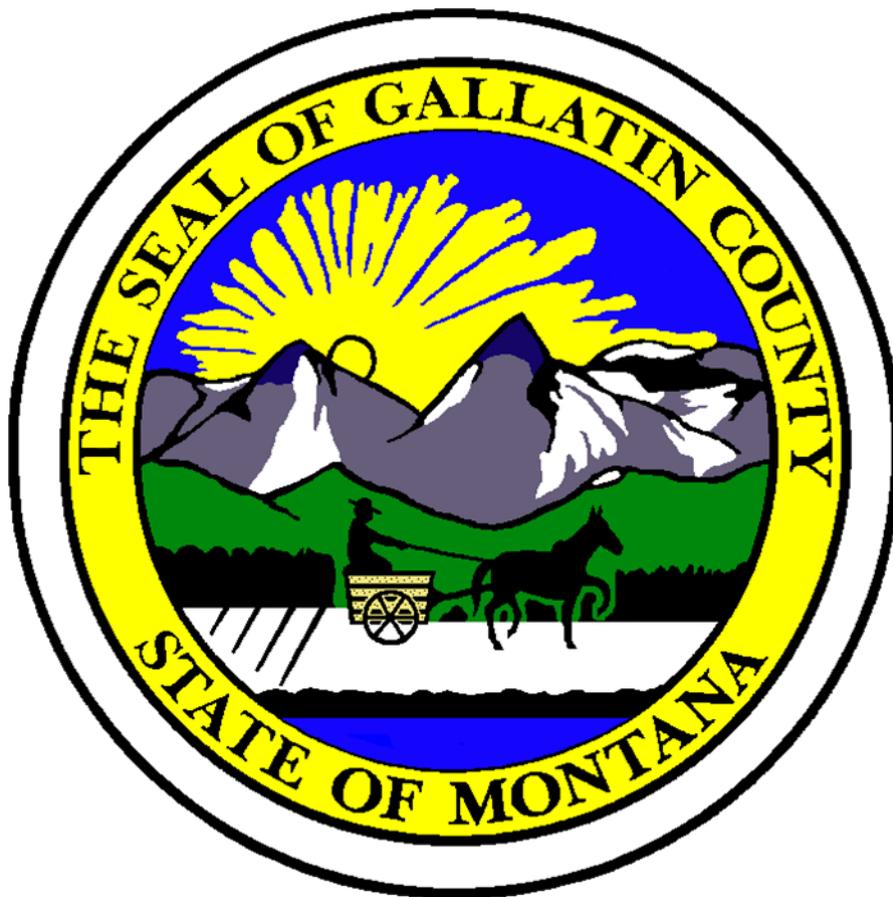


# Gallatin County Transportation Design and Construction Standards



October 17, 2023

**TABLE OF CONTENTS**

**TABLE OF CONTENTS ..... I**

    TABLES .....III

    APPENDICES .....III

**CHAPTER 1: GENERAL PROVISIONS ..... 1**

    SECTION 1.1 | TITLE ..... 1

    SECTION 1.2 | AUTHORITY AND INTENT ..... 1

    SECTION 1.3 | APPLICABILITY ..... 1

    SECTION 1.4 | ROLES AND RESPONSIBILITIES ..... 2

        1.4.1. DELEGATION OF AUTHORITY .....2

        1.4.2. GALLATIN COUNTY ROAD, BRIDGE, AND ENGINEERING DEPARTMENT.....2

        1.4.3. GALLATIN COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT .....2

        1.4.4. GALLATIN COUNTY COMMISSION.....2

        1.4.5. OTHER GALLATIN COUNTY DEPARTMENTS.....2

        1.4.6. MONTANA DEPARTMENT OF TRANSPORTATION .....2

        1.4.7. APPLICANTS AND DEVELOPERS .....2

    SECTION 1.5 | ROAD NAMES ..... 3

    SECTION 1.6 | PERMITTING AND FEES ..... 3

    SECTION 1.7 | MODIFICATION OF THESE STANDARDS..... 3

    SECTION 1.8 | SEVERABILITY ..... 4

    SECTION 1.9 | CONTRADICTIONS ..... 4

    SECTION 1.10 | STANDARD SPECIFICATIONS, REGULATIONS, AND GUIDELINES..... 4

    SECTION 1.11 | DEFINITIONS..... 4

**CHAPTER 2: TRANSPORTATION SYSTEM ADMINISTRATION ..... 9**

    SECTION 2.1 | TRANSPORTATION SYSTEMS ..... 9

        2.1.1. STATE HIGHWAY SYSTEM ..... 9

        2.1.2. COUNTY ROAD SYSTEM ..... 9

        2.1.3. NON-MOTORIZED TRANSPORTATION SYSTEM ..... 9

        2.1.4. MUNICIPAL ROAD SYSTEM ..... 9

        2.1.5. COMPLIANCE WITH ADOPTED TRANSPORTATION PLANS ..... 9

    SECTION 2.2 | CHANGES TO THE COUNTY TRANSPORTATION SYSTEM ..... 9

    SECTION 2.3 | DEDICATION OF PUBLIC RIGHTS-OF-WAY ..... 10

        2.3.1. RELATION TO UNDEVELOPED OR PARTIALLY DEVELOPED LANDS .....11

        2.3.2. RELATION TO ADJACENT DEVELOPED LANDS .....11

        2.3.3. SEPARATION OF THROUGH AND LOCAL TRAFFIC.....11

        2.3.4. DISTANCE BETWEEN PARALLEL RIGHTS-OF-WAY .....11

    SECTION 2.4 | SUBMITTALS ..... 12

    SECTION 2.5 | CONSTRUCTION OBSERVATION ..... 12

    SECTION 2.6 | PERFORMANCE GUARANTEE, INSURANCE, AND WARRANTY ..... 12

        2.6.1. PERFORMANCE GUARANTEE ..... 12

        2.6.2. INSURANCE ..... 13

        2.6.3. WARRANTY ..... 13

    SECTION 2.7 | DESIGN EXCEPTIONS ..... 13

    SECTION 2.8 | VARIANCES ..... 14

    SECTION 2.9 | APPEALS ..... 15

**CHAPTER 3: TRAFFIC IMPACT ANALYSIS ..... 17**

SECTION 3.1 | PURPOSE ..... 17

SECTION 3.2 | RESPONSIBILITY..... 17

    3.2.1. CONSTRUCTION RESPONSIBILITY ..... 17

SECTION 3.3 | APPLICABILITY..... 17

SECTION 3.4 | LEVEL OF ANALYSIS ..... 18

    3.4.1. TRAFFIC IMPACT LETTER ..... 18

    3.4.2. TRAFFIC IMPACT STUDY ..... 18

SECTION 3.5 | REVIEW ..... 20

SECTION 3.6 | PROPORTIONATE SHARE OF IMPROVEMENTS..... 20

    3.6.1. PAVING REQUIREMENTS ..... 21

**CHAPTER 4: ACCESS STANDARDS ..... 22**

SECTION 4.1 | PURPOSE ..... 22

SECTION 4.2 | ROLES AND RESPONSIBILITIES ..... 22

    4.2.1. GALLATIN COUNTY ROAD/BRIDGE/ENGINEERING DEPARTMENT..... 22

    4.2.2. GALLATIN COUNTY PLANNING DEPARTMENT ..... 22

    4.2.3. MUNICIPALITIES ..... 22

    4.2.4. MONTANA DEPARTMENT OF TRANSPORTATION ..... 22

SECTION 4.3 | REQUIRED PERMITS ..... 22

    4.3.1. ACCESS PERMITS ..... 22

    4.3.2. UTILITY/ROW PERMITS ..... 23

    4.3.3. ENCROACHMENT PERMITS ..... 25

SECTION 4.4 | APPROACHES ..... 27

    4.4.1. NUMBER AND ARRANGEMENT OF APPROACHES ..... 27

    4.4.2. CONSTRUCTION AND MAINTENANCE ..... 27

    4.4.3. DESIGN OF APPROACHES..... 27

    4.4.4. DRIVEWAY DESIGN ..... 27

    4.4.5. PENALTIES..... 29

SECTION 4.5 | GENERAL PROVISIONS OF ACCESS ..... 29

    4.5.1. NUMBER OF ACCESSES ..... 29

    4.5.2. ACCESS SPACING ..... 29

    4.5.3. DEAD-END ROADS..... 30

**CHAPTER 5: TRANSPORTATION DESIGN STANDARDS ..... 31**

SECTION 5.1 | PURPOSE AND APPLICABILITY ..... 31

SECTION 5.2 | DESIGN CONTROLS ..... 31

    5.2.1. CONTEXT ..... 31

    5.2.2. FUNCTIONAL CLASSIFICATION..... 31

    5.2.3. TERRAIN CLASSIFICATION ..... 32

    5.2.4. DESIGN TRAFFIC VOLUME ..... 32

SECTION 5.3 | ROADWAY DESIGN STANDARDS ..... 32

SECTION 5.4 | INTERSECTION DESIGN STANDARDS ..... 34

SECTION 5.5 | PARKING ..... 34

SECTION 5.6 | ROADSIDE DESIGN ..... 34

SECTION 5.7 | SURFACE AND MATERIALS..... 35

    5.7.1. SUBGRADE EXCAVATION AND EMBANKMENT ..... 35

    5.7.2. GEOTEXTILE FABRIC ..... 35

5.7.3. *SUB-BASE GRAVEL (PIT RUN SELECTED SURFACING)* ..... 35

5.7.4. *CRUSHED BASE COURSE*..... 35

5.7.5. *ASPHALT SURFACING*..... 35

SECTION 5.8 | PEDESTRIAN, BICYCLE AND TRANSIT FACILITIES ..... 36

5.8.1. *SIDEWALKS*..... 36

5.8.2. *ON-STREET BICYCLE FACILITIES* ..... 37

5.8.3. *OFF-STREET FACILITIES: SHARED USE PATHS AND TRAILS* ..... 37

5.8.4. *TRANSIT FACILITIES* ..... 38

**CHAPTER 6: DRAINAGE, SNOW STORAGE, AND WATER CROSSINGS ..... 40**

SECTION 6.1 | DRAINAGE ..... 40

SECTION 6.2 | SNOW STORAGE ..... 40

SECTION 6.3 | BRIDGES AND CULVERTS ..... 40

6.3.1. *BRIDGE WIDTH* ..... 41

6.3.2. *DESIGN FLOOD AND BRIDGE FREEBOARD* ..... 41

6.3.3. *CULVERT DESIGN*..... 41

---

**TABLES**

TABLE 1: ACCESS SPACING ..... 29

TABLE 2: ROADWAY DESIGN CRITERIA – RURAL ..... 32

TABLE 3: ROADWAY DESIGN CRITERIA – URBAN ..... 33

TABLE 4: SIDEWALKS - RURAL ..... 36

TABLE 5: CULVERT HEADWATER DESIGN ..... 41

---

**APPENDICES**

- APPENDIX A: PERMIT DECISION TREE
- APPENDIX B: ROAD DESIGN STANDARD DRAWINGS

## CHAPTER 1: GENERAL PROVISIONS

---

### SECTION 1.1 | TITLE

---

These Regulations shall be known as the “Gallatin County Transportation Design and Construction Standards” and are referred to throughout the document as the “Standards”.

---

### SECTION 1.2 | AUTHORITY AND INTENT

---

Gallatin County (the County), specifically the Gallatin County Commission, may lay out, maintain, control, and manage County roads and bridges under the limitations and restrictions that are prescribed by law (Section 7-14-2101, Montana Code Annotated [MCA]).

The intent of these 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.

---

### SECTION 1.3 | 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 the following:

- a) The construction and maintenance of Transportation Rights-of-Way (including but not limited to roads, trails, bridges, and culverts), appurtenant structures, and utility facilities built within 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 Rights-of-Way.
- d) The construction of all new roads, trails, approaches, and appurtenant structures, that are built as the result of these standards.

