifications, regulations and guidelines.

AASHTO: American Association of State Highway and Transportation Officials, *A Policy on the Geometric Design of Highways and Streets*.

AASHTO LRFD Bridge Design Specifications: American Association of State Highway and Transportation Officials, *LRFD Bridge Design Specifications*.

AASHTO Roadside Design Guide: American Association of State Highway and Transportation Officials, *Roadside Design Guide*.

AASHTO-VLVLR: American Association of State Highway and Transportation Officials, *Guidelines for Geometric Design of Very Low-Volume Local Roads*.

Institute of Traffic Engineers (ITE), *Trip Generation Manual*.

MDT Bridge Design Standards: Montana Department of Transportation (MDT), *Bridge Design Standards*.

MPWSS: Montana Contractors' Association, *Montana Public Works Standard Specifications*.

MUTCD: US Department of Transportation - Federal Highway Administration, *Manual on Uniform Traffic Control Devices*.

PROWAG: United States Access Board, *Public Right-of-Way Accessibility Guidelines*.

2. ADMINISTRATION

2.1. Submittals

Transportation system improvement or construction plans shall be submitted in electronic (pdf) format, and hard copy. The plans must be approved and stamped by an Engineer and consist of a complete package, which includes all details and documentation necessary for construction. Grading and drainage plans, geotechnical investigations, and/or hydraulic analyses also must be submitted when applicable or requested by the County.

Following the completion of all improvements, the Developer shall have an as-built plan prepared. The as-built plan shall show the actual location of all improvements as installed, shall clearly designate any and all changes from the approved plans and specifications, and shall bear the signature and seal of the Engineer who prepared it. As-built plans shall be provided to the County Engineering Department.

The County will review all submittals for compliance with these Standards. However, County review does not absolve an applicant of ensuring design and construction are in compliance with these Standards, accepted engineering practices, and all applicable laws and regulations.

2.2. Construction Observation

An Engineer, or his/her designated representative, shall provide construction observation and testing as specified by the Engineer. Observation and testing shall be in accordance with the current edition of the MPWSS and these Standards. The Developer shall bear the expense of all testing.

All materials shall be subject to inspection and approval by the County at any time during the progress of work. The Developer's construction schedule shall include sufficient time for materials testing and any required verification. The County has the authority to reject defective material and suspend work that is being done improperly. Failure of the County to reject materials or work does not constitute acceptance or approval. At the County's order, the Developer shall immediately remedy, remove, replace, or dispose of unauthorized or defective work or materials and bear all the costs of doing so.

2.3. Performance Guarantee, Insurance, and Warranty

2.3.1. Performance Guarantee

The Developer shall provide the County with a performance guarantee for all construction work within County Road Rights-of-Way in accordance with the Approach and Utility/ROW Work permitting requirements in Section 3. The performance guarantee shall be in an amount equal to at least one hundred fifty (150%) percent of the total construction costs, as certified by an Engineer. The guarantee shall remain in full force for at least six months after the anticipated expiration of the project warranty period based upon the submitted plans. Financial guarantees shall be in a form deemed satisfactory to the County Commission.

2.3.2. Insurance

For all construction work within County Road Rights-of-Way, the Developer or their contractor shall carry at its expense Commercial General Liability insurance in the amount no less than \$1,500,000.00 for each occurrence and Automobile Liability in the amount of \$1,500,000.00 combined single limit. If the Developer is an architect or Engineer or performing other professional services it shall carry Professional Liability or Errors and Omissions coverage in the amount of \$1,500,000.00. Professional Liability or Errors and Omissions coverage may be reduced to the amount of \$1,000,000.00 if the total project cost is less than \$1,000,000.00. The Developer shall disclose insurance provisions of its policies related to toxic substances or waste. The County may require an additional policy covering toxic substances or waste. The County shall be named as an additional insured for ongoing operations and completed operations. The most current ISO endorsement, form CG2010 or its equivalent, is required for ongoing operations and the most current ISO endorsement, form CG2037 or its for its equivalent, is required for completed operations. All insurance policies shall be primary and noncontributory and shall be maintained for a period of time equal to the warranty period. The Developer shall require all consultants and subcontractors to meet the same insurance coverage. Certificates of Insurance evidencing Gallatin County as additional insured and endorsement thereof must be supplied prior to the commencement of work within the County Road Right-of-Way. Such certificate shall require no less than fifteen (15) days' notice of cancellation to the County. The Developer shall put the County on immediate notice of any changes or cancellation in coverage during the warranty period. Insurance shall be purchased from companies licensed to do business in Montana (with an "A" rated or better classification).

2.3.3. Warranty

The Developer shall warranty all materials and equipment furnished and work performed within the County Road Rights-of-Way for a period of two (2) years. The warranty will guarantee that the completed work is free from all defects due to faulty materials or workmanship. The Developer shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The County will give notice of observed defects with reasonable promptness. In the event the Developer should fail to make such repairs, adjustments, or other work that may be made necessary by such defects, the County may do so and charge the Developer the cost thereby incurred.

The Developer, his contractors, and suppliers shall be jointly and severally responsible for ensuring that existing improvements are not damaged or rendered less useful by the operations of the Developer, his contractors, or suppliers. This provision is intended to prevent damage to existing roads and drainage systems. The County may instruct the Developer as to the roads to be used for access by construction equipment, and the Developer shall be responsible for enforcement of this instruction upon his contractors and their suppliers. The County may require the Developer to post a surety to guarantee repair of damages.

2.4. Variances

The County Commission may grant reasonable variances from the design and improvement standards of these Standards where it is found that strict compliance would result in undue hardship and such strict compliance is not essential to the public health, safety, and general welfare.

The Developer shall include a written statement describing the requested variance and the facts of hardship upon which the request is based. The County Commission shall then consider each variance and may approve the variance only upon finding the following criteria are satisfied:

- a) The granting of the variance will not be detrimental to the public health, safety, or general welfare, or be injurious to other adjoining properties;
- b) Due to the physical surroundings, shape, or topographical conditions of the property involved, strict compliance with the Standards will impose an undue hardship to the owner. Undue hardship does not include personal or financial hardship, or any hardship that is self-imposed;
- c) The variance will not cause a substantial increase in public costs; and
- d) The variance will not place the development in nonconformance with any County Zoning Regulations, County Subdivision Regulations, adopted Transportation Plans and Trails Plans, Growth Policies, and County Capital Improvements Plans.

In granting variances, the County Commission may impose such conditions as will in its judgment substantially secure the objectives of these Standards.

3. APPROACHES AND ENCROACHMENTS

Any person or agency performing any work in County Road Rights-of-Way must first obtain an Access Permit or a Utility/ROW Work Permit from the County Road/Bridge Department. The County Engineering Department may review and process Access and Utility/ROW Work permits in coordination with the County Road/Bridge Department. Permits are required for driveways, road approaches, underground and aerial utility work, and any other kind of work performed within or structure placed within County maintained, County Road Rights-of-Way. Permits are required for underground and aerial utility work including any tower, pole, poleline, pipe, pipeline, stand or building, or any appurtenant Structure which is placed in, under or over any portion of all County Road Rights-of-Way (excluding landscaping and associated irrigation). Pursuant to Title 7, Chapter 14, MCA, the County may require the removal of any Encroachment located within a County Road Right-of-Way that is not authorized by an Access or Utility/ROW Work Permit.

Prior to a Permit being issued, and depending on the proposal and risks involved, the permittee may be required to comply with Section 2.3 regarding performance guarantees, insurance and warranties. The permittee is required to hold harmless and indemnify the County and its duly appointed officers, agents, and employees against any action for personal injury or property damage sustained by the reason of exercise of the permit. Permits are not transferable between parties.

Sample Access and Utility/ROW Work Permit applications are included in Appendices A and B.

3.1. Approaches

3.1.1. Number and Arrangement of Approaches

The location, number and configuration of all approaches to County maintained, County Road Rights-of-Way are subject to the approval of the County Road/Bridge Department. The number of approaches shall be the minimum number needed to provide access to the property in compliance with these Standards and applicable laws and regulations.

3.1.2. Construction and Maintenance

The permittee shall do all work and pay all costs associated with the construction of the approach and their appurtenances. All new approaches and any modifications to existing approaches will require an Access Permit to County maintained, County Road Rights-of-Way.

Any maintenance and/or repairs deemed necessary by the County to a County Road Right-of-Way shall be the responsibility of the permittee. The County Road/Bridge Department reserves the right to make any changes within the Rights-of-Way that may be necessary to provide proper protection and safety for the public or maintenance of County Road Rights-of-Way.

