

## Road and Driveway Regulations Design and Construction Standards

### ***I. Road Design Standards***

The purpose of these standards is to ensure safe vehicular and pedestrian travel on all public and private streets within the town of Farmington. Proper design requires the blending of safe roadway layout and grade with minimization of impacts on the existing terrain and environment. These standards are further intended to be the minimum necessary to ensure public safety while allowing flexibility in light of different traffic volumes and terrain conditions.

#### **A. Arrangement of Streets**

The streets in a subdivision, planned unit development, mixed-use commercial development, or office/business park development shall be properly arranged and coordinated with other existing or planned streets. Streets and driveways should be laid out to reflect topography and result in the least site disturbance possible.

#### **B. Rights-of-Way**

No street or highway right-of-way shall be less than fifty feet in width, except when such street is classified a Minimum Local Street and topography or physical conditions make additional development in the future unlikely, in which case the minimum right-of-way shall be thirty-six feet. The Planning Board shall require a greater width where warranted by demographic projections, build-out analyses, or other information suggesting a likelihood of further development. The apportionment of the right-of-way between roadway, sidewalks, bike lanes, and vegetated strips shall be subject to Planning Board approval. The applicant shall provide evidence of legal title and sufficiency to any right-of-way or permanent easement.

#### **C. Dead-end Streets/Cul-de-Sacs**

A cul-de-sac may serve no more than twenty residential units. In no event shall dead-end streets exceeding 900 feet be approved, unless alternative provisions approved by the Farmington Fire Department and Planning Board are in place to provide emergency ingress/egress. Dead-end streets shall be equipped with a turn-around roadway at the closed end, in compliance with AASHTO and/or NH-DOT standards. The maximum grade through a cul-de-sac shall be 3%.

**D. Intersections**

Where practicable street intersections shall be 90 degrees. In no event shall the angle of intersection be less than 60 degrees. Property line radius at intersections shall be no less than 25 feet or in compliance with applicable AASHTO or NHDOT standards. Refer to Table 1 for additional requirements.

**E. Street Names**

Every street serving more than 2 separately addressed structures, shall have a name which shall be approved by the Board of Selectmen in accordance with the provisions of RSA 231:133-a, and the Town of Farmington Enhanced 911 Emergency Response Ordinance, Naming and Numbering of Public and Private Streets.

**F. Existing Street Conditions**

Where a project under review by the Planning Board requires improvements to a public street over and above normal maintenance, including but not limited to road width, turning radius, site distance, drainage systems (open and closed), and water and sewer systems (where available). The cost of such improvements shall be borne solely by the applicant.

**G. Minimum Design Requirements**

1. New roads shall be designed to conform to the minimum standards established in Table 1, Minimum Road Design Standards, and as shown in Exhibit 1, Typical Roadway Cross Section. Roadway design standards shall conform to the classification most accurately representing the proposed and likely future use. The Planning Board may require a higher classification where warranted by demographic projections, build-out analyses, or other information suggesting a likelihood of further development.
2. For all uses other than single family residential the Average Daily Traffic volume shall be calculated using *Institute of Transportation Engineers – Trip Generation Manual*. Actual local traffic data, where applicable, may be used to supplement the calculated volume.
3. Where streets have the potential for extension to additional developable property or other street networks, the Planning Board may require appropriate increases in traffic volume estimates. The Planning Board may require a greater road design standard where it is determined that higher traffic volumes warrant the higher standard.
4. The Planning Board may impose a more restrictive standard for commercial/industrial developments than required by Table 1, Minimum Road Design Standards, where necessary to accommodate the proposed use.

**H. Curbing**

1. The Planning Board may require curbing where it is deemed appropriate and necessary to control drainage, improve traffic control, provide slope and pavement stability, or ensure pedestrian safety. Curbing shall be straight granite or sloped granite curb.
2. The construction of curbing shall be in accordance with AASHTO and/or NH-DOT standards.

**I. Sidewalks**

1. Sidewalks shall be provided, at the Board's discretion, to provide pedestrian connections between business, housing, or industrial structures, parking areas, and along public roadways. All residential developments within a 1.5-mile radius of the Farmington School Campus shall install sidewalks or other pedestrian way as approved by the Planning Board.

**J. Bicycle/Pedestrian Paths**

1. The Planning Board may require bicycle/pedestrian paths in subdivision and/or site plans when they are determined to be necessary for pedestrian safety due to density, traffic volume, or proximity to schools, parks and other community facilities.