Nothing in these Standards shall be construed to:

- a) require that the County construct, reconstruct, widen, maintain, or improve a road or other Transportation Rights-of-Way to these Standards;
- b) require that those portions of new or existing private roads or approaches outside Rights-of-Way be constructed, reconstructed, widened or improved to the Standards, unless subject to County approval;
- c) obligate the County to accept any new or existing public or private Rights-of-Way for maintenance.

---

**SECTION 1.4 | ROLES AND RESPONSIBILITIES**

---

**1.4.1. Delegation of Authority**

Whenever a provision appears requiring the head of a department or another officer or employee of the County to perform an act or duty, that provision shall be construed as authorizing that person to delegate that responsibility to others over whom they have authority as an "authorized representative".

**1.4.2. Gallatin County Road, Bridge, and Engineering Department**

The role of the Gallatin County Road, Bridge, and Engineering Department (County Road/Bridge/Engineering Department) is to protect, preserve, and maintain the transportation system. The County Engineer or authorized representative is hereby authorized to act on behalf of Gallatin County and the Gallatin County Commission as set forth in these Standards.

**1.4.3. Gallatin County Planning and Community Development Department**

The Gallatin County Planning and Community Development Department's (County Planning Department) role is to provide guidance for planning and development services in Gallatin County. The County Planning Department is responsible for the review and processing of development applications, and development plans may be reviewed by the County Road/Bridge/Engineering Department.

**1.4.4. Gallatin County Commission**

The Gallatin County Commission (County Commission) is responsible for general supervision and control of County Roads and Rights-of-Way per Section 7-14-2101, MCA, *et seq.*, including the establishment, acquisition, alteration, abandonment, and maintenance of those Rights-of-Way under its jurisdiction. The County Commission may in its discretion do whatever may be necessary for the best interest of the County roads.

**1.4.5. Other Gallatin County Departments**

Review and approvals may be required from other Gallatin County Departments, Districts, and Offices. The primary point of contact regarding the administration of these Standards is the County Road/Bridge/Engineering Department.

**1.4.6. Montana Department of Transportation**

Pursuant to Section 60-2-201, MCA, the Montana Department of Transportation (MDT) has the authority to plan, lay out, alter, construct, reconstruct, improve, repair, and maintain highways on the commission-designated highway systems and state highways. MDT may coordinate with the County and other local jurisdictions to review and approve projects impacting state highway Rights-of-Way. MDT also may enter into agreements with the County and other local jurisdictions, pursuant to Section 60-2-204, MCA, by which the local jurisdiction maintains portions of the public highways.

**1.4.7. Applicants and Developers**

Applicants and Developers are responsible for ensuring that proposals and applications comply with these Standards.

---

**SECTION 1.5 | ROAD NAMES**

---

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

---

**SECTION 1.6 | PERMITTING AND FEES**

---

- a) Fees are established by resolution of the Commission and are collected for the following permits or services (Current fee schedules are available from the County Road/Bridge/Engineering Department):
  - i. Utility/ROW Work Permit
  - ii. Access Permit
  - iii. Special Events Permit
  - iv. Variance – *Note: variances submitted as part of a land development application should reference the applicable Planning Department fee schedules.*
  - v. Appeal
- b) Any proposed 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. To ease the permitting process, many agencies use the “Joint Application for Proposed Work in Montana’s Streams, Wetlands, Floodplains and Other Water Bodies,” which is available from Montana Fish, Wildlife & Parks.
  - i. The County Road/Bridge/Engineering Department does not review this application, nor does it issue any permit for working in or near water bodies. Any individual performing work in the vicinity of a natural water body should contact the agencies listed on the joint application to determine which permits are applicable to their project.
- c) Any construction activity that results in the disturbance of equal to or greater than one (1) acre of total land area will need to obtain permit coverage from the Montana Department of Environmental Quality (Montana DEQ) with the “General Permit for Storm Water Discharge Associated with Construction Activity.”
- d) Additional regulations apply and additional permitting is required if the disturbed area falls within a designated Municipal Separate Storm Sewer Systems (MS4) boundary. Applicants shall supply a copy of the Montana DEQ Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWPPP) to the County.
  - i. The County Road/Bridge/Engineering Department does not review this application, nor does it issue any permits for storm water discharge. When the storm water discharge plans have been acknowledged by the appropriate regulatory agency, the County Road/Bridge/Engineering Department may use this information as a reference during routine County inspections of the project as a whole and may act as an agent for the respective regulatory agencies.

---

**SECTION 1.7 | 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.

---

**SECTION 1.8 | 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.

---

**SECTION 1.9 | 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.

---

**SECTION 1.10 | STANDARD SPECIFICATIONS, REGULATIONS, AND GUIDELINES**

---

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.

- a) American Association of State Highway and Transportation Officials (AASHTO), A Policy on the Geometric Design of Highways and Streets (Greenbook)
- b) AASHTO LRFD Bridge Design Specifications
- c) AASHTO Roadside Design Guide
- d) AASHTO Guidelines for Geometric Design of Very Low-Volume Local Roads (VLVLR)
- e) AASHTO Guide for Design of Pavement Structures
- f) AASHTO Guide for the Planning, Design and Operation of Pedestrian Facilities
- g) AASHTO Guide for the Development of Bicycle Facilities
- h) Institute of Traffic Engineers (ITE), Trip Generation Manual
- i) Montana Department of Transportation (MDT), Bridge Design Standards
- j) MDT Roadway Design Manual
- k) Montana Contractors' Association, Montana Public Works Standard Specifications (MPWSS)
- l) US Department of Transportation - Federal Highway Administration, Manual on Uniform Traffic Control Devices (MUTCD)
- m) United States Access Board, Public Right-of-Way Accessibility Guidelines (PROWAG)
- n) Any other applicable road design standard manuals

---

**SECTION 1.11 | DEFINITIONS**

---

Whenever the following words or phrases appear in this text, they shall have the meaning assigned to them by this Section. When not inconsistent with the context, words used in the present tense shall include the future; the singular shall include the plural, and the plural the singular; the word "shall" is always mandatory, the word "should" is considered recommended but not mandatory, and the word "may" indicates use of discretion in making decisions.

**Access:** A physical traveled way and connection point to a roadway. Accesses may include approaches, driveways, and service roads. Access is also used to describe the location of a

proposed road which will be created as part of a subdivision or development (see Access Road). The latter is to be designed as a road with an intersection as per the Standards provided in Chapter 5 (Road Design).

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

**Appeal:** A means for requesting a formal review of the final written decision made by the County Road, Bridge, and Engineering Department as authorized by these Standards.

**Approach:** An access point that connects any private land use such as a residential, commercial, or industrial property to either an interior development road or Access Road.

**Approach, Driveway:** An approach that connects to no more than three (3) dwelling units or an agricultural land use.

**Approach, Residential Driveway:** A driveway that serves no more than one (1) dwelling unit and connects to an interior development road.

**Area, Rural:** All areas of the County that are not otherwise designated as urban areas.

**Area, Urban:** Areas existing within a recognized urbanized area, as designated by the US Census Bureau and the Montana Department of Transportation. Surrounding areas where high density growth is expected to occur, are regarded as urban fringe areas.

**Average Daily Traffic (ADT):** The average 24-hour traffic volume at a given location for a typical weekday. Expressed as annual average daily traffic when that period is one (1) year.

**Background Traffic Projections:** Future buildout conditions without traffic attributable to the proposed development. The projection should include the anticipated increase in background traffic volumes in addition to the generation of other related projects that are not present in the existing condition but would likely be completed and generating trips by the time of full build out. Trip generation for the proposed development should not be included.

**Bicycle Facilities:** Infrastructure designed to accommodate or encourage bicycling, including formal, striped/signed bike lanes, widened roadway shoulders, and shared roadways specifically designated for bicycle use.

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

**Conservation Easement:** The grant of a property right or interest from the Property Owner to a unit of government or nonprofit conservation organization stipulating that the described land shall remain in perpetuity (or defined time period) in its natural and open state, precluding future or additional development (with the exception of any allowable Structures or facilities).

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

**Covenant:** A limitation contained in a deed or other document that restricts or regulates the use of the real property.

**Cul-de-sac:** A local road with physical motorized access on one end only, and with special provisions for turning around on the closed end (bulb, hammerhead, "T", etc.).

**Curb Radius:** The radius available for the design vehicle to make the vehicle turn, accounting for the presence of parking, bike lanes, medians, or other features.

**Curb Return:** The curved section of a curb located at a corner of an intersection, connecting a curb on one street to another curb on the intersecting street.

**Dead-End Road:** A road having only one point of vehicular access. (See also cul-de-sac)

**Dedication:** The deliberate appropriation of land by an owner for any general and public use, reserving no rights which are incompatible with the full exercise and enjoyment of the public use to which the property has been devoted (76-3-103(3), MCA).

**Design Exception:** A documented decision to design roadway element(s) in a manner that deviates from the design criteria established by these Standards.

**Design Speed:** A selected speed used to determine the various geometric design features of the roadway. In selecting an appropriate design speed, topography, anticipated operating speed, adjacent land use, and functional classification should be considered.

**Developer:** Any person or entity that causes land to be developed through division, subdivision, construction, or other land development process requiring County approval.

**Easement:** A nonpossessory interest in land that gives a person or entity the right to use the land of another for a specific purpose or purposes including but not limited to irrigation, roadway, ingress/egress, utilities, or emergency vehicle access.

**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.

**Eyebrow:** A bulb or semi-circular extension of a curb on one side of a street to provide more street frontage for adjacent lots.

**Foreslope:** A parallel slope that falls away from the roadway. Where a roadside ditch exists, a foreslope connects the edge of the shoulder to the bottom of the ditch.

**Grade:** The rate of change of the vertical alignment. Also known as slope.

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

**Knuckle:** A bulb or semi-circular extension of a curb on one side of a street at an elbow or "L" intersection to provide more street frontage for adjacent lots.

**Lands, Partially Developed:** Lots or parcels of land upon which a Structure, utilities, or infrastructure is currently located, and which is of sufficient area so as to be capable of accommodating additional development or which may be subdivided in accordance with County-adopted Plans and Regulations.

**Lands, Undeveloped:** Vacant lots or parcels of land upon which no Structure, utilities, and infrastructure are currently collectively located, but which could be subdivided or otherwise developed in accordance with County-adopted Plans and Regulations.

**Level of Service (LOS):** A term used to qualitatively describe the operating conditions of a roadway based on factors such as speed, travel time, maneuverability, delay, and safety.

**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.

**Proportionate Share:** The portion of the cost for transportation facility improvements that are proportionately related to the service demands and needs of new development. Also known as pro-rata share. Determined by calculation or other methodology proposed by the Applicant's Engineer or the County (see Section 3.6).

**Right-of-Way (ROW):** 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.

**Road, Arterial:** A road having the primary function of moving traffic with emphasis on a high level of mobility for through movement and the secondary function of providing access to adjacent land. Arterials generally carry relatively large volumes of traffic and connect communities to major state and interstate highways. Includes two classifications: Principal and Minor.

**Road, Collector:** A road that gives equal priority to the movement of traffic and access to abutting properties. A principal 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.

**Road, Local:** 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. May be gravel or paved.

**Shared Use Paths:** Also referenced as "commuter trails" in the Triangle Trails Plan, are wide paths with durable surfaces intended for use by both pedestrians and bicyclists.

**Sidewalks:** Paved walkways for the exclusive use of pedestrians. Typically, sidewalks parallel existing motorized transportation facilities. These walkways can either be located immediately adjacent to the curb line, or offset from the roadway by a grassy boulevard.

**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.

**Terrain, Mountainous Terrain:** Longitudinal and transverse changes in the elevation of the ground are abrupt and extensive grading is frequently needed to obtain acceptable alignments. Ridges and drainages are steep and well defined, and the average slope of the terrain greater than 15 percent.

**Terrain, Ordinary (Level or Rolling):** The terrain has limited restriction to normal horizontal and vertical roadway alignment. Ridges and drainages are not well defined.