3.1.3. Design of Approaches

The County Road/Bridge Department has the sole discretion of determining the most suitable design and layout of all approaches to County maintained, County Road Rights-of-Way. Approach design must meet all applicable sections of these Standards including those in Chapter 4 (Road

Design) that may be more restrictive than the driveway approach design requirements in the following section.

3.1.3.1. Driveway Approach Design

This section is applicable to driveways serving no more than three (3) dwelling Units or agricultural lands. All other roads must meet all pertinent requirements throughout these Standards. The following are driveway approach design requirements:

- a) Sight distance shall be as required by AASHTO / AASHTO-VLVLR.
- b) The approach grade shall be equal to or less than three (3%) percent slope for a distance of thirty (30') feet back from the public road surface unless otherwise directed by the County Road/Bridge Department.
- c) The driveway shall intersect the public road at an angle of ninety (90°) degrees, plus or minus twenty (20°) degrees, to the roadway.
- d) The driveway width shall be between fourteen (14') feet and thirty (30') feet, not inclusive of any radius between the driveway and the public road. Driveways shall be no wider than necessary to serve the AASHTO design vehicles that will regularly use the driveway.
- e) Driveways shall be constructed from the edge of the traveled way to the boundary of the road Right-of-Way at a minimum.
- f) Vertical clearance of fifteen (15') feet shall be maintained for the full width of the driveway.
- g) When a driveway accesses a hard-surfaced Arterial Road, Collector Road, or roadway with more than eight hundred (800) average daily traffic (ADT), the driveway must be built with hard surfacing a minimum of thirty (30') feet from the existing edge of pavement, or to a length as required by site specific conditions and approved by the County Road/Bridge Department.
- h) The return radius between the driveway and the public road shall be sufficient to accommodate the largest AASHTO design vehicle anticipated to regularly access the facility. At a minimum, the radius for a driveway shall be fifteen (15') feet.
- i) Driveway spacing minimums shall be as defined below, unless it is demonstrated that no other alternative is feasible. For either adjacent new driveways or where a new driveway may be adjacent to an existing driveway, a shared access may be required.
 - 1) The minimum distance from driveway centerline to the centerline of a nearby roadway shall be one hundred and fifty (150') feet.
 - 2) The minimum distance between driveway centerlines accessing Local Roads shall be one hundred and fifty (150') feet.
 - 3) The minimum distance between driveway centerlines accessing Collector Roads shall be three hundred (300') feet.
 - 4) The minimum distance between driveway centerlines accessing Arterial Roads shall be four hundred (400') feet.
- j) Existing drainage in the road Right-of-Way shall not be altered or impeded without specific approval from the County Road/Bridge Department.
- k) For driveways crossing an open ditch section, culverts shall be adequately sized to carry anticipated storm water flows and in no case be less than eighteen (18") inches in diameter or a diameter specified by the County Road/Bridge Department. Culverts will be

long enough to allow for three-to-one (3:1) beveled ends. Culverts must be corrugated metal pipe (CMP), reinforced concrete pipe (RCP), or other approved similar material. The minimum amount of cover material over the culvert shall be that recommended by the culvert manufacturer.

3.1.4. Penalties

If the County Road/Bridge Department determines that an approach is not in substantial compliance with these standards, the owner of the approach will be notified and allowed to correct the deficiency. If the deficiency is not addressed within ten (10) days, either by corrective action or by notifying the County Road/Bridge Department with a proposal for corrective action, the County Road/Bridge Department will determine the approach to be an Encroachment and will take appropriate action to remedy the situation in accordance with Sections 7-14-2134 through 7-14-2138 MCA.

3.2. Encroachments

Except as authorized by Section 3.2.1 (Mailboxes), Encroachments in County Road Rights-of-Way are prohibited unless approved through issuance of a Permit by the County Road/Bridge Department. No Encroachment will be allowed that will hinder the ability to maintain the County Road Right-of-Way, that is deemed to be a threat to public safety, or that obstructs and prevents the use of the travelled way.

The County Road/Bridge Department may require the removal of any non-permitted Encroachment in accordance with Sections 7-14-2134 through 7-14-2138 MCA and the following:

- a) When provided notice or upon discovery of an Encroachment that does not obstruct and prevent the use of the traveled way and is not considered to be an imminent threat to public health or safety, the County Road/Bridge Department may proceed with notice and removal of the Encroachment upon the direction of the County Commission.
- b) When provided notice or upon discovery of an Encroachment that does not obstruct and prevent the use of the traveled way but is considered to be an imminent threat to public health or safety, the County Road/Bridge Department will remove the Encroachment immediately.
- c) When provided notice or upon discovery of an Encroachment that obstructs and prevents use of the traveled way, the County Road/Bridge Department will remove the Encroachment immediately.
- d) Costs incurred by the County for the removal of the Encroachment will be recovered by methods allowed by law.

3.2.1. Mailboxes

The only Encroachment allowed within a County Road Right-of-Way without a Permit is the installation of a single residential mailbox that is installed in compliance with these Standards. Individual residential mailboxes are allowed without a permit as an understood necessity if installed according to the standards of the United States Postal Service (USPS) Domestic Mail Manual Section 508. Mailboxes installed within County Road Rights-of-Way are subject to the following conditions:

- a) The County is not responsible for the installation, maintenance or replacement of mailboxes.
- b) Mailboxes damaged by County maintenance equipment may be repaired or replaced by the County if there is sufficient evidence that any piece of the equipment came into physical contact with the box or post. Mailboxes damaged by the force of snow being pushed off of the road will not be repaired or replaced. Mailboxes replaced by the County will be a standard sized box and post in accordance with USPS standards. No custom-made installations or repairs will be completed by the County.
- c) If a mailbox is installed that is not in substantial compliance with these standards and is determined by the County Road/Bridge Department to be a hazard, the owner of the mailbox will be notified and the deficiency shall be corrected within ten (10) days. If the deficiency is not corrected within the prescribed time frame, the mailbox will be declared an Encroachment and appropriate action to remedy the situation will be taken in accordance with Sections 7-14-2134 through 7-14-2138 MCA.
- d) Neighborhood, community, or clustered mailbox installations within County Road Rights-of-Way require a Permit.

3.2.2. Excavations

Encroachments requiring excavations in County Road Rights-of-Way may be allowed at the discretion of the County Road/Bridge Department with the issuance of a Utility/ROW Work permit. The County Road/Bridge Department has the sole discretion to determine the location, number and configuration of all excavations within County Road Rights-of-Way. Excavations shall be performed in accordance with Occupational Safety and Health Administration (OSHA) standards, MPWSS, and these Standards including:

- a) An adequate, MUTCD compliant, traffic control plan shall be submitted prior to starting work and is subject to review and approval by the County Road/Bridge Department.
- b) No excavation shall extend over one-half of the width of the County Road Rights-of-Way at any one time nor shall construction activities block the existing traveled way unless specific written approval has been granted.
- c) It shall be the sole responsibility of the permittee to notify all utilities of the excavation and be responsible for the location of all utility lines and their repair if damaged.
- d) The County is not responsible for costs associated with any utility installation or cost for removal/relocation.

3.2.2.1. Survey Monumentation

Reasonable efforts shall be made to protect and avoid damage to existing survey monuments within the excavation area. Any survey monument in danger of disturbance shall be referenced by a professional land surveyor to facilitate the replacement of that monument should disturbance occur. Any survey monument which is disturbed shall be reset or replaced by a professional land surveyor, and it is the responsibility of the disturbing party to provide and pay for those services and do so in compliance with 70-22-115 MCA.

The following practices shall be followed when survey monuments must be found under existing hard surfaced roads:

- a) The disturbed surface area shall be patched with an applicable surface repair material (i.e. cold mix asphalt, concrete).
- b) Notification shall be given to the County Road/Bridge Department in an attempt to coordinate patching work.
- c) Survey monumentation is exempt from Permit requirements, with acknowledged notification from the County Road/Bridge Department.

3.2.2.2. Surface Cutting

All County maintained roadways shall be jacked or bored. Exceptions will be on a case-by-case basis with the express permission of the County Road/Bridge Department. Roads within a County Road Right-of-Way, but not County maintained, may be required to be jacked or bored depending on road surface conditions and area traffic considerations.

