

TOWN ROAD AND BRIDGE STANDARDS

(June 5, 2019)

MUNICIPALITY OF HYDE PARK, VERMONT

The Legislative Body of the Municipality of the Town of Hyde Park hereby adopts the following Town Road and Bridge Standards which shall apply to the construction, repair, and maintenance of town roads and bridges.

The standards below are considered minimums. Municipalities that have construction standards / specifications in place that meet or exceed the minimum standards: indicate adoption date and include as Appendix C. **Date of Adoption:** 1/9/2017

Municipalities must comply with all applicable state and federal approvals, permits and duly adopted standards when undertaking road and bridge activities and projects.

Any new road regulated by and/or to be conveyed to the municipality shall be constructed according to the minimum of these standards.

Circle **YES** or **NO** below to indicate town adoption of that section of the Standards

| Road and Bridge Standards Sections | Hydrologically-connected road segments* | Non-hydrologically-connected road segments** |
|--|--|--|
| Section 1 – Municipal Road Standards | <input checked="" type="checkbox"/> (Required by Act 64) | <input checked="" type="checkbox"/> NO |
| Section 2 – Class 4 Road Standards | <input checked="" type="checkbox"/> (Required by Act 64) | <input checked="" type="checkbox"/> NO |
| Town wide | | |
| Section 3 - Perennial stream- bridge and culvert standards | <input checked="" type="checkbox"/> (Required by DEC Stream Alteration Standard) | |
| Section 4 – Intermittent stream crossings | <input checked="" type="checkbox"/> NO | |
| Section 5 - Roadway construction standards | <input checked="" type="checkbox"/> NO | |
| Section 6 - Guardrail standard | <input checked="" type="checkbox"/> NO | |
| Section 7 - Driveway access standard | <input checked="" type="checkbox"/> NO | |

Road segments – ANR Resources Atlas includes a map layer of all of Vermont’s municipal roads divided into 100-meter (328 foot) segments, each with a unique identification number.

***Hydrologically-connected road segments** - are those municipal road segments and catch basin outlets, Class 1-4, as shown on the ANR Natural Resources Hydrologically-connected municipal road segment layer (<http://anrmaps.vermont.gov/websites/anra5/>) or the Road Erosion Inventory Scoring (MRGP Implementation Table portal) layer (<https://anrweb.vt.gov/DEC/IWIS/MRGPReportViewer.aspx?ViewParms=True&Report=Portal>).

****Adoption of standards on non-hydrologically-connected road segments** does not indicate that these road segments are then subject to the Municipal Roads General Permit (MRGP).

Municipalities may also find additional resources in the latest version of the *Vermont Better Roads Manual*.
<https://vtrans.vermont.gov/sites/aot/files/highway/documents/ltf/Better%20Roads%20Manual%20Final%202019.pdf>

Road and Bridge Standards Sections

Section 1 – Municipal Road Standards - See Appendix A

These standards are required by Act 64 and the DEC Municipal Roads General Permit (MRGP) for hydrologically-connected roads only.

Municipalities may adopt Section 1 Road standards by road type for non-hydrologically-connected roads/segments/catch basins.

Section 2 – Class 4 Road Standards - See Appendix A

Appendix A

Section 1: MUNICIPAL ROAD STANDARDS

The following standards constitute the minimum required Best Management Practices (BMPs) for municipal roads. These standards shall apply to the construction, repair, and maintenance of all town roads and bridges.

It is the municipality's responsibility to maintain all practices after installation. Roads not meeting these standards must implement the BMPs listed below in order to meet the required town's standards.

Feasibility

Municipalities shall implement these standards to the extent feasible. In determining feasibility, municipalities may consider the following criteria: The implementation of a standard listed in of this documentation does not require the acquisition of additional state or federal permits or noncompliance with such permits, or noncompliance with any other state or federal law. The implementation of a standard does not require the condemnation of private property; impacts to significant environmental and historic resources, including historic stone walls, historic structures, historic landscapes, or vegetation within 250 feet of a lakeshore; impacts to buried utilities; and excessive hydraulic hammering of ledge.