**Trails:** May be classified as either "connector trails" and "neighborhood trails" as defined in the Triangle Trails Plan. Trails are intended for use by non-motorists for both transportation and recreation purposes and are typically constructed within and connecting to subdivisions. Trails are generally constructed of natural materials such as crushed aggregate.

**Trail, Connector:** Connector trails provide critical access to neighborhood destinations such as housing, schools, and commercial hubs as network extensions to and from commuter trails/shared use paths.

**Trail, Neighborhood:** Neighborhood trails are to be designed and constructed as part of subdivisions. They should connect to neighborhood parks and the larger Trail system.

**Transportation Right-of-Way:** Public Right-of-Way established or dedicated for the purpose of providing a facility used for transportation by vehicle, bicycle, foot, or any other motorized and non-motorized modes. Such facilities may include roads, parking facilities, pedestrian and bicycle facilities, transit facilities, and any other facilities used for transportation purposes.

**Trip:** A one-directional movement from a roadway into or out from a parcel by a single vehicle. The combined number of trips is known as trip generation.

**Unit:** An individual residential dwelling unit, accessory dwelling unit, or non-residential equivalent defined as space for rent, lease, or purchase including but not limited to a single-family home, apartment, condominium, townhouse, commercial condominium, light industrial space, or 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 Section 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.

## CHAPTER 2: TRANSPORTATION SYSTEM ADMINISTRATION

---

### SECTION 2.1 | TRANSPORTATION SYSTEMS

---

The transportation system in Gallatin County consists of state highways, County Roads, city streets, other public roads, private road systems, and non-motorized Transportation Rights-of-Way.

#### 2.1.1. State Highway System

The state highway system in Gallatin County is managed by MDT under the direction of the Transportation Commission. MDT has responsibility for the construction and maintenance of all state highways. Maintenance responsibilities may be assumed by the County or an incorporated municipality under a maintenance agreement. Access to the state highway system is administered by MDT. Planning for state highways is conducted by MDT in cooperation with the County, local municipalities, and other agencies.

#### 2.1.2. County Road System

The County Commission has authority to administer the County Road System, including, but not limited to, planning, design, construction, acceptance, maintenance, and traffic regulation.

#### 2.1.3. Non-Motorized Transportation System

Other Planning Documents, such as Community Plans, Transportation Plans, Trails Plans, and the County Growth Policy, may provide guidance on the development of the non-motorized transportation system. The plans can be accessed online through the County Planning Department.

#### 2.1.4. Municipal Road System

Within City boundaries, the transportation design standards issued by the respective jurisdiction shall apply.

#### 2.1.5. Compliance with Adopted Transportation Plans

The layout of roads, streets, highways, and non-motorized facilities shall comply with adopted Transportation Plans. Where proposed development adjoins other property, the dedicated Right-of-Way and improvements required to connect roads and non-motorized facilities within the proposed development shall extend to the adjacent property line in conformance with any adopted Transportation and Trails Plans.

---

### SECTION 2.2 | CHANGES TO THE COUNTY TRANSPORTATION SYSTEM

---

The County is authorized by Sections 7-14-2601, MCA, et seq., and 60-1-101, MCA, et seq., to establish, alter, and abandon County Roads. No road or other public Right-of-Way encroaching upon an existing County Road Right-of-Way shall be constructed or approved to be in the jurisdiction of the County until and unless the proposed location and extent has been reviewed by the County Commission or approved as part of a platted subdivision.

The County Road/Bridge/Engineering Department is responsible for planning, design, Right-of-Way acquisition, construction, and inspection of all improvements to the existing County Road transportation system.

County Roads and other Transportation Rights-of-Way constructed by others will ordinarily pass through the following review steps:

- a) **Planning:** The planning or layout of a new County Road or other Transportation Right-of-Way shall comply with these Standards, the Gallatin County Subdivision Regulations, and any other applicable development regulations. The permitting process shall be started as part of the planning process (See Section 1.6).
- b) **Design:** The design of any new County Road or other Transportation Rights-of-Way shall comply with these Standards. Plans shall be prepared by a Professional Engineer in accordance with these Standards and the Subdivision Regulations and shall be approved by the County Road/Bridge/Engineering Department prior to the beginning of construction.
- c) **Construction:** Construction of new County Roads and other Transportation Rights-of-Way shall conform to an approved design that follows the Standards contained herein.
- d) **Inspections and Testing:** Adequate inspections and testing ensure compliance with these Standards and the MPWSS and are the basis for release of the Performance Guarantee. Requirements for inspections and testing are the sole responsibility of the Developer.
- e) **Right-of-Way Dedication/Acceptance:** Acceptance of a subdivision plat by the County Commission constitutes acceptance of non-road Rights-of-Way for public use as shown. Road Rights-of-Way dedicated for public use on a subdivision plat must be accepted and approved by resolution of the County Commission. All Interior Development Roads shown on an approved subdivision plat are accepted as County Roads. The County Commission will approve road Rights-of-Way by resolution only after all the following requirements are met:
  - i. The Rights-of-Way meet all applicable minimum design requirements described in these Standards. If a Design Exception or variance is approved, or if an appeal is reversed, the roads shall meet all requirements agreed to in the approved documentation.
  - ii. The Rights-of-Way connect to another County Road, state highway, city street, or non-motorized transportation facility.
  - iii. As-built drawings are to be submitted to the County Road/Bridge/Engineering Department. The drawings shall accurately show all construction details, utility and lateral locations, and other pertinent information.Acceptance of public Rights-of-Way does not constitute acceptance of the facility for maintenance.
- f) **Warranty Period and Guarantee:** There is a two (2) year warranty period on all work performed within the County Rights-of-Way with an accompanying warranty guarantee as described in Section 2.6.

---

### SECTION 2.3 | DEDICATION OF PUBLIC RIGHTS-OF-WAY

---

The County may require that Transportation Rights-of-Way be dedicated as a condition of approval, in accordance with long term transportation goals and any requirements defined by these Standards and all other County-adopted Plans and Regulations. The determination of the Rights-of-Way widths and types shall be compliant with the Standards in Chapter 5. During the

first applicable review or permitting process, the County will ensure Right-of-Way widths and types are adequate for the land's topography and other conditions.

All Access Roads, Interior Development Roads, and other interior Transportation Rights-of-Way shall be dedicated to the public. Transportation Rights-of-Way dedicated to the public are accepted for public use, but the County accepts no responsibility for maintenance.

### **2.3.1. Relation to Undeveloped or Partially Developed Lands**

All proposed developments shall be designed to maximize connectivity to adjoining developed lands and maximize connectivity to adjoining Undeveloped and Partially Developed Lands. Such connectivity shall provide Rights-of-Way to the adjoining lands and allow for extensions of all Transportation Rights-of-Way, parks and open space, easements for drainage, utilities, and other facilities.

Extensions of Rights-of-Way shall be required to enable connection when a proposed development provides an opportunity to connect Interior Development Roads or other Transportation Rights-of-Way to: (1) an existing transportation network, (2) a future Transportation Right-of-Way for which plans have been approved by the governing body in an adopted Transportation Plan, or (3) any Undeveloped or Partially Developed Lands.

Where any adjoining land is undeveloped, the arrangement of roads and other Transportation Rights-of-Way in new developments shall be such that said Rights-of-Way extend to the boundary line of the tract to make provision for the future extension of said Rights-of-Way into the adjacent Undeveloped Land in accordance with adopted Plans and Regulations and the County Road/Bridge/Engineering Department's requirement(s). Proper provision for a temporary or permanent turnaround at the end of a stub connection shall be made. Any such turnaround shall be subject to the requirements of Section 4.5.3 (Dead-End Roads).

### **2.3.2. Relation to Adjacent Developed Lands**

The Developer shall arrange Interior Development Roads and otherwise provide extensions of Rights-of-Way to allow for continuation of transportation facilities between adjacent developed properties.

### **2.3.3. Separation of Through and Local Traffic**

Where a development abuts or contains an existing or proposed Collector or Arterial 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.

### **2.3.4. 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 or other Transportation Right-of-Way 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.

---

**SECTION 2.4 | SUBMITTALS**

---

Transportation system improvement or construction plans shall be submitted in electronic (pdf) format. The plans must be approved and stamped by a Professional 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.

Upon completion of all improvements and before final acceptance, 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 Road/Bridge/Engineering Department. The County will not accept the project until the as-built plans have been received by the County. The two-year warranty period will begin on the date that the County Road/Bridge/Engineering Department issues a written acceptance for the improvements. The County Road/Bridge/Engineering Department will have 30 calendar days from receipt of the as-built plans to review and provide a letter of acceptance or deficiency letter.

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.

---

**SECTION 2.5 | 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 all times during the progress of work. The Developer's construction schedule shall include sufficient time for materials testing and any required verification. The County, in its sole discretion, has the authority to reject defective material and suspend work that is being done improperly or without authorization. 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.

---

**SECTION 2.6 | PERFORMANCE GUARANTEE, INSURANCE, AND WARRANTY**

---

**2.6.1. 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 4.3. 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 twelve (12) 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 Attorney, which may include,

but are not limited to, a Surety Bond, a Certificate of Deposit (CD), a Certified Check, or an irrevocable Letter of Credit issued by a bank licensed to do business in the State of Montana.

### **2.6.2. 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. 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).

### **2.6.3. Warranty**

The Developer shall warranty all materials and equipment furnished and work performed within the County 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 for all direct and indirect costs 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.

---

## **SECTION 2.7 | DESIGN EXCEPTIONS**

---

The County requires that every reasonable effort be made to satisfy defined transportation design criteria. The County recognizes, however, that deviations from design criteria may be

desirable to better fit the individual roadway context and meet the needs of all users. A Design Exception may be justified on the basis of realizing functional, operational, or safety advantages, or improving modal balance.

Designs that deviate from these Standards will be considered on a case-by-case basis by the County Road/Bridge/Engineering Department. A request for a Design Exception must be submitted concurrent with the first application required by the applicable review or permitting process. The request must describe the basis for the Design Exception and include a response to each of the criteria identified below.

Design Exceptions are only allowable for specific criteria and standards. Only where expressly noted that Design Exceptions are allowed, alternative designs must meet the following criteria:

- a) No reasonable, feasible and practical solution can be devised to provide standard values for the critical design elements in question, OR the selection of non-standard value(s) is advantageous in some way(s) and results in an overall superior design;
- b) The granting of an exception will not be detrimental to the public health, safety, or general welfare, or be injurious to other adjoining properties;
- c) The exception will not cause a substantial increase in public costs; and
- d) The exception will not place the development in non-conformance with other Sections of these Standards or any other County-adopted Plans and Regulations.

The County Road/Bridger/Engineering Department will issue a written decision approving or denying a proposed Design Exception within 30 working days of receiving a complete submittal. The Department, in its sole discretion, may deny a request for a Design Exception that does not adequately explain the basis therefore or provide a response to each of the criteria set forth above.

---

## **SECTION 2.8 | VARIANCES**

---

The County Commission may grant reasonable variances from these Standards where it is found that strict compliance will result in undue hardship and such strict compliance is not essential to the public health, safety, and general welfare. Variances submitted as part of a land development application shall be considered simultaneously with the application. Other variances not associated with a land development application shall be considered during a public meeting.

The Developer shall submit a written request to the Road/Bridge/Engineering Department describing the requested variance, the facts of hardship upon which the request is based, and responding to each of the criteria identified below. The County Commission shall consider each variance during a public meeting 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 non-conformance with other sections of these Standards or any other County-adopted Plans or Regulations.

Notice of the public meeting shall be published twice, with at least six days separating each publication, in a newspaper of general circulation in the area, consistent with the requirements of § 7-1-2121, MCA. Notice of the meeting shall also be provided notice of the meeting by first-class mail to all owners of real property adjacent to the real property that is the subject of the variance, consistent with the requirements of § 7-1-2122, MCA.