- a) All concrete areas to be excavated, including curb and gutter, sidewalks, driveways and slabs shall be cut with a power driven saw to a minimum depth of twenty percent (20%) of its total thickness then broken square and removed. Cut limits will be a minimum of one (1) foot beyond the proposed excavation limits.
- b) Asphaltic concrete surface shall be cut utilizing a power saw. On a case-by-case basis in older pavements, the County Road/Bridge Department may allow the asphalt to be cut using a jackhammer with spade bit or with a cutting wheel mounted on power equipment. Square cutting shall produce a smooth vertical face at a minimum distance of one (1) foot beyond the area disturbed by excavation.
- c) Cuts shall be rectangular and made parallel and perpendicular to the traveled path of the road. The County Road/Bridge Department reserves the right to extend the cut area to eliminate pavement "slivers" along the edge of the road or near appurtenances.

3.2.2.3. Backfilling

Backfilling within a County Road Rights-of-Way shall meet the following conditions:

- a) All backfill material shall be free from organic matter, refuse, frozen material, saturated material, pieces of concrete and asphalt, boulders or other materials not suitable for use as fill material.
- b) Materials used for backfill shall be carefully placed in layers suitable to the equipment used for compaction, and each layer shall be brought to optimum moisture content ($\pm 3\%$) and mechanically compacted to a minimum of ninety-five (95%) percent of ASTM D-698 standard proctor density.
- c) Material containing a moisture content higher than that which will allow for acceptable compaction shall be removed, hauled away, and replaced with suitable backfill material. If the native material can efficiently be mechanically processed on-site to meet the County requirements as defined herein, it may be used as backfill material. If the proposed drying process cannot be completed within the time limit prescribed by the County Road/Bridge Department (to be determined by site conditions, including consideration for public convenience and safety), the material shall be removed and replaced. Water flooding and/or compaction will not be allowed, unless specific written permission has been obtained prior to its use.

- d) Backfill around the facility being placed or repaired shall be adequate to provide the necessary support and protection to ensure the County Road Right-of-Way is not reopened because of the lack of proper bedding material.
- e) Suitable material removed from the excavation may be used for backfill from the top of the bedding material to sub-grade level.
- f) From the top of the bedding material to sub-grade level, material containing stones up to eight (8") inches in the greatest dimension may be used.
- g) Mechanically fractured washed rock between three-eighths (3/8") inch and two (2") inches may be used as backfill material where standard compaction techniques and equipment cannot be used, subject to prior approval by the County Road/Bridge Department.
- h) Flowable fill conforming to MPWSS specifications may be used, subject to prior approval by the County Road/Bridge Department. Flowable backfilling will be required for use on Collector and Arterial roads.
- i) If the County Road/Bridge Department are unsatisfied with the materials, compaction techniques or efforts, work shall be stopped and an independent testing firm will verify compaction at the contractor's expense.

3.2.2.4. Surface Replacement

After an excavation has been backfilled, the following conditions shall apply for surface replacement:

- a) Where excavation and construction work takes place on unimproved surfaces outside of the roadway template, the area shall be returned to its original condition immediately after the work is complete. This will include topsoil replacement, reseeding to natural grass and returning drain ditches to grade.
- b) Where excavation and construction work take place on asphalt or hard surfaced roads, it is desirable to replace the pavement section to its original or better condition after excavation work. To accomplish this goal, the following conditions shall be met:
 - i. There shall be a minimum of twelve (12") inches of three (3") inch minus crushed subbase course and three (3") inches of one (1") inch minus or one and one-half (1.5") inch minus crushed base course gravel placed on the prepared sub-grade material. All sub-grade, crushed subbase and crushed base materials shall be brought to optimum moisture content ($\pm 3\%$) and compacted to a minimum of ninety-five (95%) percent of the standard proctor density as determined by ASTM D-698, or otherwise directed by the County Road/Bridge Department. Depending on conditions and road classification, the County Road/Bridge Department may require geogrid, geotextile fabric, increased aggregate sections, or an increased asphalt section, in either single elements or any combination thereof.
 - ii. The square cut edges of all exposed asphalt shall have a tack coat applied prior to placement of a minimum of three (3") inches of hot mix asphaltic concrete compacted to ninety-three (93%) percent of the Rice density.
 - iii. Asphaltic concrete shall be placed in such a manner leaving no noticeable bump or depression after the replacement is complete.

- iv. Asphaltic cold mix or a concrete slurry mix may be used as a temporary surface patch. This temporary repair shall be removed and replaced with compacted hot mix asphaltic concrete as soon as weather conditions and hot-mix asphalt availability allow.
 - v. If the finished surface replacement does not meet reasonable expectations of the approved plans or excavation permit, the County Road/Bridge Department retains the right to require seal coating to restore original surface conditions.
- c) Where excavation and construction work take place on gravel surfaced roads, the gravel surface replacement shall comply with surfacing standards in section 4.4.

3.2.2.5. Cleanup

All materials, debris, and items relating to the excavation or construction work shall be removed from the site, and if required by the County Road/Bridge Department, pavement surfaces shall be swept. In all respects the site and surrounding area shall be in an equal or better condition than prior to the work being accomplished.

3.3. Alternative Designs

Access and Utility/ROW Work designs that deviate from the standards in Section 3 will be considered on a case-by-case basis by the County Road/Bridge Department through the Permit process, and do not require a Variance as defined in Section 2.4. Alternative designs for this section must meet the following criteria:

- a) The granting of the variance will not be detrimental to the public health, safety, or general welfare, or be injurious to other adjoining properties;
- b) The variance will not cause a substantial increase in public costs; and
- c) The variance will not place the development in nonconformance with any County Zoning Regulations, County Subdivision Regulations, adopted Transportation Plans and Trails Plans, Growth Policies, and County Capital Improvements Plans.

Alternative designs denied by the County Road/Bridge Department may be appealed by written notice to the County Commission.

4. ROAD DESIGN

The road design standards in this chapter are considered minimum standards and may be superseded by more stringent standards if applicable through an adopted Transportation Plan, Trails Plan or Capital Improvements Plan. Appendix C provides typical drawings for road design standards.

4.1. Accesses

4.1.1. Number of Accesses

To facilitate the safe and efficient movement of vehicular traffic, the provision of emergency services, and the placement of utility easements, the Developer shall provide all developments resulting in six (6) or more lots, or twenty-six (26) or more Units with two or more means of physical access. A single access may be used for up to fifty (50) Units with explicit review and approval from the applicable local emergency service provider. To allow for sufficient access for emergency providers, the County may require the Developer to provide a second access for developments resulting in less than six (6) lots, or twenty-six (26) Units.

4.1.2. Access Intersection Spacing

Minimum Access Road intersection spacing (centerline to centerline) shall be as defined in TABLE 1, unless an alternative is approved by the County Engineering Department.

TABLE 1: Access Intersection Spacing

	Access to Arterial or Road with \geq 45 MPH Speed Limit	Access to Collector or Road with Speed Limit 30 MPH to 45 MPH	Access to Local or Road with < 30 MPH Speed Limit
Full Access	660'	330'	150'
Right-In/Right-Out Access ^a	330'	150'	150'

a: Right-in/Right-out access design including channelization subject to County approval.

Accesses will be prohibited within the functional area of adjacent intersections unless it is demonstrated and documented that no other alternative is feasible.

Access spacing may deviate from those values provided in TABLE 1 without a variance request if accessing a State Highway in compliance with an MDT Access Control/Management document, or with explicit MDT review and approval in conjunction with the County Engineering Department.

4.1.3. Dead-End Roads

No dead-end roads shall be permitted without an approved turn around. Where roads terminate, the Developer shall provide a cul-de-sac. A "T" turnaround at the terminus may be allowed for Interior Roads with approval of the appropriate fire district or fire service area. Cul-de-sacs shall have a minimum sixty (60') Right-of-Way radius. The finished cul-de-sac radius for gravel shall be fifty-one (51') feet, and for pavement shall be fifty (50') feet. "T" turnarounds shall include two straight backup lengths of fifty (50') feet each, an inside turning radius of twenty-eight (28') feet,

and an outside turning radius of thirty-eight (38') feet. Approved turnarounds are shown in Appendix C.

4.1.4. Access Road Improvement and Paving Requirements

So long as safe physical and legal access exists, the Developer shall be responsible for completing only their proportionate share of the improvements to the Access Road(s) to mitigate the development's impacts to the Access Road(s) and as required by these Standards. Traffic volumes used to determine a development's proportionate share shall be based on the ADT (as determined using the most current ITE Trip Generation Manual) generated by the development and existing traffic as determined by either the County Engineering Department, MDT, or a Traffic Impact Study (TIS).