Standards for All Construction and Soil Disturbing Activities

Following construction and soil disturbance on a road, all bare or unvegetated areas shall be revegetated with see and mulch, hydroseeded, or stone lined within 5 days of disturbance of soils, or, if precipitations is forecast, sooner.

Standards for Gravel and Paved Roads with Ditches

Baseline Standards for Gravel and Paved Roads with Ditches

The following are the standards for all gravel and paved municipal roads with drainage ditches, whether or not erosion is present. These standards also apply to all new construction and significant upgrades of stormwater treatment practices.

A. Roadway/Travel Lane Standards

1. Roadway Crown

- a. Gravel roads shall be crowned, in or out-sloped:
Minimum: ¼ inch per foot
Recommended: ¼ inch to ½ inch per foot or 2% - 4%
- b. Paved/ditched roads shall be crowned during new construction, redevelopment, or repaving where repaving involves removal of the existing paving.
Minimum: 1/8 inch per foot or 1%
Recommended: 1% - 2%

2. Shoulder berms (also called Grader/Plow Berm/Windrows)

Shoulder berms shall be removed to allow precipitation to shed from the travel lane into the road drainage system. Roadway runoff shall flow in a distributed manner to the drainage ditch or filter area and there shall be no shoulder berms or evidence of a "secondary ditch". Shoulder berms may remain in place if the road crown is in-sloped or out-sloped to the opposite side of the road from berm side of road. The shoulder berm standard only applies to gravel roads with drainage ditches.

B. Road Drainage Standards

Roadway runoff shall flow in a distributed manner to grass or a forested area by lowering road shoulders or conversely by elevating the travel lane level above the shoulder. Road shoulders shall be lower than travel lane elevation. If distributed flow is not possible, roadway runoff may enter a drainage ditch, stabilized as follows:

1. For roads with slopes between 0% and 5%: At a minimum, grass-lined ditch, no bare soil. Geotextile and erosion matting may be used instead of seed and mulch. Alternatively, ditches may be stabilized using any of the practices identified for roads with slopes 5% or greater included in subpart B.2 below.

Recommended shape: trapezoidal or parabolic cross section with mild side slopes; 2 foot horizontal per 1 foot vertical or flatter and 2-foot ditch depth.

2. For roads with slopes 5% or greater but less than 8%:
 - a. Stone-lined ditch: minimum 6 to 8-inch minus stone or the equivalent for new practice construction. Recommended 2-foot ditch depth from top of stone-lined bottom,
 - b. Grass-lined ditch with stone check dams¹, or
 - c. Grass-lined ditch if installed with disconnection practices such as cross culverts and/or turnouts to reduce road stormwater runoff volume. There shall be at least two cross culverts or turnouts per segment disconnecting road stormwater out of the road drainage network into vegetated areas or spaced every 160 feet.
3. For roads with slopes of 8% or greater: Stone-lined ditch.
 - a. For slopes greater than or equal to 8% but less than 10%: minimum 6 to 8-inch minus stone or the equivalent for new construction. Recommended 2-foot ditch depth from top of stone-lined bottom.
 - b. For slopes greater than 10%: minimum 6 to 8-inch minus stone. Recommended 12-inch minus stone or the equivalent. Recommended 2-foot ditch depth from top of stone-lined bottom.
4. If appropriate, bioretention areas, level spreaders, armored shoulders, and sub-surface drainage practices may be substituted for the above road drainage standards.

C. Drainage Outlets to Waters & Turnouts

Roadway drainage shall be disconnected from waterbodies and defined channels, since the latter can act as a stormwater conveyance, and roadway drainage shall flow in a distributed manner to a grass or forested filter area. Drainage outlets and conveyance areas shall be stabilized as follows:

1. Turn-outs – all drainage ditches shall be turned out to avoid direct outlet to surface waters.
2. There must be adequate outlet protection at the end of the turnout, based upon slope ranges below. Turnout slopes shall be measured on the bank where the practice is located and not based on the road slope.
 - a. For turnouts with slopes of 0% or greater but less than 5%: stabilize with grass at minimum. Alternatively, stabilize using the practices identified in subpart b – c below, when possible.
 - b. For turnouts with slopes 5% or greater: stabilize with stone.
 - c. For slopes greater than 5% but less than 10%: minimum 6-inch to 8-inch minus stone or the equivalent for new construction.
 - d. For slopes greater than 10%: minimum 6 to 8-inch minus stone or equivalent for new construction. Recommend 12-inch minus stone or the equivalent.