**K. Steep Grades**

Where roadway grade exceeds 5%, the Planning Board may require curbing and other measures such as rip-rap and retaining structures to control drainage, sedimentation, and/or erosion. In no case shall road or driveway grades exceed 2% within 50-feet of an intersection. Street grades, where feasible shall not exceed 10 percent. Special care shall be taken to provide flat grades at all intersections.

**L. Superelevation**

1. Where superelevation is necessary, the design shall conform to AASHTO or NH-DOT recommendations for proposed rate of superelevation, and the Design Engineer shall provide appropriate documentation and calculations to demonstrate the safety and adequacy of the proposal.

2. Guardrails shall be required where there is a 6 ft. drop-off at a 3:1 slope or greater.

## II. CONSTRUCTION STANDARDS

### A. Subgrade

1. All trees, roots, vegetation, loam, humus, and other organic material shall be stripped to below the base course for the full width of the roadway and shoulders, and replaced with acceptable granular fill material. The subgrade fill or backfill shall be compacted in lifts in accordance with applicable AASHTO or NH DOT standards. In no case shall lifts exceed 12" in depth. The subgrade shall be graded in the general cross slope configuration shown in Exhibit 1, Typical Section Paved Roads or Exhibit 2, Typical Section Gravel Roads.
2. Boulders and/or ledge shall be removed to a uniform cross sectional depth of not less than 12-inches below the subgrade level shown Exhibit 1, Typical Section Paved Roads or Exhibit 2, Typical Section Gravel Roads, and replaced with suitable fill material graded and compacted to the subgrade level.

### B. Base Course

1. Bank-run gravel or 1 ½" dense-graded crushed ledge, free of organic material, shall be spread over the entire width of the proposed pavement, shoulders and extended to all open drainage ditches to a depth in compliance with Table 1, plus 6-inches of crushed gravel or ¾" minus crushed ledge.
2. The bank run gravel and crushed gravel shall be placed in lifts not exceeding 6-inches and in the cross slope configuration as shown in Exhibit 1, Typical Section Paved Roads or Exhibit 2, Typical Section Gravel Roads.
3. Base course gravel and crushed gravel shall conform to the New Hampshire Standard Specifications for Road and Bridge Construction, Division 300, Section 304.

### C. Compaction

Roadway subgrade and base courses shall be compacted to 95% of maximum density proctor method in accordance with AASHTO T-99.

**D. Pavement Materials**

1. Asphalt surfaces may be a Bituminous Surface Treatment, Section 410 or Hot Bituminous Pavement, Section 403 of the New Hampshire Standard Specifications, 2002 (or as revised) as required by the Planning Board.
2. When approved by the Planning Board, gravel surface roads shall have a minimum wearing surface layer as specified in Table 1 with a maximum aggregate gradation as follows:

Std Sieve Size	200	80	40	20	10	4	3/8	½	5/8
Pass %	16	24	32	41	52	69	86	95	100

**E. Shoulders**

Gravel shoulders, equal to the base course depth, shall be provided in accordance with Table 1, Minimum Road and Driveway Design Standards, and Exhibit 1, Typical Roadway Cross Section or Exhibit 2, Typical Section Gravel Roads.

**F. Slopes**

All slopes shall be graded, loamed, hayed and seeded. No slope, cut or fill will be greater than two horizontal to one vertical in ledge, or three horizontal to one vertical (3:1) in all other materials. Slope ratios greater than noted above may be permitted upon approval of the Planning Board.

**G. Drainage**

Surface water shall be disposed of by means of culverts of sufficient capacity at water courses as determined by hydraulic design methods and by the construction of open and closed storm drainage systems when necessary to take care of stormwater runoff. Drainage swales sized in accordance with applicable AASHTO or NH-DOT standards shall be constructed in the right-of-way on both sides of all roads. Drainage facilities must be designed to convey stormwater, to prevent flooding of the travel-way, and to prevent erosion of adjacent surfaces. All drainage components shall be sized to accommodate the 25-year storm event. All drainage structures shall be constructed in accordance with the New Hampshire Standard Specifications, 2002 (or as revised) Sections 603, 604, and 605.

H. **Bridges**

All bridges shall be constructed in accordance with the New Hampshire Standard Specifications, 2002 (or as revised) and as approved by the Planning Board.