Proportionate share mitigation shall be approved by the County Engineering Department and shall consist of either:

- a) The estimated total cost of the improvements certified by an Engineer representing the development, multiplied by the ratio of the traffic attributable to the development to the existing background traffic, and paid by the Developer to the County, OR
- b) Completion of the improvements pursuant a methodology proposed by an Engineer representing the development or the County Engineering Department.

If the Developer pays to the County the Developer's proportionate share of the improvement costs under (a) above, the County shall restrict the use of such funds to making the improvements to the Access Road(s) or to otherwise improving the transportation network in the area of the development in accordance with adopted Transportation Plans.

Where an Access Road has 300 ADT or where a development will add traffic that causes trips on an Access Road to exceed 300 ADT, the Access Road shall be paved to these Standards, or improved as a proportionate share of the development's impact. The Developer may request the County Engineering Department to accept recommendations / mitigations identified in a TIS for the development prepared in accordance with these Standards in lieu of paving an Access Road. A Developer whose development is not required by these Standards to complete a TIS but has cumulative ADT that requires an Access Road to be paved may voluntarily prepare a TIS in accordance with these Standards and request the County Engineering Department to accept recommendations / mitigation measures identified in the TIS.

In order to assess the adequacy of existing Access Roads, an Engineer may need to complete a section/pavement design report, based on current AASHTO Standards, specific site soil data, existing pit-run, existing crushed base, existing asphalt, and design-year traffic loading conditions. The section/pavement design report shall specify testing procedures, minimum road sections for current and projected traffic loads, and recommended improvements if necessary. Existing Access Roads not meeting the section design strength may require improvements, or other mitigation efforts. If the existing Access Road section is acceptable and meets the recommendations of the section/pavement design report, the Developer may still need to complete other improvements to the Access Roads, per findings of a TIS.

4.2. Roadway Design

All roads shall be designed responsibly in accordance with AASHTO, AASHTO-VLVLR, and PROWAG standards while also satisfying the minimum criteria provided in TABLE 2.

Developments located within an adopted Growth Policy area of an incorporated city or town shall meet the city or town's minimum road design standards and all applicable standards included in adopted Transportation Plans and Trails Plans, Growth Policies, and County Capital Improvements Plans.

TABLE 2: Roadway Design Criteria

Terrain ^a :	Arterial and Collector		Local	
	Ordinary	Mountainous	Ordinary	Mountainous
Min. Design Speed	45-55 MPH	35-45 MPH	25 MPH	25 MPH
Right-of-Way Width	90' – 120'	60'	60'	60'
Pavement Road Width	34'	30'	24'	24'
Gravel Road Width	NA	NA	26'	26'
Min. Curve Radius	AASHTO	AASHTO	150'	150' ^b
Sight Distances	AASHTO	AASHTO	AASHTO	AASHTO ^b
Angle of Intersection	≥80°	≥80°	≥70°	≥70°
Return Radius	50'	40'	40'	25'
Max. Length of Cul-de-sac ^c	NA	NA	1000'	2500'
Max. Grade	7%	10%	10%	12% ^e
Min. Grade	0.5%	0.5%	0.5%	0.5%
Max. Intersection Landing Grade	3% 150' from centerline	3% 150' from centerline	3% 75' from centerline	3% 75' from centerline

a: Mountainous terrain is defined as terrain which has cross slope exceeding fifteen (15%) percent, existing on at least one half of the applicable land area.

b: An AASHTO-VLVLR compliant design may be used where appropriate as certified by the designing Engineer and approved by the County Engineering Department concurrent with submittal of the first application required by applicable review process.

c: Cul-de-sac / dead-end road lengths are determined from the point of departure with a road having at least two (2) means of access (i.e. dead-end roads cannot be chained from other dead-end roads to exceed the maximum cul-de-sac length as measured back to the Access Road providing at least two (2) means of access.)

e: Grades over ten (10%) percent shall not exceed one hundred (100') feet.

Developments with Net Density greater than one (1) dwelling Unit per quarter (1/4) acre may be required to provide curb and gutter.

4.2.1. Intersections

New intersections shall be designed and constructed according to AASHTO / AASHTO-VLVLR standards and shall meet the following requirements:

- a) The intersection of more than two roads at one point shall be prohibited.
- b) Accessing roads on opposite sides of a through road shall meet at the same point, or their centerline shall be off-set as shown in TABLE 1.

- c) Any road, which intersects a hard-surfaced Arterial, Collector, or roadway with more than eight hundred (800) ADT, must be built with hard surfacing one hundred (100') feet from the existing edge of pavement.

4.3. Roadside Design

Roadsides shall be designed and reviewed in accordance with guidance included in the AASHTO Roadside Design Guide. A maximum foreslope of 1V:3H for a minimum of eight (8) feet must be provided. Roads with insufficient Right-of-Way widths, or mountainous terrain, may propose an alternate design for approval by the County Engineering Department concurrent with submittal of the first application required by applicable review process.

The location of road signs shall be designated on road signage plans, which shall be submitted for review and approval by the County Engineering Department. All road signage plans shall be MUTCD compliant.

4.4. Surface and Materials

All road construction shall meet the standards set forth in the most current edition of the MPWSS or these Standards, and any deviations must be certified by the designing Engineer and approved by the County Engineering Department.

- a) Subgrade Excavation and Embankment. The subgrade for all roads shall be finished within a tolerance of three-quarters (3/4") of an inch measured as a vertical ordinate from the face of a ten (10') foot straight edge. The subgrade shall be compacted, in place, to ninety-five (95%) percent ASTM D698 standard proctor density. This compaction is required before any gravel surfacing material is placed on the subgrade.
- b) Sub Base Gravel (Pit run selected surfacing). In all sub base gravel material, up to five (5%) percent "oversized" material is permitted provided that the "oversized" material passes the screen size immediately larger than the top size specified in TABLE 3 (seven (7") inch for six (6") inch maximum) will be allowed. Any sub base gravel used from onsite shall be tested for gradation, plasticity, and liquid limit that meet the most current Montana Public Works Standard Specifications or these Standards. An Engineer shall determine the minimum thickness required for Sub Base Gravel, but in no case shall this be less than twelve (12") inches.

TABLE 3: Sub-base Gravel

Sub-base Gravel Gradation						
% Passing	1	2	3	4	5	6
6" sieve	100%					
3" sieve		100%				
2.5" sieve			100%			
2" sieve				100%		
1.5" sieve					100%	
1" sieve						100%
No. 4 sieve	25% - 60% for all grades					
No. 200 sieve	10% max.	10% max.	10% max.	10% max.	10% max.	10% max.

Note: The liquid limit for that portion of the fine aggregate passing the No. 40 sieve shall not exceed twenty-five (25), nor shall the plasticity index exceed six (6). The portion passing the No. 200 sieve shall not be greater than two-thirds (2/3) of that portion passing the No. 40 sieve.

- c) **Crushed Top Surfacing.** Crushed top surfacing shall be as specified in TABLE 4, with a minimum depth of three (3) inches. The surface course shall be finished within a tolerance of one-half (1/2") inch measured as a vertical ordinate from the face of a ten (10') foot straight edge. Compaction of crushed surfacing shall be compacted to ninety-five (95%) percent ASTM D698 standard proctor density. If water is needed to facilitate compaction and bonding of the material, it shall be applied to bring material within optimum moisture content.

TABLE 4: Crushed Top Surfacing

Crushed Top Surfacing Gradations			
% Passing	1	2	3
1" sieve	100%		
0.75" sieve		100%	
0.5" sieve			100%
No. 4 sieve	40% - 70%	40% - 70%	40% - 70%
No. 10 sieve	25% - 50%	25% - 50%	25% - 50%
No. 200 sieve	5% - 10%	5% - 10%	5% - 10%

Note: The liquid limit for that portion of the fine aggregate passing the No. 40 sieve shall not exceed twenty-five (25), nor shall the plasticity index exceed six (6). The portion passing the No. 200 sieve shall not be greater than two-thirds (2/3) of that portion passing the No. 40 sieve. A 1.5" minus crushed top surfacing with the same fines specifications may be used under asphalt surfacing.

- d) **Asphalt Surfacing.** Asphalt surfacing shall consist of hot mix asphaltic concrete consisting of mineral aggregate and asphalt material mixed at a hot plant. The materials used and the placement methods employed shall meet the requirements of the MPWSS. Minimum asphalt surfacing shall be three (3) inches post-compaction. Native materials under the surfacing material shall be sterilized with a product approved by the County Weed Department used at the recommended concentration.

4.5. Pedestrian, Bicycle and Transit Facilities

Non-motorized facilities shall be constructed to Americans with Disabilities Act (ADA) guidelines for accessibility, these Standards, and applicable AASHTO pedestrian and bicycle guidelines.