¹ See check dam installation specifications.

Drainage and Intermittent Stream Culvert Standards

The following are the required culvert standards for all gravel and paved roads with ditches where rill or gully erosion is present. These standards also apply to new construction and significant upgrades of stormwater treatment practices.

1. **Municipal Culverts (Drainage and Intermittent Streams)**
 1. Culvert end treatment or headwall required for areas with road slopes 5% or greater if erosion is due to absence of these structures. End treatment or headwall is required for new construction on slopes 5% or greater.
 2. Stabilize outlet such that there will be no scour erosion, if erosion is due to absence or inadequacy of outlet stabilization. Stone aprons or plunge pools required for new construction on road slopes 5% or greater.
 3. Upgrade to 18-inch culvert (minimum), if erosion is due to inadequate size or absence of structure.
 4. A French Drain (also called an Underdrain) or French Mattress (also called a Rock Sandwich) sub-surface drainage practice may be substituted for a cross culvert.
2. **Driveway Culverts within the municipal ROW**
 1. Culvert end treatment or headwall required for areas with road slopes of 5% or greater, if erosion is due to absence of these structures. End treatment or headwall is required for new construction.
 2. Stabilize outlet such that there will be no scour erosion, if erosion is due to absence or inadequacy of outlet stabilization. Stone aprons or plunge pools required for new construction.
 3. Upgrade to minimum 15-inch culvert, 18-inch recommended, if erosion is due to inadequate size or absence of structure.

Standards for Paved Roads with Catch Basins

Catch Basin Outlet Stabilization: All catch basin outlets shall be stabilized to eliminate all rill and gully erosion. Catch basin outfall stabilization practices include: stone-lined ditch, stone apron, check dams and culvert header/headwall.