I. **Wetlands**

Any work that produces impacts or causes disturbance (fill, dredge, excavation, etc.) on wetlands or other jurisdictional areas (stream banks, vernal pools, etc.) shall be permitted by the New Hampshire Department of Environmental Services Water Division and coordinated with the Farmington Conservation Commission to ensure that all applicable rules and regulations are adhered to.

J. **Erosion Control**

All projects, regardless of size, must include a comprehensive stormwater management and erosion control plan to prevent erosion and sedimentation and other forms of pollution. At a minimum all projects shall implement Best Management Practices for Site Excavation and Road Construction identified in *Best Management Practices to Control Nonpoint Source Pollution: A guide for Citizens and Town Officials.* Projects where disturbance will exceed 100,000 square feet of terrain (50,000 sf if within a protected shoreline buffer) must obtain a Alteration of Terrain permit from the New Hampshire Department of Environmental Services. Construction activity disturbing one acre or more must obtain a Federal Storm Water Permit. For projects subject to state and/or federal permits, erosion control measures must conform to the requirements of *Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire.*

K. **Utilities**

Where practicable utility poles shall be placed behind ditches and drainage swales to facilitate roadway and drainage structure repair and maintenance. Water and sewer mains should be constructed under the roadway and on the road side of the ditch line.

L. **Safety**

Safety is an important factor in all roadway improvements. On development roads it may not be possible or practical to obtain obstacle-free roadsides but every effort should be made to provide clear areas within the maintenance limits. The use of flatter slopes, guardrails, and warning signs should be considered where appropriate. These areas are addressed in the publication *Roadside Design Guide, AASHTO 2002, or subsequent edition.*

**M. Signs**

Traffic control signs, signals, pavement markings and other devices shall be placed, installed and maintained in accordance with the *Manual on Uniform Traffic Control Devices (MUTCD)* and the *UNH T<sub>2</sub> Traffic Sign Handbook*.

**N. Minimum Standards**

The standards contained herein shall be the minimum requirement. When deemed necessary to protect public safety, to protect public investment, or to protect land and resources of the Town of Farmington, the Planning Board may require a stricter standard. For additional guidance and design of local development roads and streets, reference should be made to the American Association of State Highway and Transportation Officials, *Guidelines for Geometric Design of Very Low-Volume Roads* and *Policy of Geometric Design of Highways and Streets*.

**O. Construction Supervision**

Construction of the roadway, drainage facilities, sidewalks, curbs, and all other elements of the roadway shall be done under the supervision of and with the approval of the Board of Selectmen, or its designee.

NOTE: ALL REFERENCES CONTAINED WITHIN THIS DOCUMENT SHALL BE TO THE MOST RECENT EDITION OR SUPERCEDING DOCUMENT.

Adopted January 10, 2006  
Revised August 19, 2013



Town of Farmington  
Road and Driveway Design and Construction Standards

Design Standards	Residential Driveway (>900', see note)	Commercial-Industrial Driveway	Minimum Local Street	Minor Local Street	Major Local Street	Collector Street	Arterial Street
Number of Dwellings	Up to 2		Up to 6	7 to 40	41 to 150	151 to 500	>500
Average Daily Traffic	n/a		30 to 60 v.t.	61 to 400 v.t.	401 to 1500 v.t.	1501 to 5000 v.t.	>5000 v.t.
Surface Width	12'	22' to 30'	16'	18'	20'	22'	Varies
Shoulder Width	12 in.	2'	2'	2'	2'	4'	Varies
Minimum Right-of-Way	n/a	50'	50'	50'	50'	50'	Varies
Design Speed	10 mph	10 mph	15 mph	15 mph	20 mph	25 mph	Varies
Minimum Length of Vertical Curve	n/a	115'	80'	80'	115'	155'	Varies
Minimum Horizontal Curve Radii	25'	WB-50	WB-40	WB-40	WB-50	WB-50	Varies
Minimum Grade	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Maximum Grade	15%	5%	12%	10%	10%	8%	8%
Reverse Curve Minimum Tangent	n/a	100'	n/a	100'	100'	150'	Varies
Sight Distance at intersection (both directions)	100'	250'	250'	250'	300'	350'	400'
Maximum Grade w/in 50' of Centerline of an Intersection	5%	3%	5%	2%	2%	2%	2%
Minimum Distance between Intersections							
Minimum Radius at Intersections	20	WB-40	WB-40	WB-40	WB-50	WB-50	Varies
Minimum Angle of Intersection	60°	90°	60°	60°	90°	90°	90°
Side Slope Grade (minimum)	3:1	3:1	3:1	3:1	3:1	3:1	3:1