4.5.1. Pedestrian Facilities

A Pedestrian Facility shall:

- a) be separated from the roadway with a minimum four (4') foot wide boulevard and be a minimum of five (5') feet in width;
- b) have appropriate commitments for ongoing maintenance, typically by the property owners or a property owner's association as agreed to by Covenant applicable to the property on which the Pedestrian Facility is located;
- c) be located within the dedicated County Road Right-of-Way or public road easement or be located in a public trail easement adjacent to the road Right-of-Way; and
- d) be a concrete surface capable of being used year round.

Pedestrian facilities shall be required as defined by TABLE 5.

TABLE 5: Pedestrian Facilities

Type of Development	Pedestrian Facility
Non-Residential	Both sides of Interior Road
Residential with Net Density ≥ 1 dwelling Unit per half acre	Both sides of Interior Road
Residential with Net Density ≥ 1 dwelling Unit per acre, but < 1 dwelling Unit per half acre	At least one side of Interior Road
Residential with Net Density < 1 dwelling Unit per acre	No pedestrian facility required

Note: Mixed use developments require each portion of use to meet the required facilities in TABLE 5.

Concrete pedestrian facilities shall be constructed of concrete meeting MPWSS standards with a minimum thickness of four (4") inches. The base shall be a minimum thickness of four (4") inches of crushed three-quarter (3/4") inch base aggregate compacted to a minimum of ninety-five (95%) percent ASTM D698 standard proctor density. Native materials under the surfacing material shall be sterilized with a product approved by the County Weed Department used at he recommended concentration. Geotextile fabric (specified by Design Engineer or the County Engineering Department) may be required below the gravel crushed base course.

4.5.2. Bicycle and Trail Facilities

Bicycle and trail improvements may be required for developments that are included in adopted Transportation Plans, Trails Plans, Growth Policies, or County Capital Improvements Plans. Trail corridors shall be at least twenty-five (25') feet wide to ensure adequate room for trail construction, maintenance and use. Trail corridors may either be established through a dedicated Right-of-Way or a public easement. Trails within dedicated Rights-of-Way can be used to satisfy parkland dedication requirements of Gallatin County Subdivision Regulations. Bicycle and trail facilities shall have appropriate commitments for ongoing maintenance, typically by the property

owners or a property owner's association as agreed to by Covenant applicable to the property on which the facilities are located.

Trail surfacing specifications shall be:

- a) Asphalt: minimum thickness of two (2") inches of asphaltic concrete compacted to a minimum of ninety-three (93%) percent Theoretical Rice density on a minimum thickness of four (4") inches of three-quarter (3/4") inch crushed base course crushed base course (see Table 4.8) compacted to a minimum of ninety-five (95%) percent ASTM D698 standard proctor density.
- b) Concrete: minimum thickness of four (4") inches of MPWSS compliant concrete on a base with a minimum thickness of four (4") inches of crushed three-quarter (3/4") inch base aggregate compacted to a minimum of ninety-five (95%) percent ASTM D698 standard proctor density.
- c) Crushed Aggregate: A minimum thickness of four (4") inches of three-eighths (3/8") inch crushed aggregate surfacing compacted to a minimum of ninety-five (95%) percent ASTM D698 standard proctor density over an approved sub-base material.

Native materials under the surfacing material shall be sterilized with a product approved by the County Weed Department used at the recommended concentration. Geotextile fabric (specified by the Design Engineer or the County Engineering Department) may be required below the crushed base course of any type of trail facility surfacing. Trail cross slopes shall be a minimum of two (2%) percent and a maximum of five (5%) percent. Where terrain allows, slope of trails should not exceed 12:1. Minimum overhead clearance shall be eight (8') feet for pedestrian and bike traffic, and ten (10') feet for equestrian traffic.

4.5.3. Transit Facilities

The Developer may be required to dedicate an area of land for a transit stop when a transit route exists or is proposed adjacent to a development. The Developer may be required to provide necessary facilities for a transit stop including but not limited to a shelter and signage, when necessary to reasonably mitigate impacts from the proposed development on existing transit infrastructure. The Developer shall evaluate existing transit amenities and work with transit providers to determine if transit feature improvements are necessary based upon established transit agency guidelines.

5. DRAINAGE FEATURES, SNOW STORAGE, AND WATER CROSSINGS

5.1. Drainage

All Access Roads shall be designed to ensure proper drainage. Storm drainage systems shall be designed, constructed and tested in accordance with the current Montana DEQ regulations, local districts requirements, MPWSS and these Standards.

The Developer shall provide suitable drainage facilities for any surface runoff affecting the development. These facilities shall be located in Rights-of-way or in perpetual easements of appropriate width. All drainage facilities shall be designed to accommodate existing runoff from upstream drainage areas. Drainage features shall not discharge into any sanitary sewer facility or any identified hazardous materials.

5.2. Snow Storage

All developments, excluding single family residential lots, with areas to be plowed for vehicle access including parking lots and driveways shall provide snow storage areas. A portion of the site equal to a minimum of fifteen (15%) percent of the surface areas to be plowed shall be available for snow storage areas. Snow storage areas must be located adjacent to the surface area to be plowed. Snow storage areas must not jeopardize pedestrian or vehicle access or visibility.

5.3. Bridges and Culverts

The Developer may be required to install a bridge or culvert where a road intersects a Watercourse or a Water Conveyance Facility. All roads that intersect Water Conveyance Facilities shall be agreed to in writing by the water users or Water Conveyance Facilities' authorized representatives. Where the Developer is not able to obtain a written agreement the applicable procedure outlined in Gallatin County Subdivision Regulations shall be followed.

Bridges and culverts larger than thirty-six (36") inches in diameter shall be designed and constructed in accordance with the following specifications and these Standards.

- AASHTO LRFD Bridge Design Specifications
- MDT Bridge Design Standards

Comprehensive geotechnical investigations and/or hydraulic analyses may be required by the County Engineering Department or designing Engineer.

Any project that occurs in or near an intermittent or perennial natural water body is subject to review and approval by various local, state and federal agencies. See the MT Department of Natural Resources and Conservation *Guide to Stream Permitting in Montana* to determine which permits are required for various types of work.

5.3.1. Bridge Width

The minimum usable bridge width shall be equal to the total required road width per TABLE 2.

5.3.2. Design Flood and Bridge Freeboard

The minimum design flood event shall be a one hundred (100) year design event and the required design freeboard shall be twenty-four (24”) inches. Additional freeboard may be required by the County Floodplain Administrator or Engineering Department for streams which carry a large amount of debris.

5.3.3. Culvert Design

- a) Culvert headwater design shall be maintained to prevent flooding of adjacent property and shall not exceed six (6”) inches above the base flood elevation in accordance with federal, state and County regulations. Headwater depths at design flow will generally follow the MDT design criteria in TABLE 6.

TABLE 6: Culvert Headwater Design

Pipe Size	Headwater at Design Flow
≤ 42”	< 3D or 3R
48” to 108”	< 1.5D or 1.5R
≥ 120”	< D+2’ or R+2’

Note: D is diameter of a circular pipe, and R is the rise of an arch pipe.

- b) The minimum culvert size shall be a circular eighteen (18”) inch diameter culvert or equivalent.
- c) Culverts will be long enough to allow for three-to-one (3:1) beveled ends and generally designed to extend beyond the clear zone in order to improve safety and eliminate the need for guardrail.
- d) Culvert alignment will match the horizontal and vertical configuration of the existing channel as closely as possible to minimize sedimentation.
- e) Culverts are to be adequately sized to accommodate debris or ice that may occur in the channel.
- f) Open bottom culverts, such as aluminum, steel, or concrete boxes, are to be considered where feasible to minimize the impact on the streambed. Open bottom culverts will be set on either a metal or concrete footing per the manufacturer’s recommendation.
- g) Culverts over forty-eight (48”) inches in diameter will have cutoff walls on both the upstream and downstream ends to prevent erosion below the pipe.
- h) The upstream fill slope is to be adequately protected against erosion. Slopes of three-to-one (3:1) or flatter may only require reseeding whereas more severe slopes will either have rock riprap or a concrete headwall. Culverts with upstream fill slopes exceeding two-to-one (2:1) are to have concrete headwalls.
- i) Culverts will have appropriate end treatments in order to conform to site conditions, maximize hydraulic efficiency, and enhance public safety.
- j) There may be federal or state permitting implications that affect culvert design. The designer shall consult with permitting agencies for additional design considerations such as fish passage.