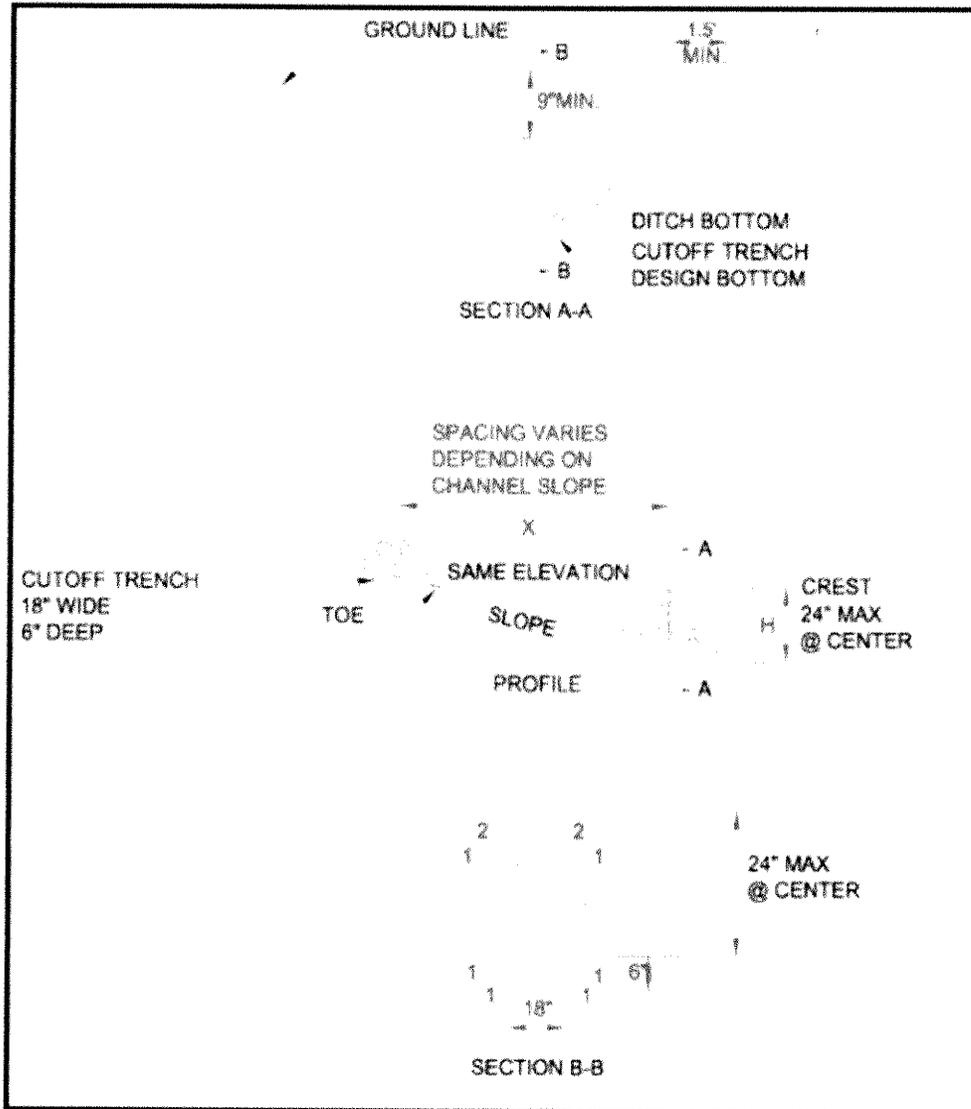
Stone Check Dam Specification

- Height: No greater than 2 feet. Center of dam should be 9 inches lower than the side elevation
- Side slopes: 2:1 or flatter
- Stone size: Use a mixture of 2 to 9-inch stone
- Width: Dams should span the width of the channel and extend up the sides of the banks
- Spacing: Space the dams so that the bottom (toe) of the upstream dam is at the elevation of the top (crest) of the downstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

$$\text{Spacing (in feet)} = \frac{\text{Height of check dam (in feet)}}{\text{Slope in channel (ft/ft)}}$$

- Maintenance: Remove sediment accumulated behind the dam as needed to allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam. If significant erosion occurs between check dams, a liner of stone should be installed.

Check Dam Specification:



Section 2: STANDARDS FOR CLASS 4 ROADS

Stabilize any areas of gully erosion with the practices described above or equivalent practices. Disconnection practices such as broad-based dips and water bars may replace cross culverts and turnouts.