In granting variances, the County Commission may impose such conditions as will in its judgment substantially secure the objectives of these Standards. The Commission shall issue a written decision approving or denying a variance within 30 working days of the public meeting at which the variance was considered.

A person aggrieved by the County Commission's decision on a variance may appeal such decision to a court of competent jurisdiction within 30 days of the issuance of the Commission's written decision.

---

## **SECTION 2.9 | APPEALS**

---

An aggrieved person (Appellant) may request a formal review of a final written decision made by the County Road/Bridge/Engineering Department. Only the following decisions may be appealed: denial or approval of a permit, requirement for a permit, the conditions attached to a permit, or the denial or approval of a Design Exception.

An appeal must be in writing, signed by the Appellant, and must contain, at a minimum, the following information:

- a) Name, address, and phone number of the Appellant;
- b) Description of the basis for the appeal, detailing site-specific restrictions and why they are requesting relief from the Road/Bridge/Engineering Department's decision;
- c) Location and site information; and
- d) Alternative solutions and demonstrated utility, feasibility, safety, and equivalency thereof.

The appeal must be submitted to the Road/Bridge/Engineering Department within thirty (30) calendar days of the date of the written decision being appealed. The Department shall acknowledge receipt of the appeal and notify the Appellant of the date of the appeal hearing in writing. However, if an appeal is received more than 30 days after the date of the written decision, the Department shall notify the Appellant in writing that it is declining to send the appeal to the County Commission for consideration.

The Commission will consider an appeal during a public appeal hearing. The Road/Bridge/Engineering Department shall publish notice of the hearing twice, with at least six days separating each publication, in a newspaper of general circulation in the area, consistent with the requirements of § 7-1-2121, MCA. The Department also shall provide notice of the hearing by first-class mail to all owners of real property adjacent to the real property that is the subject of the appeal, consistent with the requirements of § 7-1-2122, MCA.

At the close of the appeal hearing, the Commission may modify or reverse the decision only if it concludes, based on the facts contained within the administrative record on which the Road/Bridge/Engineering Department based its decision, that the Department erred. The Commission shall issue a written decision within thirty (30) working days following the appeal hearing.

A person aggrieved by the County Commission's decision on an appeal may appeal such decision to a court of competent jurisdiction within 30 days of the issuance of the Commission's written decision.

## CHAPTER 3: TRAFFIC IMPACT ANALYSIS

---

### SECTION 3.1 | PURPOSE

---

The purpose of a 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 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 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.

---

### SECTION 3.2 | RESPONSIBILITY

---

The primary responsibility for assessing the transportation effects related to a proposed development rests with the Developer. The traffic impact analysis shall be prepared by or under the direction of an Engineer. The County will serve in a review and approval capacity.

#### 3.2.1. Construction Responsibility

It is the responsibility of all Developers to design and construct necessary improvements as follows:

- a) Any development, which will impact the service level, safety, or operational efficiency of Transportation Rights-of-Way serving such land development shall improve those Rights-of-Way in accordance with these Standards and all other County-adopted Plans and Regulations. The extent of improvements shall be based on the findings of the traffic impact analysis.
- b) Any land development abutting or impacting existing County Rights-of-Way shall provide their proportionate share of improvements (see Section 3.6) to abutting or impacted Transportation Rights-of-Way in accordance with these Standards and all other County-adopted Plans and Regulations. The extent of improvements shall be based on the findings of the traffic impact analysis.
- c) Any land development that contains internal public Transportation Rights-of-Way shall construct or improve those facilities in accordance with these Standards and all other County-adopted Plans and Regulations.

---

### SECTION 3.3 | APPLICABILITY

---

At a minimum, any commercial or industrial development, or any development which will generate more than five (5) trips per peak hour, is required to complete a traffic impact analysis to document the proposed development's trip generation document assumptions for access to the proposed development, anticipated trip generation, and identify situations triggering a

higher level of analysis. Trip generation shall be determined from the most current volume of the ITE Trip Generation Manual.

The County Commission or Road/Bridge/Engineering Department may require an analysis for developments generating less traffic if the development is in an area with specific traffic safety or congestion concerns.

Any required traffic impact analysis shall be submitted to the County Road/Bridge/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 Road/Bridge/Engineering and Planning Departments to determine what level of traffic impact analysis may be required with submittal.

In cases where a similar traffic impact analysis was previously prepared for the site and is still considered applicable, a new analysis is not required.

If a proposed development requires access to and from a State Highway, the MDT System Impact Action Process shall be followed. A traffic impact analysis completed through this process and approved by MDT shall satisfy the traffic impact analysis requirements for the County if it is deemed that the analysis sufficiently addresses impacts to the County transportation system. A separate analysis is not required. The traffic impact analysis approved by MDT should be included in the applicant's submittal.

---

### **SECTION 3.4 | LEVEL OF ANALYSIS**

---

The level of traffic impact analysis required shall be based on the expected number of new, external trips being generated by a proposed development as follows:

- a) Traffic Impact Letter (TIL) for all commercial and industrial development, or for any development which will generate more than five (5) trips per peak hour.
- b) Traffic Impact Study (TIS) for developments generating more than three hundred (300) trips per day or more than fifty (50) trips per peak hour.

#### **3.4.1. Traffic Impact Letter**

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

- a) A description of the study area;
- b) A description of the proposed land use;
- c) A trip generation table of the proposed development; and
- d) Conclusions describing the impact of the proposed development on the surrounding area and transportation system.

#### **3.4.2. Traffic Impact Study**

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

#### 3.4.2.1. 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 Road/Bridge/Engineering Department. Some general guidelines include the following:
  - i. All site access points to the development;
  - ii. All intersections of Arterials and/or Collector Roads within a one (1) mile radius of any portion of the development; and
  - 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 Road/Bridge/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 a minimum, the following:
  - i. Existing conditions that date no more than one (1) year from the date sufficiency is determined for the preliminary plat or from the date of first application required by the applicable review process.
  - ii. Future conditions should be analyzed for the year in which the project is expected to be built out, including background traffic projections. If the project is proposed to occur over multiple phases, each phase should be evaluated on its corresponding build-out year. The surface transportation network assumed for the future planning horizon should reflect any existing facilities plus any firmly committed transportation improvements. Background traffic projections shall account for nearby developments with an approved preliminary or final plat, permit, or other development application that have not yet built out (as identified by the County Planning Department) and/or the application of an appropriate growth rate.

#### 3.4.2.2. Minimum TIS Requirements.

The TIS shall include, at a minimum, the following:

- 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 Road/Bridge/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.

---

### **SECTION 3.5 | REVIEW**

---

The traffic impact analysis shall be reviewed by the County Road/Bridge/Engineering Department and/or MDT for compliance with industry accepted traffic analysis methodologies and existing Gallatin County and MDT Plans and Regulations. If MDT facility impacts are anticipated, the County Road/Bridge/Engineering Department will help coordinate review as early as possible to avoid County development review timeline limits. The County Road/Bridge/Engineering Department reserves the right to reject any traffic impact analysis that it deems insufficient in its sole discretion.

---

### **SECTION 3.6 | PROPORTIONATE SHARE OF IMPROVEMENTS**

---

So long as safe physical and legal access exists, the Developer shall be responsible for completing only their proportionate share of the improvements to County Road Rights-of-Way and other Transportation Rights-of-Way accessed by the development to mitigate the development's impacts to the Rights-of-Way and as required by these Standards. The Developer shall be responsible for their proportionate share of all Transportation Rights-of-Way. Proportionate share shall be determined using traffic volumes 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 Road/Bridge/Engineering Department, MDT, or the traffic impact analysis.

Proportionate share mitigation shall be approved by the County Road/Bridge/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 Road/Bridge/Engineering Department.

The Developer shall complete improvements commensurate with the Developer's proportionate share of the development's impact to the affected Transportation Rights-of-Way, or contribute the Developer's proportionate share of the costs of the improvements to Gallatin County. If the Developer elects to contribute their proportionate share, the Developer shall enter a

proportionate share agreement with the Gallatin County Commission and receive approval from the County Commission prior to final plat approval.

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 Rights-of-Way or to otherwise improving the transportation network in the area of the development in accordance with adopted Transportation Plans.

### **3.6.1. Paving Requirements**

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

In order to assess the adequacy of the existing Road(s), 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 Road(s) not meeting the section design strength may require improvements, or other mitigation efforts. If the existing 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 Road(s), per findings of the traffic impact analysis.

## CHAPTER 4: ACCESS STANDARDS

### SECTION 4.1 | PURPOSE

The purpose of these access standards is to provide a framework to achieve proper access management. The goals of proper access management are to:

- a) reduce the number of vehicle and pedestrian conflict points, reducing both the number and severity of vehicle collisions;
- b) safely and adequately accommodate the type and volume of traffic, including emergency vehicles, that currently uses the access, plus any increase in traffic that may be added by the permitted use;
- c) preserve the intended capacity and functional level of roadways; and
- d) ensure that the owner of a lot has a lawfully established right of vehicular ingress and egress to that lot.

Access and Utility/ROW Work designs that deviate from the Standards provided in this Chapter will be considered by the County Road/Bridge/Engineering Department through the Design Exception process.

### SECTION 4.2 | ROLES AND RESPONSIBILITIES

#### 4.2.1. Gallatin County Road/Bridge/Engineering Department

The County Road/Bridge/Engineering Department shall determine the number, location, and surface treatment of all accesses consistent with the intent of these Standards.

#### 4.2.2. Gallatin County Planning Department

The County Planning Department is responsible for review of development applications for compliance with County Plans and Regulations. Prior to a permit or application being submitted to Planning, proposed access points to the property may be reviewed by the County Road/Bridge/Engineering Department.

#### 4.2.3. Municipalities

Within incorporated, urbanized areas, the access standards detailed in the respective jurisdictions' transportation design standards shall apply.

#### 4.2.4. Montana Department of Transportation

MDT has authority over any access requested to a state highway. Such accesses must adhere to the MDT Design Standards and go through the MDT Systems Impact Action Process.

### SECTION 4.3 | REQUIRED PERMITS

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/Engineering Department.

#### 4.3.1. Access Permits

Access Permits are required for driveways, roads, walkways, paths, sidewalks, trails, and any other kind of approach placed within a County-maintained, County Road Right-of-Way.

Driveways serving no more than one (1) dwelling unit and accessing an Interior Development Road are considered Residential Driveways and do not need to be individually permitted if included as part of a proposed development.

#### **4.3.2. Utility/ROW Permits**

Utility/ROW Permits are required for underground and aerial utility work (excluding landscaping and associated irrigation) or any other kind of work, in, under, or over any portion of all County Road Rights-of-Way. Such work includes work on any existing tower, pole, poleline, pipe, or pipeline, stand or building, or any appurtenant Structure that currently exists within County Road Rights-of-Way. Utility/ROW Permits also are required prior to locating new underground utilities or replacing existing above-ground utilities in a County Road Right-of-Way. New above-ground utilities may not be placed over or across a County Road Right-of-Way without an Encroachment Permit approved by the County Commission per Section 4.3.3.

##### *4.3.2.1. Excavations*

Excavations in County Road Rights-of-Way may be allowed at the discretion of the County Road/Bridge/Engineering Department with the issuance of a Utility/ROW Work permit. The County Road/Bridge/Engineering 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/Engineering 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.

#### **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 Section 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/Engineering Department in an attempt to coordinate patching work.

- c) Survey monumentation is exempt from Permit requirements, with acknowledged notification from the County Road/Bridge/Engineering Department.

### **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/Engineering 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/Engineering 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/Engineering Department reserves the right to extend the cut area to eliminate pavement "slivers" along the edge of the road or near appurtenances.