6. TRAFFIC IMPACT ANALYSIS

The purpose of traffic impact analysis is to identify any traffic impacts resulting from a proposed development and to determine the need for improvements to the transportation system to reasonably mitigate the impacts.

It is the County's goal that all intersections shall not operate below a level-of-service (LOS) "C" standard as determined by the Transportation Research Board Highway Capacity Manual. LOS for two-way/one-way stop controlled intersections shall be determined by the average LOS of the stop controlled movements of the intersection. The LOS for all other intersections shall be determined by the average LOS of all movements through an intersection. If it is determined by a TIS that a proposed development will add traffic to an existing intersection that operates below a LOS "C" standard or if a proposed development causes the LOS to drop below a LOS "C" standard then reasonable mitigation of impacts from the development shall be completed.

6.1. Level of Analysis

Traffic impact analysis shall be prepared based on the expected number of new, external trips being generated by a proposed development as follows:

- a) Traffic Impact Letter (TIL) for developments generating two hundred (200) to five hundred (500) trips per day and twenty-five (25) to one hundred (100) trips per peak hour.
- b) Traffic Impact Study (TIS) for developments generating more than five hundred (500) trips per day or more than one hundred (100) trips per peak hour.

The County Commission or Engineering Department may require a TIL or TIS for developments generating traffic below the trips listed above, if the development is in an area with specific traffic safety or congestion concerns.

Trip generation shall be determined from the most current volume of the Institute of Traffic Engineers (ITE) Trip Generation Manual.

All proposed gravel pit operations, and any other proposed developments that the County Engineering Department determine are likely to generate significant heavy vehicle trips, shall at a minimum complete a TIL and a site access safety analysis.

Any required TIS or TIL shall be submitted to the County Engineering Department concurrently with the approach permit application or, if other County review is required (e.g. subdivision, zoning, Building for Lease or Rent, etc.), concurrent with submittal of the first application required by that review process. In order to avoid delays, applicants are encouraged to coordinate with the County Engineering Department and Planning Department to determine if/what level of impact analysis may be required with submittal.

6.1.1. Traffic Impact Letter

A TIL shall be prepared by or under the direction of an Engineer in coordination with the County Engineering Department. A TIL shall include the following elements at a minimum:

- a) A description of the study area.
- b) A description of the proposed land use.

- c) A trip generation table of the proposed development.
- d) A turning movement diagram for peak hour and design hour traffic volumes for each access location.
- e) Conclusions describing the impact of the proposed development on the surrounding area and roadway system.

6.1.2. Traffic Impact Study

A TIS shall be prepared by or under the direction of an Engineer in coordination with the County Engineering Department. A scope of work meeting with the County Engineering Department will be held prior to TIS submittal.

6.1.2.1. Minimum TIS Scope Requirements

The scope of work at a minimum shall include the following:

- a) Study Area. The geographic study area for the TIS shall be determined by an Engineer in coordination with the County Engineering Department. Some general guidelines include the following:
 - i. All site access points to the development; and
 - ii. All intersections of Arterials and/or Collector roads within a one (1) mile radius of any portion of the development;
 - iii. Intersections of Arterials and/or Collector roads beyond the one (1) mile area if they may be significantly impacted by the development. Significant impacts may include but are not limited to significant increase of additional peak hour trips and/or decrease in the current or projected LOS.
- b) Analysis Period. The TIS shall include an operations analysis performed for the weekday AM and PM peak hour at the Study Area intersections. However, the County Engineering Department may require certain developments to study other peak traffic hour times due to land uses that may generate other peak traffic hour times.
- c) Study Time Frames. The TIS shall include at minimum:
 - i. Existing conditions that date no more than one (1) year from the date sufficiency is determined for the preliminary plat.
 - ii. Expected conditions at completion year of the development or each phase of a phased development, including background traffic projections for the expected completion year. Background traffic projections shall account for nearby developments with preliminary or final plat approval that have not yet built out (as identified by the County Planning Department) and/or the application of an appropriate growth rate.

6.1.2.2. Minimum TIS Requirements.

The study requirements for a TIS are:

- a) Vicinity map showing the location of the project in relation to the transportation system of the area;
- b) Description of the proposed development, surrounding land uses, and existing, adopted Transportation and Trails Plans affecting the study area;

- c) Trip generation forecast using data from the most recent edition of the ITE Trip Generation Manual unless more appropriate data is available and approved by the County Engineering Department;
- d) Trip distribution assumptions based on historical data, existing and future travel characteristics, and capacity constraints;
- e) Existing traffic volumes;
- f) Existing and future LOS, average vehicle delay and volume/capacity ratios (V/C) for all intersections and road sections within the Study Area for conditions with and without the proposed project;
- g) Forecast traffic volumes with and without the development;
- h) Safety analysis of the site access, including sight distance and operation characteristics;
- i) Analysis of right and left turn lane warrants (MDT standards);
- j) Analysis of parking needs of the proposed development;
- k) An objective analysis based recommendation regarding further analyses, including warrants for traffic control devices; and
- l) Findings and conclusions including a recommendation of suggested mitigation for off-site impacts and an evaluation of the effectiveness of that mitigation.

6.2. Review

TILs and TISs shall be reviewed by the County Engineering Department and/or MDT for compliance with industry accepted traffic analysis methodologies and existing Gallatin County and MDT Plans and Regulations. TILs and TISs that may impact MDT facilities are routed to MDT for review. If MDT facility impacts are anticipated, the County Engineering Department will help coordinate review as early as possible to avoid County development review timeline limits. The County Engineering Department reserves the right to reject TILs and TISs deemed insufficient.

6.3. Waiver of Study Requirements.

Upon the written request of the Developer, the requirement for a TIL or TIS, or the study elements listed in Minimum TIS Requirements, may be waived or modified by the County Engineering Department. The Developer shall document the reasons for the requested waiver or modification. Factors to be considered include but are not limited to:

- a) Roadway improvements scheduled that are expected to mitigate any impacts associated with the proposed project.
- b) A similar TIS was previously prepared for the site and is still considered applicable.

7. APPENDIX A: ACCESS PERMIT

Gallatin County Road and Bridge Department Application for an Access Permit

Instructions

Pursuant to Title 7, Chapter 14, Montana Code Annotated, and the *Gallatin County Transportation Design and Construction Standards*, any person or agency desiring to place a driveway, road approach, or other structure in a County Road Right-of-Way must first obtain an access permit from the Road and Bridge Department.

Depending on a project's risks and complexities, the Road and Bridge Department may require the applicant and its contractor (if any) to comply with certain insurance requirements, as well as to obtain a performance guarantee and issue a warranty consistent with Section 2.3 of the *Gallatin County Transportation Design and Construction Standards*. These requirements will be identified in the terms of the permit to be agreed upon by the applicant and Gallatin County Road and Bridge Department.

An application fee [REDACTED] is required. No permits will be processed until the application fee is paid.

Access permits are issued with an expiration date. All construction work must be complete prior to the expiration date unless otherwise stated on the Access Permit. Upon written request, an extension may be granted by the Gallatin County Road and Bridge Department.

The Gallatin County Road and Bridge Department will consider only complete and signed applications. Incomplete applications will be returned.

This application is not a permit. No construction or work may start until a Gallatin County Access Permit has been issued and signed by a Gallatin County Road and Bridge Department representative.

Return completed application, [REDACTED] fee, and required documents to:

Gallatin County Road and Bridge Department
205 Baxter Lane West
Bozeman, MT 59718
Phone 406-582-3250
Fax: 406-582-3255

Application

County Road(s) to be accessed: _____

Driveway/Approach/Structure:

- The main use of the driveway/approach/structure will be (mark one):

Residential (single unit) Commercial Agricultural Road

- Property Address: _____

- Legal Description (include Subdivision Name/Number or COS Number and Tract/Lot Number):

- GEO Code (available on your tax record) _____

- Is the property in a Zoning District? _____ (include a completed Property Information Request Form from the Planning Department).