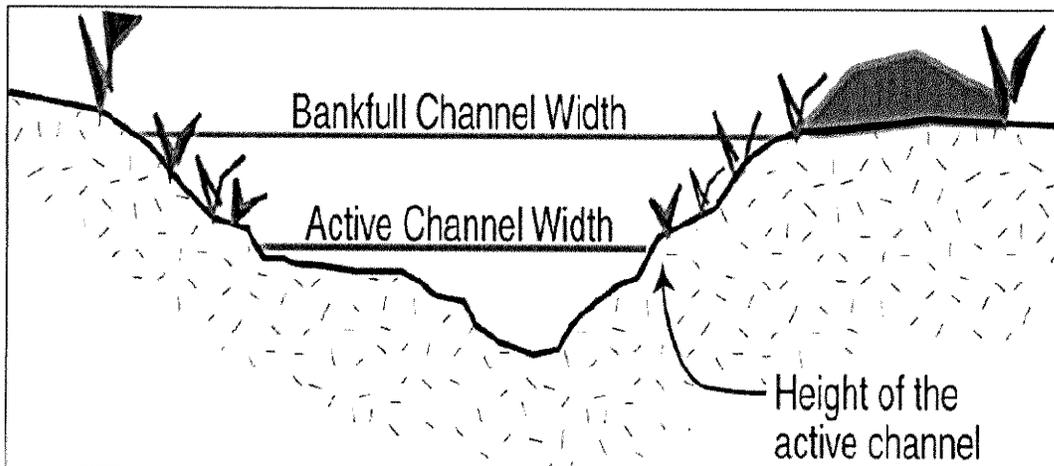
Appendix B

Active Channel Culvert Sizing for Intermittent Stream Crossings

Choose the drainage area closest to your crossing site drainage area

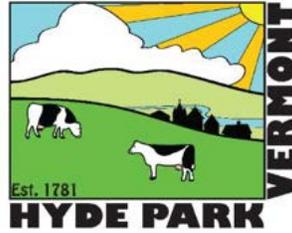
| Drainage Area (Acres) | Minimum Diameter for Culverts on Intermittent Streams (inches) |
|--------------------------|---|
| 4 | 15 |
| 8 | 18 |
| 16 | 24 |
| 20 | 30 |
| 40 | 36 |
| 50 | 42 |
| 80 | 48 |
| 120 | 60 |
| 160 | 66 |
| 200 | <i>Streams with drainage areas of 160 acres or greater are likely to be perennial. Adhere to the VTDEC Technical Guidance for Identification of Perennial Streams</i> |
| 320 | |
| 350 | |
| 450 | |
| 640 | |

Active Channel Width



Active Channel Width means the limits of the streambed scour formed by prevailing stream discharges, measured perpendicular to streamflow. The active channel is narrower than the bankfull width (approximately 75%) and is defined by the break in bank slope and typically extends to the edge of permanent vegetation.

Culvert sizing for crossings on intermittent streams: Determine the Active Channel Width by field measurements, *the culvert size should meet or exceed the Active Channel Width*. To obtain the measurements go to the crossing location and obtain several upstream Active Channel Width measurements in riffle (fast moving water) narrower channel locations. The selected channel width should be a representative average of the field measurements. In the absence of field measurements, the drainage areas in the table can be used.



Policy for Transportation Construction and Improvements

This Policy includes the minimum State of Vermont January 23, 2013 “Town Road and Bridge Standards”. The history and template for these standards may be viewed at: [HERE](#).

Projects within the Town and State Highway Right-of-Way may be subject to one or more local or state policies or guidelines, including issuance of a 19 VSA 1111 right-of-way use permit. The town [highway department page](#) has additional information and the permit application form.

For information on State Agency of Transportation projects in Hyde Park go to - [VTransparency](#).

Statewide culvert inventories are maintained by Municipal, regional and state staff and may be viewed here - [VTCulverts](#)



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1 The Selectboard of the Town of Hyde Park, County of Lamoille, State of Vermont hereby adopts
2 the following town Policy for Transportation Construction and Improvements.

3 **Introduction**

4 This Policy shall be called the “Policy for Transportation Construction and Improvements” or the
5 “Road and Bridge Standards Policy”. The Town recognizes that a Municipal Roads General
6 Permit (MRGP) will require that all Vermont towns follow standard road construction and
7 maintenance practices in order to be supported by town, state and federal investment funds.
8 Additionally, future projects are expected to be prioritized by a road erosion inventory and capital
9 plan. To that end, this Policy’s objective is to establish the methods for sound and cost-effective
10 transportation construction and improvement for the long-term health of the local road network
11 and maintaining the good water quality that currently leaves Hyde Park and enters the Lake
12 Champlain watershed.

13 This Policy shall apply to the construction, repair, and maintenance of all roadways within the
14 Town of Hyde Park, including within the Village of Hyde Park, whether a public or private
15 roadway, individual or shared driveway, serving any type of land development and including all
16 bridges, culverts and related roadway or driveway drainage systems. Roadways as referred to
17 within this Policy as “Town Roads” and “Local Roads”, and include all municipal and private
18 roadways and related infrastructure, including individual and shared driveways, excluding state
19 and federal properties and roadways. Agricultural and forestry access roads or drives are
20 exempt to the extent the uses being served by the access is exempt from local zoning, however,
21 the access for an agricultural or forestry use at the point it enters a public highway must receive
22 19 VSA 1111 approval, or an exemption, from the state or town. Applicants for land development
23 and individuals considering offering the municipality roadways or other infrastructure should be
24 provided a copy of this Policy in the project’s planning phase.