### **Backfilling**

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

- a) Native backfill material may be used if the material meets the specifications and compaction requirements of Section 02221 of MPWSS.
- b) If suitable backfill material is not available within project limits, imported backfill material may be required by the Engineer. Imported material meeting MPWSS specifications should be placed and compacted according to the applicable MPWSS backfill requirements.
- c) Flowable fill conforming to Section 02225 of MPWSS specifications is required for use on Collector and Arterial roads. Flowable fill backfill at other locations may be required by the Engineer or the County Road/Bridge/Engineering Department.
- d) If the County Road/Bridge/Engineering Department are unsatisfied with the materials, compaction techniques or efforts, work shall be stopped and an independent testing firm will verify materials and compaction at the contractor's expense.

### **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. The pavement section shall match existing surfacing depths or meet the following minimum depths, whichever is greater: 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 with a minimum of three (3") inches of asphalt or concrete surfacing.
  - ii. All surfacing materials, placement, and compaction shall meet the minimum requirements of the applicable sections of MPWSS.
  - iii. Depending on conditions and road classification, the County Road/Bridge/Engineering Department may require geogrid, geotextile fabric, increased aggregate sections, or an increased asphalt section, in either single elements or any combination thereof.
  - iv. All surface replacements shall meet the patching, compaction, and finishing standards provided in Section 02510 of MPWSS.
  - v. 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.
  - vi. If the finished surface replacement does not meet reasonable expectations of the approved plans or excavation permit, the County Road/Bridge/Engineering Department retains the right to require seal coating to restore original surface conditions or replacement.
- c) Where excavation and construction work take place on gravel surfaced roads, the gravel surface replacement shall comply with surfacing standards in Sections 02234 and 02235 of MPWSS.

### **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/Engineering 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.

### **4.3.3. Encroachment Permits**

Except as authorized by 4.3.2 (Utility/ROW Permits) and 4.3.3.1 (Mailboxes), encroachments in County Road Rights-of-Way are prohibited unless permitted by the County Commission. An Encroachment Permit is required prior to placing any above-ground structure or object of any kind or character over or across any portion of a County Road Right-of-Way, including, but not limited to towers, poles, structures, gates, fences, stands, and buildings. 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/Engineering 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/Engineering 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/Engineering 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/Engineering 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.

#### *4.3.3.1. 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 or is determined by the County Road/Bridge/Engineering 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 considered 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.

---

**SECTION 4.4 | APPROACHES**

---

**4.4.1. Number and Arrangement of Approaches**

The location, number, and configuration of all approaches to County Road Rights-of-Way are subject to the approval of the County Road/Bridge/Engineering 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.

**4.4.2. 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 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/Engineering 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. Activities pertaining to road maintenance may be funded by the creation of a Rural Improvement District.

**4.4.3. Design of Approaches**

The County Road/Bridge/Engineering Department has the sole discretion of determining the most suitable design and layout of all approaches to County Road Rights-of-Way. Approach design must meet all applicable sections of these Standards including those in Chapter 5 (Road Design) that may be more restrictive than the driveway design requirements in Section 4.4.4.

**4.4.4. Driveway Design**

This Section is applicable to driveways, which are approaches serving no more than three (3) dwelling units or agricultural land. Approaches serving more than three (3) dwelling units or any non-agricultural land shall be considered Access Roads and shall comply with all requirements for Access Roads, including those in Chapter 5 (Road Design).

All driveways shall meet the following design requirements:

- a) Sight distance shall be as required by AASHTO / AASHTO-VLVLR.
- b) The driveway 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/Engineering Department or approved by a local emergency service provider.
- 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/Engineering 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 approach may be required.
  - i. The minimum distance from driveway centerline to the centerline of a nearby roadway shall be one hundred and fifty (150') feet.
  - ii. The minimum distance between driveway centerlines accessing Local Roads shall be one hundred and fifty (150') feet.
  - iii. The minimum distance between driveway centerlines accessing Collector Roads shall be three hundred (300') feet.
  - iv. 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/Engineering 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/Engineering 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.

#### *4.4.4.1. Residential Driveway Design*

Driveways serving only one (1) dwelling unit and connecting to an Interior Development Road are considered residential driveways. The following design requirements are applicable to residential driveways only.

- a) Residential driveways shall be located at least 5 feet from the side property line to allow for maneuvering and maintenance to occur without trespass on adjacent property. In the case of flared driveways, the flared portion adjacent to the traveled way shall not encroach upon adjoining property. The edge of the proposed residential driveway must be a minimum of 100 feet from the edge of the traveled way of a non-local road intersection.
- b) Residential driveways shall be located to ensure that adequate sight distance is achieved. Items such as utility poles, electric boxes, and signs must not interfere with the ability to safely exit the driveway.
- c) It is desirable for driveways to be aligned when on opposite sides of the road.
- d) The County is not responsible for the installation, maintenance or replacement of Residential Driveways.

- e) If a Residential Driveway is constructed that is not in substantial compliance with these standards or is determined by the County Road/Bridge/Engineering Department to be a hazard, the owner of the Residential Driveway 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 Residential Driveway will be considered an encroachment and appropriate action to remedy the situation will be taken in accordance with Sections 7-14-2134 through 7-14-2138, MCA.

**4.4.5. Penalties**

If the County Road/Bridge/Engineering 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/Engineering Department with a proposal for corrective action, the County Road/Bridge/Engineering 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.

---

**SECTION 4.5 | GENERAL PROVISIONS OF ACCESS**

---

**4.5.1. 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 each development with a minimum of one means of physical access for motorized vehicles to a County Road Right-of-Way. For proposed developments accommodating or capable of accommodating twenty-six (26) or more Units, based on adopted zoning regulations, two or more means of physical access to a County Road Right-of-Way shall be required for the development; provided, however, that proposed developments connecting to another existing or approved development shall be considered and evaluated in context of the entire connected developments when determining the number of required accesses. To allow for sufficient access for emergency providers, the County reserves the right to require the Developer to provide a second means of access for developments consisting of less than twenty-six (26) Units.

**4.5.2. Access Spacing**

The minimum spacing between accesses (centerline to centerline) shall be as defined in **TABLE 1**, unless an alternative is approved by the County Road/Bridge/Engineering Department.

**TABLE 1: ACCESS SPACING**

	Access Intersecting an Arterial Road or Road with > 45 MPH Speed Limit	Access Intersecting a Collector Road or Road with Speed Limit 30 MPH to 45 MPH	Access Intersecting a Local Road or Road with < 30 MPH Speed Limit
Full Access	660'	330'	150'
Right-In/Right-Out Access <sup>a</sup>	330'	150'	150'

a: Right-in/Right-out accesses shall include a physical channelization barrier and appropriate lighting. Designs are subject to County approval.

New accesses are prohibited within the functional area of adjacent intersections unless it is demonstrated and documented that no other alternative is feasible through the Design Exception process.

Access spacing may deviate from those values provided in **TABLE 1** without a variance request if accessing a State Highway and it can be demonstrated that the spacing is in compliance with the most recent MDT Access Control/Management document, or with explicit MDT review and approval in conjunction with the County Road/Bridge/Engineering Department.

#### **4.5.3. Dead-End Roads**

Dead-end roads shall be avoided where possible, but if unavoidable, shall be permitted only on Local Roads with an approved turnaround accommodating emergency service vehicles. A dead-end road shall not be permitted if the Road serves twenty-six (26) or more Units. 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.

The length of a dead-end road is measured from the edge of the pavement of the intersecting road to the center of the radius of the cul-de-sac turnaround or to the center of the intersection of the "T" turnaround. The intersecting road shall have 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). A dead-end road shall not be greater than one thousand (1,000') feet in length unless the topography of the property is classified as mountainous, then a maximum dead-end road length of 2,500 feet shall be permitted.

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 B**.

##### *4.5.3.1. Modified Cul-de-sacs*

Modified cul-de-sacs, such as knuckles or eyebrows, may only be permitted on Local roads and are only allowed upon approval by the County Road/Bridge/Engineering Department. If approval is granted, adequate sight distance must be maintained, and cul-de-sac radius criteria shall apply.

## CHAPTER 5: TRANSPORTATION DESIGN STANDARDS

### SECTION 5.1 | PURPOSE AND APPLICABILITY

The purpose of these transportation design standards is to provide standard specifications for the development of new Transportation Rights-of-Way and the modification or reconstruction of existing Transportation Rights-of-Way in the County. These Standards apply to all Transportation Rights-of-Way within the County's jurisdiction. The 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. Designs that deviate from the Standards provided in this Chapter will be considered by the County Road/Bridge/Engineering Department through the Design Exception process. **APPENDIX B** provides typical section drawings for these design standards.

### SECTION 5.2 | DESIGN CONTROLS

The following general classification and design parameters shall be considered when designing transportation infrastructure additions or improvements.

#### 5.2.1. Context

Transportation Rights-of-Way should be designed to either urban or rural standards as defined by adopted Transportation Plans or as follows:

- a) Transportation Rights-of-Way within a recognized urbanized area, as designated by the US Census Bureau and MDT, shall always be designed to urban standards.
- b) Transportation Rights-of-Way located within the urban fringe, or those areas where high density growth is expected to occur, shall be designed to urban standards.
- c) All other Transportation Rights-of-Way may be constructed to rural design standards; provided, however, the County Road/Bridge/Engineering Department reserves the right to amend the rural designation to accommodate increased traffic due to development.

#### 5.2.2. Functional Classification

Functional classification is the process by which roads are grouped into classes according to the character of the traffic service that they are intended to provide. There are three general functional classifications: Arterial, Collector, and Local Roads. Each of these classifications has sub-classifications with specific design requirements and typical cross-sections.

For developments within the triangle area, the major street network maps in the *Greater Triangle Area Transportation Plan* define the functional classification. Developments within an adopted Growth Policy area of an incorporated city or town shall refer to the functional classifications contained in the local jurisdictions' guiding documents. For developments in all remaining parts of the County, the federally approved roadway classifications contained in MDT's functional classification map shall apply. The County Road/Bridge/Engineering Department reserves the right to amend the classification of a road to accommodate increased traffic due to development. All new roads will be classified by the County Road/Bridge/Engineering Department.

Functional classification shall govern Right-of-Way width, road width, and road geometrics for each roadway. Typical sections for each classification are presented in **APPENDIX B**.

**5.2.3. Terrain Classification**

The terrain in the County is divided into two groups, ordinary and mountainous, in accordance with the AASHTO Greenbook. This classification determines the maximum allowable grades in relation to design speed. Topography that introduces horizontal and/or vertical constraints along a single road segment within the development, at more than one location, will establish the appropriate type of terrain for each segment.

**5.2.4. Design Traffic Volume**

Roads should be designed for a specific traffic volume and a specified acceptable level of service. The ADT for current and future 20-year projections shall be used as a basis of design. Obtaining adequate traffic count data and establishing an appropriate 20-year growth rate is the responsibility of the Applicant.

---

**SECTION 5.3 | ROADWAY DESIGN STANDARDS**

---

All new roads and improvements to existing roads in the County shall be designed responsibly in accordance with AASHTO, AASHTO-VLVLRL, and PROWAG standards while also satisfying the minimum criteria provided in **TABLE 2** and **TABLE 3**. Roads must be designed to provide safe and adequate passage for vehicular and non-motorized traffic and ensure proper drainage, including surface crown, culverts, curbs and gutters, drainage swales, and storm drains. All applicable standard drawings for County design requirements are available in **APPENDIX B**.

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, Trails Plans, Growth Policies, and County Capital Improvements Plans. Developments impacting a State highway shall meet MDT’s minimum road design standards. County Roads constructed to urban design standards may deviate from the standards defined in **TABLE 3** to conform with the design standards of another jurisdiction (Bozeman, Belgrade, or MDT) through the Design Exception process.

Developments in rural areas with Net Density greater than one (1) dwelling Unit per acre may be required to provide curb and gutter. In general, curb and gutter is required on all roads designed to an urban standard or serving a non-residential development.