Name of the Zoning District: _____

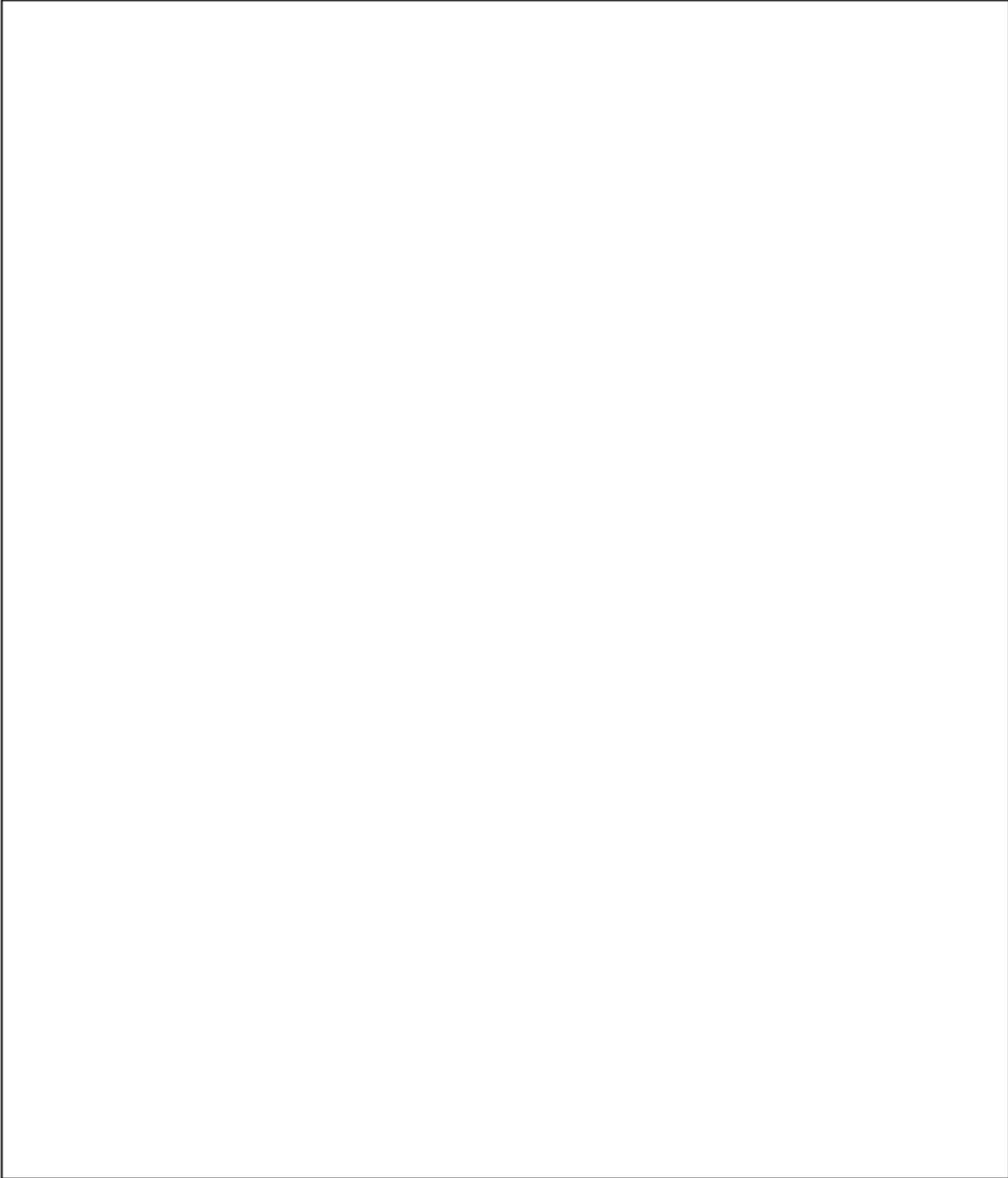
- Driveway/Approach/Structure location description (*i.e. west side of X Rd approx. 300 feet south of Y Rd*): _____

- Is this approach pre-existing? _____ If yes, explain the purpose of your application and provide the previous permit number: _____

- Are there any other driveways or approaches to the property? _____ If yes, provide a written statement explaining the purpose of your request for a second access.

- Date proposed location will be flagged or marked for an initial assessment: _____
- Desired installation schedule: _____

Provide a sketch of the proposed project with property boundaries and address, road names, drainage and topographic features, etc. affecting the proposed location. Applicant may attach a drawing or provide it in the box below.



Documents Required:

- ✓ If in a Zoning District, include the completed Property Information Request Form from the Planning Department
- ✓ Payment for the application fee [REDACTED], checks payable to Gallatin County.

Property Owner (Permittee) Information:

Name: _____ Email address: _____

Business Name: _____

Mailing Address including City State and Zip Code: _____

Telephone: _____ Cell phone: _____ Fax Number: _____

Contractor performing the work (if any):

• Name: _____ Project Manager: _____

• Telephone number: _____ Email address: _____

• Mailing address including City, State and Zip Code _____

Primary Contact Person, Phone Number, and Email for Contact:

Office Use Only:		
Date Received: _____	Date submitted for processing: _____	
Date Issued: _____	Mailed to: _____	
Fee Paid _____	Check Number: _____	Paid By: _____

8. APPENDIX B: UTILITY / ROW WORK PERMIT

Gallatin County Road and Bridge Department Application for a Utility/ROW Work Permit

Instructions

Pursuant to Title 7, Chapter 14, Montana Code Annotated and the *Gallatin County Transportation Design and Construction Standards*, any person or agency performing underground or aerial utility work, or any other kind of work, in a County Road Right-of-Way must first obtain a permit from the Road and Bridge Department.

Depending on a project's risks and complexities, the Road and Bridge Department may require the applicant and its contractor (if any) to comply with certain insurance requirements, as well as to obtain a performance guarantee and issue a warranty consistent with Section 2.3 of the *Gallatin County Transportation Design and Construction Standards*. These requirements will be identified in the terms of the permit to be agreed upon by the applicant and Gallatin County Road and Bridge Department.

An application fee [REDACTED] is required. No permits will be processed until the application fee is paid.

Utility/ROW Work permits are issued with an expiration date. All construction work must be complete prior to the expiration date unless otherwise stated on the Access Permit. Upon written request, an extension may be granted by the Gallatin County Road and Bridge Department.

The Gallatin County Road and Bridge Department will consider only complete and signed applications. Incomplete applications will be returned.

This application is not a permit. No construction or work may start until a Gallatin County Utility/ROW Permit has been issued and signed by a Gallatin County Road and Bridge Department representative.

Return completed application, [REDACTED] fee, and required documents to:

Gallatin County Road and Bridge Department
205 Baxter Lane West
Bozeman, MT 59718
Phone 406-582-3250
Fax: 406-582-3255

Application

County Road Name(s): _____

ROW Work / Utility Placement (including culverts crossing under the County road):

• Type of work: _____

• Status of utility (mark one):

New Placement Repair Upgrade Other

• Location Description (including Latitude and Longitude): _____

• Project Description:

• Project Number if applicable: _____

• Installation schedule (please include desired start date and approximate completion date)

Documents Required:

- ✓ Sketch or plans of the proposed project with property boundaries and address, road names, drainage topographic features, etc. affecting the proposed location.
- ✓ Traffic Control plan (if requesting lane closures)
- ✓ Copies of all necessary certificates and permits from Local, State, Federal and other public authorities.
- ✓ Payment of the application fee [REDACTED] checks payable to Gallatin County.

Property Owner (Permittee) Information:

Name: _____ Email address: _____

Business Name: _____

Mailing Address Including City State and Zip Code: _____

Telephone: _____ Cell phone: _____ Fax Number: _____

Contractor performing the work (if any):

• Name: _____ Project Manager: _____

• Telephone number: _____ Email address: _____

• Mailing address Including City State and Zip Code: _____

Primary Contact Person, Phone Number, and Email for Contact:

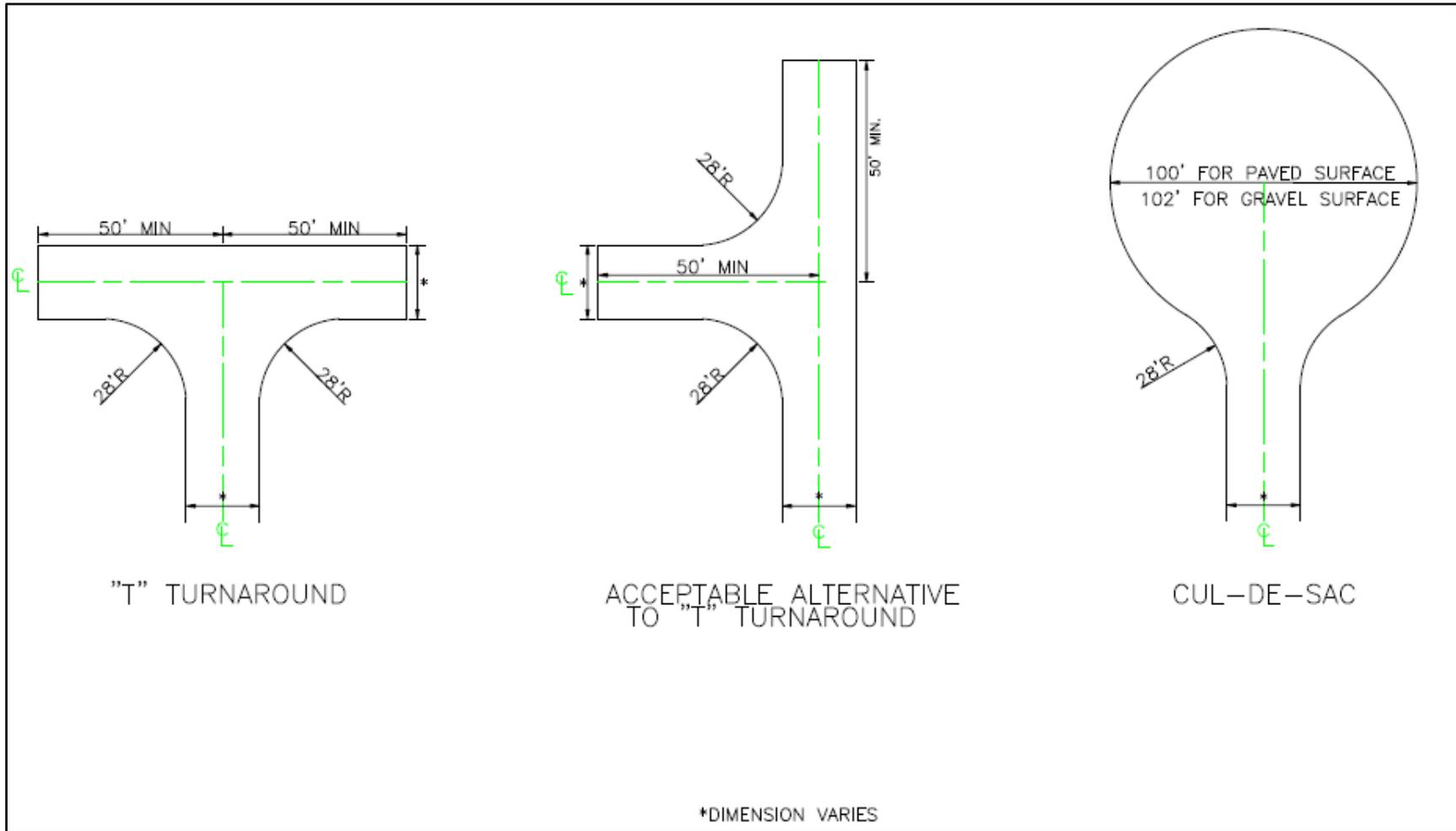
Office Use Only

Date Received: _____ Date submitted for processing: _____

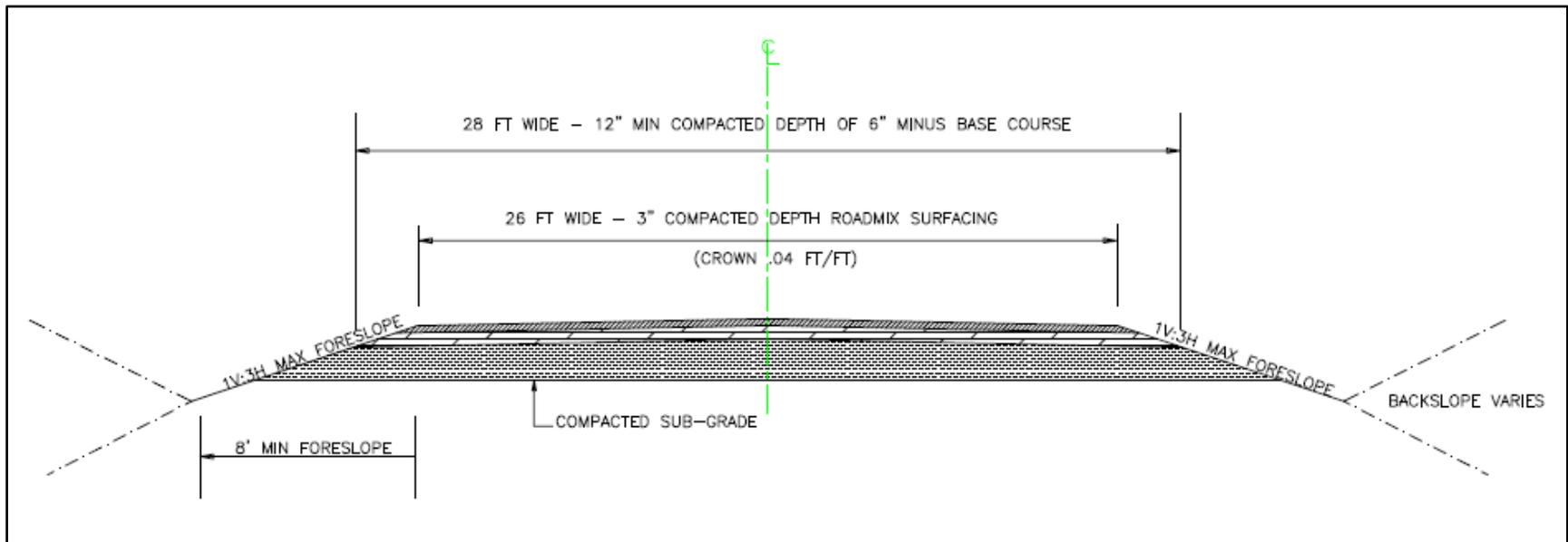
Date Issued: _____ Mailed to: _____

Fee Paid _____ Check Number: _____ Paid By: _____

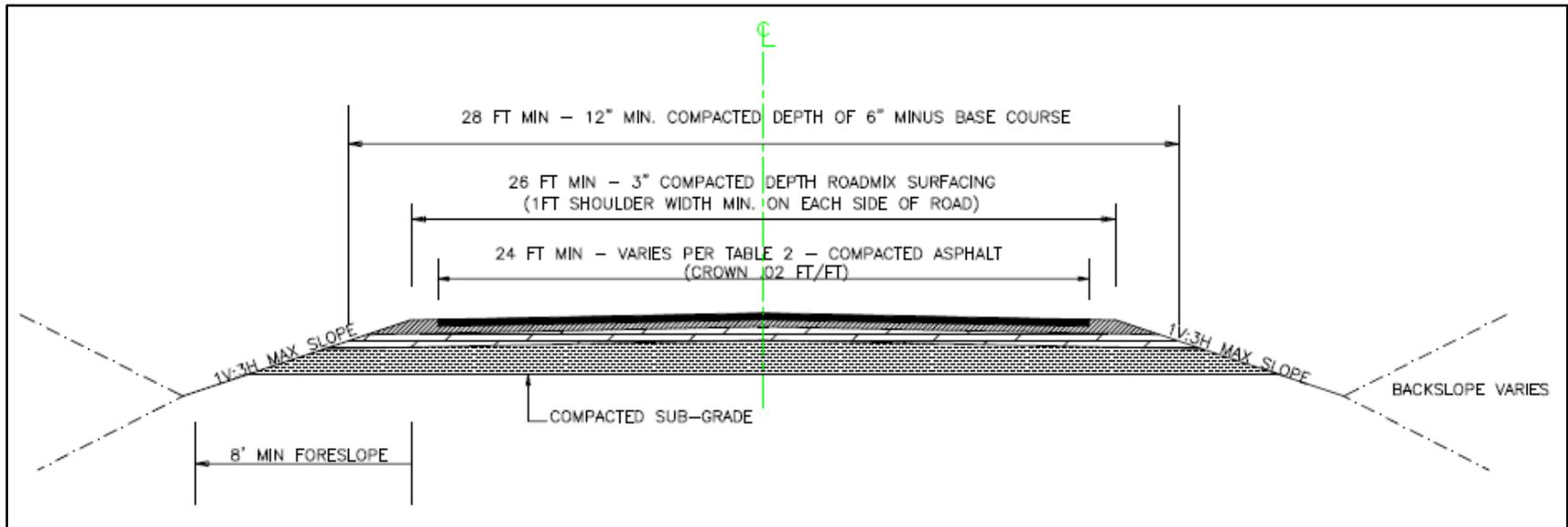
9. APPENDIX C: ROAD DESIGN STANDARD DRAWINGS



APPROVED TURNAROUNDS



TYPICAL GRAVEL ROAD SECTION



TYPICAL PAVED ROAD SECTION