25 If a parcel is proposed for a change of use, then all existing access ways, to and within that
26 parcel or project, and to the primary structure or to the area of primary use, are subject to review
27 under this Policy. For fire protection services, driveways meeting the standards of this Policy
28 must be constructed to within 100 feet of the primary structure, unless waived by the Selectboard
29 and an alternative fire service method or facility is provided by the developer.

30 **Definitions**

31 **Driveways:** If the Roadway definition is not met, then the access must meet driveway standards.

32 **Land Development:** See current town zoning bylaw.

33 **Roadways:** Roadways are defined as vehicular transportation routes and associated
34 infrastructure providing frontage or access to four or more residential uses (one residential use
35 means no more than one duplex structure or one single-family on a parcel) or four or more
36 commercial uses (individual businesses), or combination thereof, which generate 40 or more trips
37 – 40 Annual Average Daily Traffic (AADT). For example, the AADT is equal to 10 trips per day for
38 each residential unit. For commercial or mixed uses, the AADT must be determined with the
39 assistance of a traffic consultant, guidance or recommendations from the Vermont Agency of
40 Transportation, the regional planning commission or other source acceptable to the Selectboard.

41 **Trip:** A trip is defined as one-way travel across a road and the total trips are measured at any
42 point along the roadway that is most representative of the use and impact on that roadway and
43 connecting roads. The existence or proposal to add one 1-bedroom accessory apartment to a
44 parcel shall not increase the single-family use AADT of 10 for the purposes of this Policy.

45 For standards and terms needing additional clarification or definition, the regional planning
46 commission or Vermont Agency of Transportation shall be utilized as a resource and to provide
47 guidance.
48

1 Introduction - continued:

2

3 **Minimum Standards**

4 The standards listed here are considered minimum and apply to transportation construction
5 projects and roadway repair and maintenance activities. The standards include management
6 practices and are designed to: ensure the safety of the traveling public, minimize damage to
7 road infrastructure during flood events, and enhance water quality protections by minimizing
8 sediment delivery to surface waters and/or wetlands.

9 Roadway and driveway improvements under this Policy are required when:

- 10 • more than 50% of the construction value of the roadway (or a defined significant road
11 segment), bridge, or culvert, is lost following a significant weather event, deterioration
12 or other event;
- 13 • new land development is proposed and the new uses will utilize one or more existing
14 roadways and/or roadway structures that do not comply with these minimum
15 standards; or
- 16 • a change of use is proposed on a parcel that results in a driveway becoming a roadway
17 or the change of use creates an increase in AADT or potentially negative impact on
18 the roadway or roadways serving the project. The Selectboard determines when
19 requirements for improvements under this Policy will be necessary. Negative impacts
20 include a change of use that will add heavy vehicles, long vehicles or other
21 transportation vehicles to an existing roadway that is not designed to accept the new
22 traffic type.

23 **Modifications to Minimum Standards**

24 The Selectboard reserves the right to modify these standards for a particular project or repair or
25 maintenance activities where, because of unique physical circumstances or conditions, there is
26 no possibility that the project or activities can be completed in strict conformance with these
27 provisions. Any modifications to the standards must be done in a manner that serves the
28 underlying intent of the management practice, be it public safety, flood hazard avoidance, or
29 water quality protection. Fiscal reasons are not a basis for modification of the standards.
30 Questions about modifications to state standards should be directed to the VTrans District Office.
31 For design speeds over 35 mph, contact VTrans, regional planning or traffic consultant.

32 The Town or project developer shall comply with these Road and Bridge Standards, all
33 applicable state and federal approvals, applicable permits and duly adopted standards when
34 undertaking road and bridge activities and projects.