**TABLE 2: ROADWAY DESIGN CRITERIA – RURAL**

STANDARD	TERRAIN	LOCAL ROAD	COLLECTOR	MINOR ARTERIAL	PRINCIPAL ARTERIAL
<b>TYPICAL SECTION</b>					
Right-of-Way Width (feet)		60'	90'	100'	120'
Paved Road Width <sup>a</sup> (feet)	Ordinary	24'	32'	40'	44'
	Mountainous	24'	30'	34'	40'
Gravel Road Width (feet)		26'	N/A	N/A	N/A
Travel/Turn Lane Width (feet)		12'	12'	12'	12'
Shoulder Width <sup>b</sup> (feet)	Ordinary	N/A	4'	8'	10'
	Mountainous	N/A	3'	5'	8'
Median/TWLTL <sup>c</sup> (feet)		N/A	N/A	14'	16'
Foreslope H:V (Width – feet)	Ordinary	4:1 (6')	6:1 (14')	6:1 (20')	6:1 (30')
	Mountainous	3:1 (8')	6:1 (10')	6:1 (16')	6:1 (22')

STANDARD	TERRAIN	LOCAL ROAD	COLLECTOR	MINOR ARTERIAL	PRINCIPAL ARTERIAL
<b>ALIGNMENT</b>					
Design Speed (mph)	Ordinary	25	40	55	70
	Mountainous	20	30	45	55
Min. Curve Radius (feet)		150 <sup>d</sup>	AASHTO	AASHTO	AASHTO
Min. Sight Distance (feet)		AASHTO <sup>d</sup>	AASHTO	AASHTO	AASHTO
Angle of Intersection		≥70°	≥80°	≥80°	≥85°
Min. Intersection Return Radius <sup>e</sup>		15'	30'	40'	50'
Max. Grade <sup>f</sup>	Ordinary	10%	7%	7%	7%
	Mountainous	12% <sup>f</sup>	10%	10%	10%
Min. Grade		0.5%	0.5%	0.5%	0.5%
Max. Intersection Landing Grade		3%, 75' from centerline	3%, 150' from centerline	3%, 150' from centerline	3%, 150' from centerline

a: Increase to include turn lanes or median where warranted.

b: Widen shoulder width to accommodate on-street bicycle facilities where applicable. The minimum useable shoulder width (outside rumble strips) should be 4 feet where widened shoulders are recommended, although 5-foot useable shoulders are desirable.

c: TWLTL = Two-Way Left Turn Lane, if needed

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

e: At intersections, the design criteria for the intersecting roadway with the highest functional classification shall apply.

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

**TABLE 3: ROADWAY DESIGN CRITERIA – URBAN**

STANDARD	TERRAIN	LOCAL ROAD	COLLECTOR	MINOR ARTERIAL	PRINCIPAL ARTERIAL
<b>TYPICAL SECTION</b>					
Right-of-Way Width (feet)		60'	90'	100'	120'
Paved Road Width <sup>a</sup> (feet)		31'	48'	50'	82'
Travel/Turn Lane Width (feet)		9'	10'	11'	12'
Parking Width <sup>b</sup> (feet)		7'	8'	8'	8'
Median/TWLTL <sup>c</sup> (feet)		N/A	14'	15'	20'
<b>ALIGNMENT</b>					
Design Speed (mph)		30	45	45	50
Min. Curve Radius (feet)		150'	300'	AASHTO	AASHTO
Min. Sight Distance (feet)		AASHTO	AASHTO	AASHTO	AASHTO
Angle of Intersection		≥75°	≥85°	AASHTO	AASHTO
Min. Curb Return Radius <sup>d</sup>		15'	25'	30'	40'
Max. Grade		10%	7%	AASHTO	AASHTO
Min. Grade		0.5%	0.5%	0.5%	0.5%
Max. Intersection Landing Grade		3%, 150' from centerline	3%, 150' from centerline	AASHTO	AASHTO

a: Measured from back of curb to back of curb. Increase to include turn lanes, median, bike lanes, or parking where warranted.

b: Where parking is provided.

c: TWLTL = Two-Way Left Turn Lane, if needed

d: At intersections, the design criteria for the intersecting roadway with the highest functional classification shall apply.

---

**SECTION 5.4 | INTERSECTION DESIGN STANDARDS**

---

New intersections shall be designed and constructed according to AASHTO / AASHTO-VLVL 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 offset 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.
- d) Traffic control devices, including signs and pavement markings, shall be placed where warranted, consistent with the most recent version of the MUTCD. Roundabouts or traffic circles installed on Interior Development Roads shall ensure appropriate lane widths and turning radii design criteria are satisfied within the intersection.

---

**SECTION 5.5 | PARKING**

---

Adequate parking capacity shall be provided for all developments. The provided parking capacity shall be in proportion to the demand generated by the land use(s) of the development, consistent with the provisions of Section 801 of the International Zoning Code or, if adopted, County Regulation. Provision of adequate parking capacity must be achieved with off-street parking facilities but may also be supplemented with on-street parking if appropriate. On-street parking may only be provided on Interior Development or Access Road(s) and shall provide enough space to ensure that parked vehicles will not obstruct adjacent roads, accesses, non-motorized facilities, or circulation within the development.

Pursuant to Section 61-8-355(3), MCA, the County may, by ordinance, permit angle parking on roadways. Angle parking shall not be permitted on Commission-designated highways or State highways unless MDT determines that the roadway is wide enough to permit angle parking without interfering with the free movement of traffic.

As provided in Section 61-8-355(4), MCA, the County has the authority to place official traffic control devices prohibiting or restricting the stopping, standing, or parking of vehicles on a highway where in its judgment this stopping, standing, or parking is dangerous to those using the highway or where stopping, standing, or parking unduly interferes with the free movement of traffic.

---

**SECTION 5.6 | ROADSIDE DESIGN**

---

Roadsides shall be designed and reviewed in accordance with guidance included in the AASHTO Roadside Design Guide and the requirements in **Table 2** for rural areas. Roads with insufficient Right-of-Way widths, or mountainous terrain, may propose an alternate design for consideration through the Design Exception process.

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

---

**SECTION 5.7 | SURFACE AND MATERIALS**

---

All road construction shall meet the standards set forth in the most current edition of the MPWSS or these Standards, unless a Design Exception has been granted.

Surfacing depths and materials for individual projects will be approved by the County according to a Pavement Design Report based upon site-specific soil data and design-year traffic loading conditions prepared by an Engineer or other qualified professional approved by the County Engineer.

**5.7.1. Subgrade Excavation and Embankment**

The subgrade preparation and compaction shall comply with Section 02230 of MPWSS. When required by the Engineer, subexcavation and backfill material shall also comply with MPWSS. Any embankment material necessary for the project shall be placed and compacted per MPWSS.

**5.7.2. Geotextile Fabric**

Geotextile fabric (specified by Design Engineer or the County Road/Bridge/Engineering Department) may be required on the subgrade.

**5.7.3. Sub-Base Gravel (Pit run selected surfacing)**

Sub-base gravel shall have materials, testing, and installation per MPWSS requirements and approved by the Engineer. The minimum thickness for sub-base gravel shall be twelve (12") inches.

**5.7.4. Crushed Base Course**

Crushed base course shall be as specified in MPWSS, with a minimum depth of three (3) inches in rural areas and a minimum of six (6) inches in urban areas. The crushed base course shall have materials, testing, and installation per MPWSS requirements and approved by the Engineer. A soil sterilant product approved by the County Weed Department used at the recommended concentration shall be applied prior to the placement of crushed base course on gravel roads, or prior to the placement of asphalt on paved roads.

**5.7.5. Asphalt Surfacing**

Asphalt surfacing shall consist of hot mix asphaltic concrete per project geotechnical requirements with a mix design meeting Section 02510 of MPWSS. The materials, placement, and testing methods employed shall also comply with the requirements of MPWSS. The minimum asphalt surfacing shall be three (3) inches post-compaction in rural areas and four (4) inches post-compaction in urban areas. Lift thicknesses should be determined by the project pavement mix design.

The Engineer shall take asphalt core samples after rolling is complete. Four (4) random core samples shall be required for every 1,000 tons of mixture placed. A minimum of two (2) samples per project is required, regardless of project size. The Engineer shall provide a certified laboratory report from the samples taken as to thickness and density. All core holes shall be patched with hot plant mix asphalt.

The acceptance and correction of deficient asphalt surfacing, based on the density and core thickness, shall be subject to a monetary deduction or full replacement as determined by the Engineer and defined in the project special provisions.

**SECTION 5.8 | PEDESTRIAN, BICYCLE AND TRANSIT FACILITIES**

Non-motorized facilities constructed within public Rights-of-Way shall be constructed to the US Access Board’s Public Right-of-Way Accessibility Guidelines (PROWAG), these Standards, and applicable AASHTO pedestrian and bicycle guidelines. Non-motorized facilities include sidewalks, on-street bicycle facilities, shared use paths, trails, and transit facilities as described in the following sections.

**5.8.1. Sidewalks**

Sidewalks shall be required on both sides of Interior Development Roads in urban areas where curb and gutter is provided. In rural areas, pedestrian facilities shall be required as defined by **TABLE 4**.

**TABLE 4: SIDEWALKS - RURAL**

TYPE OF DEVELOPMENT	SIDEWALK
Non-Residential	Both sides of Interior Development Road(s)
Residential with Net Density ≥ 1 dwelling Unit per half acre	Both sides of Interior Development Road(s)
Residential with Net Density ≥ 1 dwelling Unit per acre, but < 1 dwelling Unit per half acre	At least one side of Interior Development Road(s)
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 4.

A sidewalk shall:

- a) meet the following width and spacing requirements:
  - i. Where a sidewalk in a residential area, the sidewalk shall be a minimum of five (5') feet in width and be separated from the roadway with a minimum boulevard width of four (4') feet.
  - ii. Where a sidewalk adjacent to a Collector or Arterial Road or located within a commercial or industrial area, the sidewalk shall be a minimum of six (6') feet in width and be separated from the roadway with a minimum boulevard width of ten (10') feet.
- 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 be located in a public trail easement adjacent to the road Right-of-Way; and
- d) be constructed of concrete meeting the standards set forth in Section 02235 of MPWSS and be capable of being used year-round.
  - i. The minimum thickness of concrete shall be a four (4”) inches.
  - ii. The base shall be a minimum thickness of four (4”) inches of crushed three-quarter (3/4”) inch base aggregate compacted per MPWSS. A soil sterilant product approved by the County Weed Department used at the recommended concentration shall be applied to the subgrade prior to placement of the gravel.

- iii. Geotextile fabric (specified by Design Engineer or the County Road/Bridge/Engineering Department) may be required below the crushed gravel base course.

### **5.8.2. On-Street Bicycle Facilities**

Bicycle facilities may be required for developments in accordance with adopted Transportation Plans, Trails Plans, Growth Policies, or County Capital Improvements Plans. On-street facilities shall be an extension of the roadway and therefore shall meet all surfacing requirements in Section 5.7. Bicycle facility specifications shall be:

- a) Bike lanes:
  - a. The minimum width of a bike lane shall be four (4') on roadways without curb and gutter and/or on-street parking. On all other roadways, the minimum bike lane width shall be five (5') feet.
  - b. Bike lanes should be constructed in both directions along a route.
  - c. Bike lanes shall be appropriately marked and signed consistent with the most recent version of the MUTCD.
- b) Widened shoulders:
  - a. The usable shoulder width, or the paved area outside of any rumble strips, shall be a minimum of four (4') feet wide.
  - b. In areas where there is a roadside barrier, such as guardrail, a minimum shoulder width of five (5') feet shall be required.
  - c. Widened shoulders should be provided in both directions along a route.
  - d. If rumble strips are installed on the roadway where widened shoulders are provided, the rumble strips should be installed as close to the fog line as possible and have regular skips to allow bicyclists to leave the shoulder to avoid obstructions if necessary.
  - e. Appropriate bicycle warning signage and/or striping consistent with the most recent version of the MUTCD may be provided.

### **5.8.3. Off-Street Facilities: Shared Use Paths and Trails**

Shared use path and trail improvements may be required for developments in accordance with adopted Transportation Plans, Trails Plans, Growth Policies, or County Capital Improvements Plans.