Town of Farmington  
Road and Driveway Design and Construction Standards

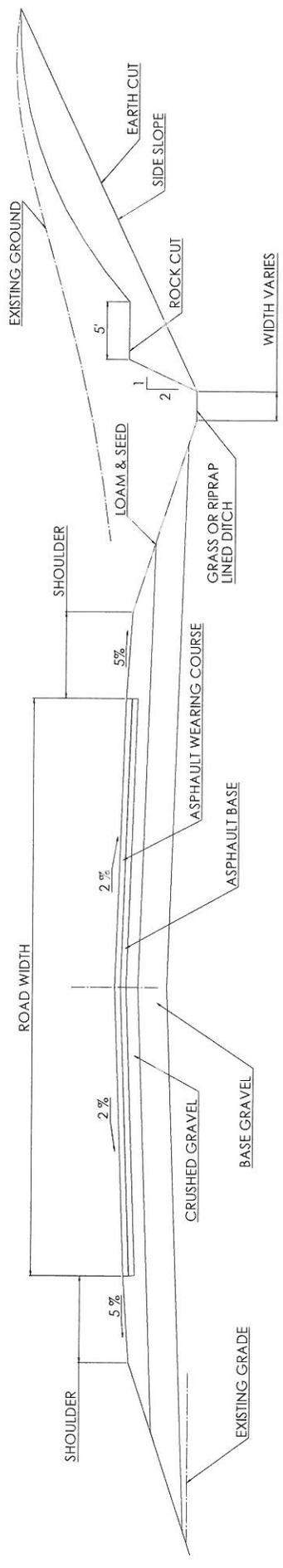
Construction Standards	Residential Driveway (>900', see note)	Commercial-Industrial Driveway	Minimum Local Street	Minor Local Street	Major Local Street	Collector Street	Arterial Street
Sub-Base (width/depth)	12' / 12"	26' - 34' / 18"	20' / 18"	24' / 18"	26' / 18"	30' - 18"	Varies
Gravel (6" screen)	8"	12"	12"	12"	12"	12"	Varies
Gravel (crushed)	4"	6"	6"	6"	6"	6"	Varies
Binder Course	n/a	Minimum of 2"	2"	3"	3"	3"	Varies
Wearing Surface	n/a	1"	1"	1.5"	1.5"	2"	Varies

**Notes to Design Standards and Construction Standards**

"Street" means street as defined by the Town of Farmington Zoning Ordinance.

"v.t." means Vehicle Trips.

Shared driveways over 900' shall provide an additional 2' of surface width or pull-offs at approximately 450' intervals. Side slope grades may exceed the maximum after review and approval of the Planning Board.



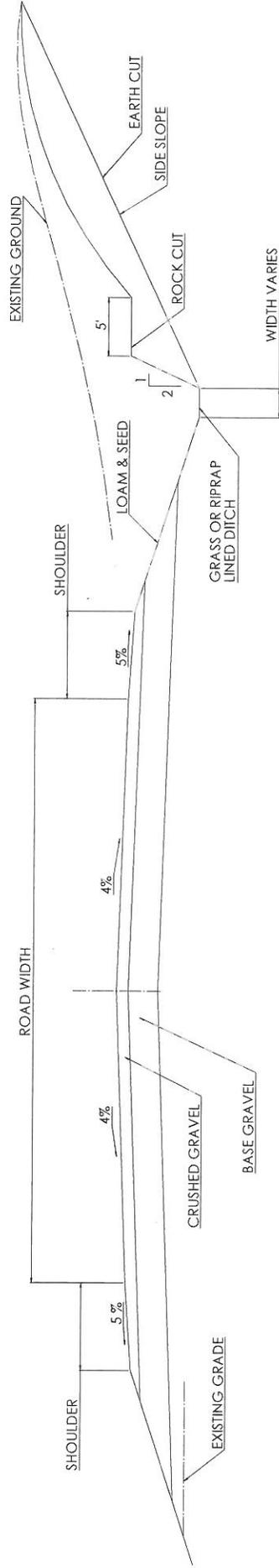
**TYPICAL SECTION  
PAVED ROADS**

NOT TO SCALE

SEE TABLE 1 FOR SPECS AND DIMENSIONS

**EXHIBIT 1**





**TYPICAL SECTION  
GRAVEL ROADS**

NOT TO SCALE

SEE TABLE 1 FOR SPECS AND DIMENSIONS

EXHIBIT 2