- a) Shared Use Path and 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. Where Right-of-Way is sufficient to accommodate a 25' trail corridor, additional Right-of-Way or easement is not required. Shared Use Paths and Trails within dedicated Rights-of-Way can be used to satisfy parkland dedication requirements of Gallatin County Subdivision Regulations.
- b) Shared Use Path 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.
- c) Shared Use Path and Trail width, surfacing, and spacing specifications shall be:

- a. The minimum width of a Shared Use Path shall be ten (10') feet. The Shared Use Path shall be constructed of asphalt or concrete and with separation from the roadway as follows:
  - i. Where a Shared Use Path is located adjacent to a Collector roadway, the minimum separation shall be five (5') feet.
  - ii. Where a Shared Use Path is located adjacent to a Minor Arterial, the minimum separation shall be six and one-half (6.5') feet.
  - iii. Where a Shared Use Path is located adjacent to a Principal Arterial, the minimum separation shall be sixteen and one-half (16.5') feet.
- b. The minimum width of a Connector Trail shall be six (6') feet. Connector Trails should be constructed of crushed aggregate.
- c. The minimum width of a Neighborhood Trail shall be four (4') feet and should be constructed of crushed aggregate.
- d) Shared Use Path and Trail construction specifications shall be:
  - a. Asphalt: minimum thickness of two and one-half (2.5") inches of asphaltic concrete meeting the materials and placement requirements of MPWSS. The crushed base course shall be a minimum thickness of nine (9") inches of three-quarter (3/4") inch minus gravel with materials and compaction meeting MPWSS.
  - b. Concrete: minimum thickness of six (6") 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 and placed per MPWSS.
  - c. Crushed Aggregate: A minimum thickness of three (3") inches of three-eighths (3/8") inch crushed aggregate surfacing over a minimum thickness of three (3") inches of three-quarters (3/4") inch crushed aggregate compacted to MPWSS standards over an approved subgrade material meeting the requirements of Section 02230 of MPWSS. A soil sterilant product approved by the County Weed Department used at the recommended concentration shall be applied to the subgrade prior to placement of the gravel. Shared Use Paths may not be constructed of crushed aggregate.
  - d. Substantially equivalent alternative Trail surfacing materials will be considered by the County Road/Bridge/Engineering Department through the Design Exception process.
- e) Geotextile fabric (specified by the Design Engineer or the County Road/Bridge/Engineering Department) may be required below the crushed base course of any type of Shared Use Path or Trail facility surfacing.
- f) The desirable cross slope of Shared Use Paths and Trails shall be one and one-half (1.5%) percent with a maximum of two (2%) percent.
- g) Minimum overhead clearance shall be eight (8') feet for pedestrian and bike traffic, and ten (10') feet for equestrian traffic.

#### **5.8.4. Transit Facilities**

Additional requirements for the provision of transit facilities may apply if the proposed development falls within a designated Urban Transportation District (UTD) boundary. The UTD board may require the Developer 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 the UTD and transit providers to determine if transit feature improvements are necessary based upon established transit agency guidelines.

## **CHAPTER 6: DRAINAGE, SNOW STORAGE, AND WATER CROSSINGS**

---

### **SECTION 6.1 | DRAINAGE**

---

All roads and other Transportation Rights-of-Way shall be designed to ensure proper drainage and prevention of erosion. 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 installed prior to or concurrent with any other improvements and be located in Rights-of-Way of appropriate width. All drainage facilities shall be designed to accommodate existing runoff from upstream drainage areas. Facilities for the collection of stormwater runoff shall be designed to divert surface water away from cut faces or sloping surfaces of a fill. All storm water facilities shall be protected from erosion or silt deposition during construction of all improvements. Drainage features shall not discharge into any sanitary sewer facility or any identified hazardous materials.

---

### **SECTION 6.2 | 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 are designated or specified areas within a development that are reserved for the storage or stockpiling of accumulated snowfall and must be located adjacent to the surface area to be plowed. Snow storage areas must not jeopardize pedestrian or vehicle access or visibility.

---

### **SECTION 6.3 | BRIDGES AND CULVERTS**

---

The Developer may be required to install a bridge or culvert where a road or other Transportation Rights-of-Way intersects a Watercourse or a Water Conveyance Facility. All Transportation Rights-of-Way that intersect Water Conveyance Facilities shall be agreed to in writing by the water users or Water Conveyance Facilities' authorized representatives. However, 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 AASHTO LRFD Bridge Design Specifications, MDT Bridge Design Standards, and these Standards.

Comprehensive geotechnical investigations and/or hydraulic analyses may be required by the County Road/Bridge/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 Montana Department of Natural Resources and Conservation *Guide to Stream Permitting in Montana* to determine which permits are required for various types of work.

**6.3.1. Bridge Width**

The minimum usable bridge width shall be equal to the total required road width per **TABLE 2** and **TABLE 3** in Section 5.3.

**6.3.2. 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 County Road/Bridge/Engineering Department for streams which carry a large amount of debris.

**6.3.3. 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 5**.

**TABLE 5: 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.

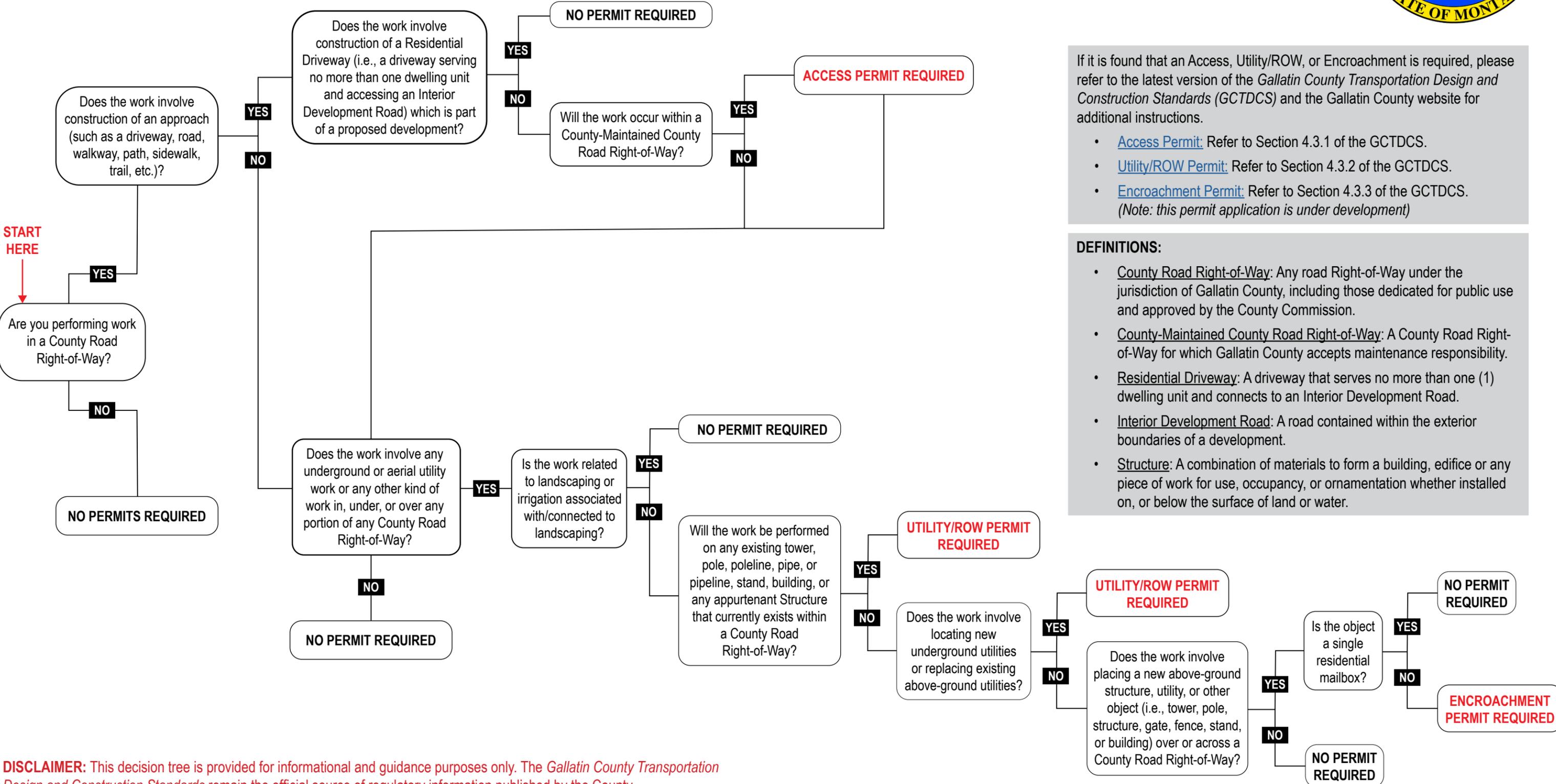
# **APPENDIX A: PERMIT DECISION TREE**

# GALLATIN COUNTY TRANSPORTATION DESIGN AND CONSTRUCTION STANDARDS

## Access, Utility/ROW, and Encroachment Permit Decision Tree



**INSTRUCTIONS:** Follow the decision tree by answering the questions as they relate to your proposed work. If there are multiple components to the proposed work, be sure to answer the questions in the decision tree for each individual component as multiple permits may be required. Refer to the *Gallatin County Transportation Design and Construction Standards* for definitions and additional information.



If it is found that an Access, Utility/ROW, or Encroachment is required, please refer to the latest version of the *Gallatin County Transportation Design and Construction Standards (GCTDCS)* and the Gallatin County website for additional instructions.

- [Access Permit](#): Refer to Section 4.3.1 of the GCTDCS.
- [Utility/ROW Permit](#): Refer to Section 4.3.2 of the GCTDCS.
- [Encroachment Permit](#): Refer to Section 4.3.3 of the GCTDCS. (Note: this permit application is under development)

**DEFINITIONS:**

- 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.
- County-Maintained County Road Right-of-Way**: A County Road Right-of-Way for which Gallatin County accepts maintenance responsibility.
- Residential Driveway**: A driveway that serves no more than one (1) dwelling unit and connects to an Interior Development Road.
- Interior Development Road**: A road contained within the exterior boundaries of a development.
- 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.

**DISCLAIMER:** This decision tree is provided for informational and guidance purposes only. The *Gallatin County Transportation Design and Construction Standards* remain the official source of regulatory information published by the County.

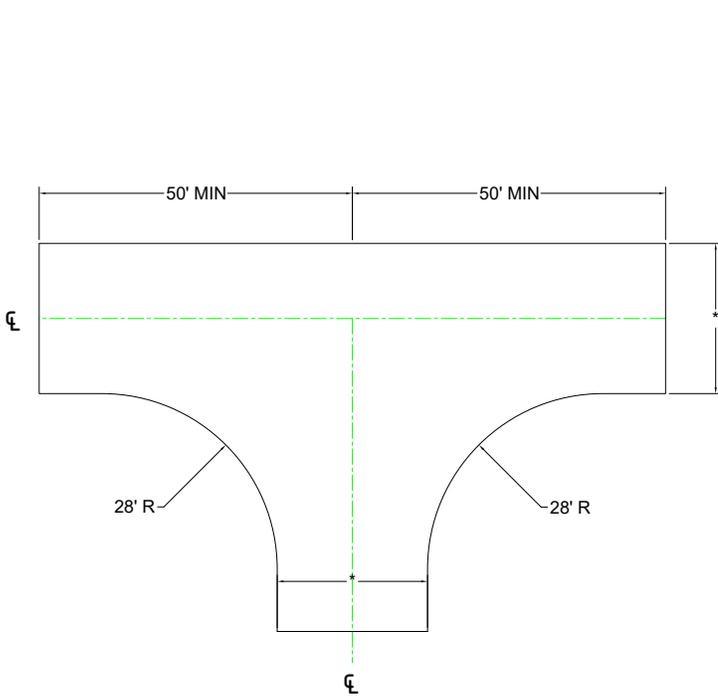
# APPENDIX B: ROAD DESIGN STANDARD DRAWINGS

## Approved Turnarounds

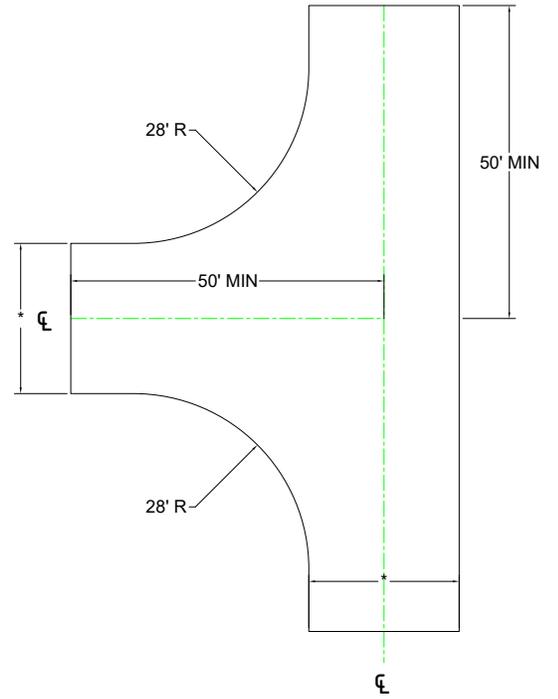
### Typical Sections

- Rural
  - Local Road (Gravel)
  - Local Road
  - Collector
  - Minor Arterial
  - Principal Arterial
- Urban
  - Local Road
  - Collector
  - Minor Arterial
  - Principal Arterial

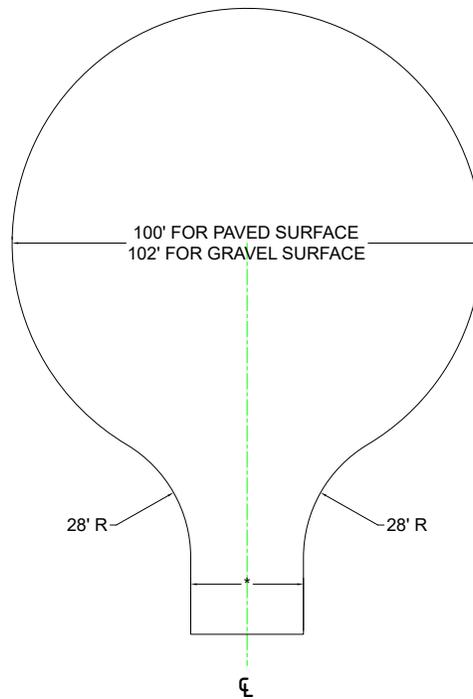
# APPROVED TURNAROUNDS



"T" TURNAROUND



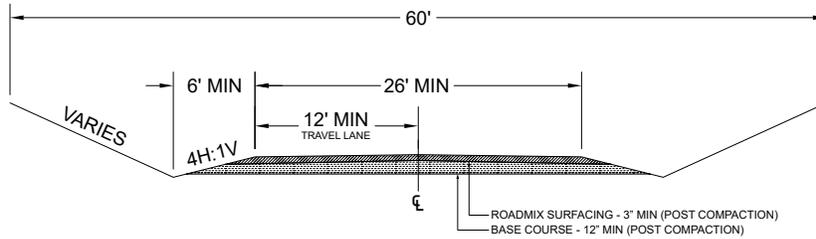
ACCEPTABLE ALTERNATIVE TO "T" TURNAROUND



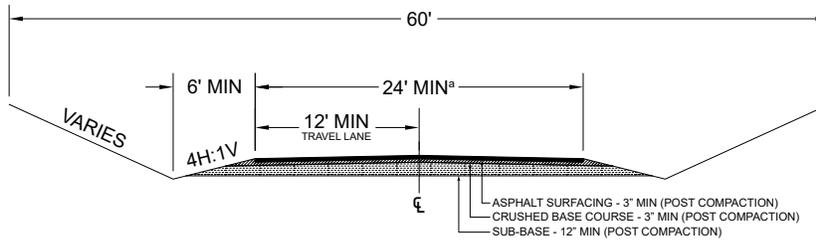
CUL-DE-SAC

\* DIMENSION VARIES

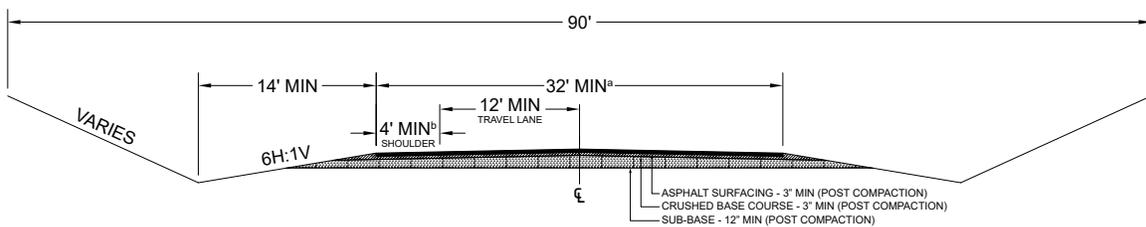
# TYPICAL SECTIONS - RURAL



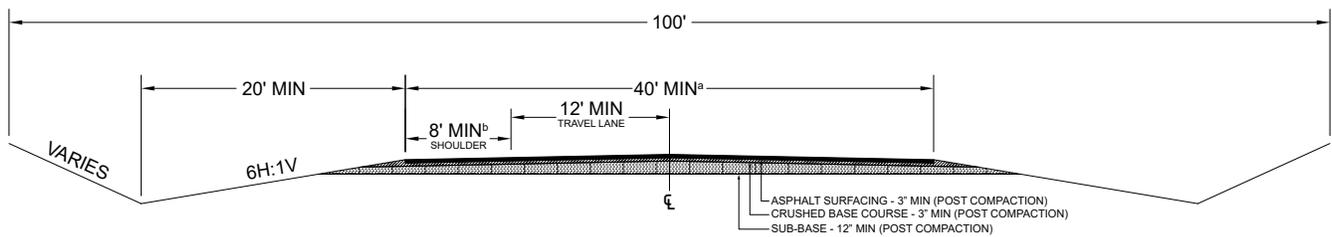
**LOCAL ROAD (GRAVEL)**



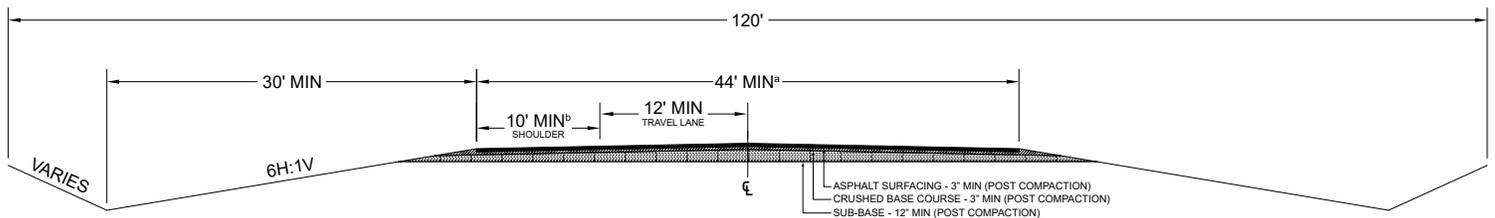
**LOCAL ROAD**



**COLLECTOR**



**MINOR ARTERIAL**



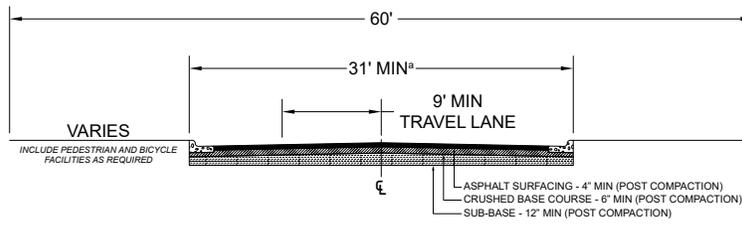
**PRINCIPAL ARTERIAL**

a: Increase to include turn lanes or median where warranted.

b: Widen shoulder width to accommodate on-street bicycle facilities where applicable. The minimum useable shoulder width (outside rumble strips) should be 4 feet where widened shoulders are recommended, although 5-foot useable shoulders are desirable.

Note: Standards for ordinary terrain are shown. Please refer to the Gallatin County Transportation Design and Construction Standards for mountainous terrain design standards.

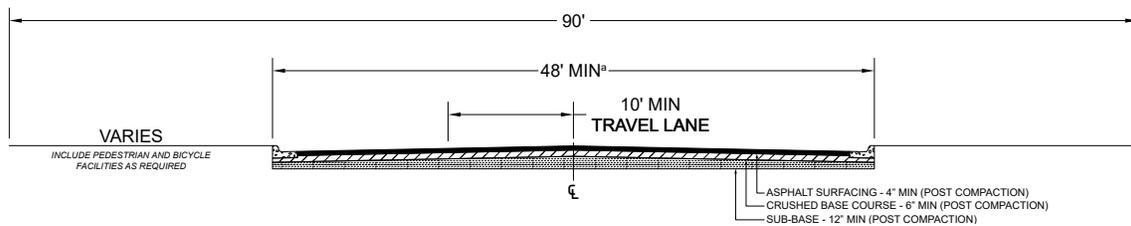
# TYPICAL SECTIONS - URBAN



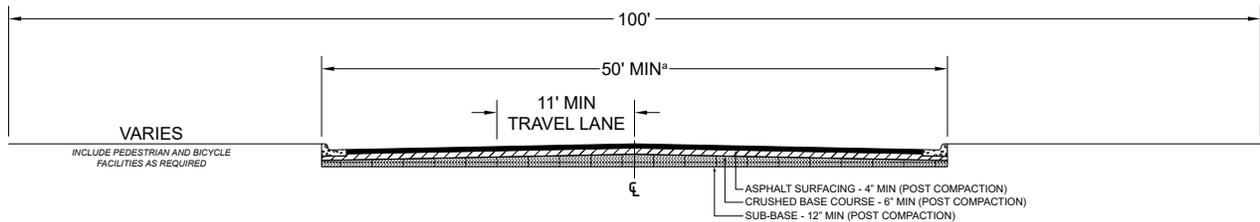
**LOCAL ROAD**

a: Measured from back of curb to back of curb. Increase to include turn lanes, median, bike lanes, or parking where warranted.

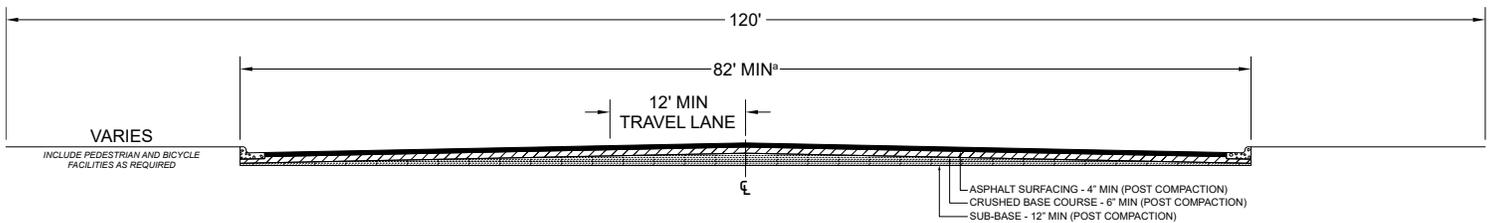
Note: Standards for ordinary terrain are shown. Please refer to the Gallatin County Transportation Design and Construction Standards for mountainous terrain design standards.



**COLLECTOR**



**MINOR ARTERIAL**



**PRINCIPAL ARTERIAL**