35 Any new roadway regulated by and/or to be conveyed to the municipality shall be constructed
36 according to the minimums of these standards. "Regulated by" means any land development
37 project reviewed by the Selectboard, the Town or Village Development Review Board or
38 reviewed under any local ordinance or bylaw. If any federal and/or state funding is involved in
39 a project, the VTrans district office must be notified prior to any field changes taking place that
40 would alter the original scope of work and would not meet the minimum requirements in these
41 Town Standards.

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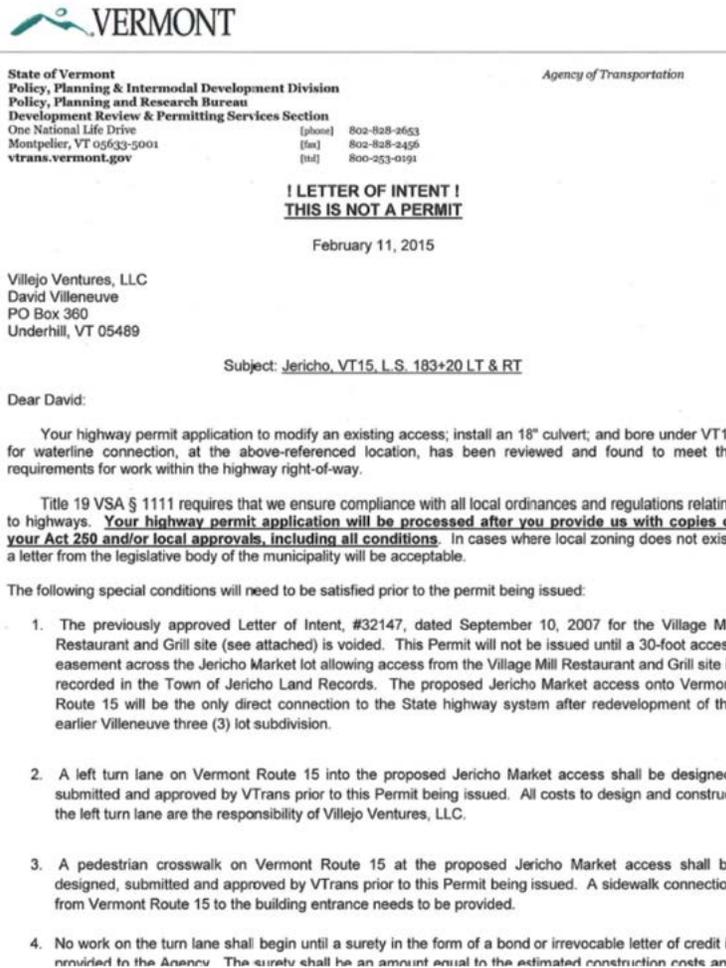
1 **Exceptions**

2 No roadway improvements are required if the proposed land development (“land development”
3 as defined in the town zoning bylaw) is:

- 4 ◦ on a legally existing parcel that is in compliance with local ordinances, town zoning
5 permits, and any applicable state permits, and
- 6 ◦ a new seasonal camp, new single-family home or two-family home and the lot is approved
7 for that land use (additions to existing structures are exempt from review under this Policy
8 unless it also creates a change in use, including new units or increased traffic), and
- 9 ◦ served by an existing defined roadway or access (meaning visible and travelable in the
10 field) with any width which is currently open to public travel and adequate for fire service
11 as determined by the Fire Chief, and
- 12 ◦ the proposed use generates no safety, fire access or environmental concerns as may be
13 determined by the Selectboard or Fire Chief.

14 Notwithstanding the above, all new land development entering a public or private roadway shall
15 comply with State Standard B-71 for intersections and a 19 VSA 1111 permit may be required.

16 Example of State 19 VSA 1111 “Letter of Intent” issued prior to local zoning approval:



1 Section 1: Construction and Improvements

2 Town roadway and road related infrastructure/improvements shall be constructed or installed
3 in accordance with sound engineering practice and Policy. The standard specifications
4 contained as part of this Policy are considered minimum and may be proposed, or required, to
5 be exceeded to meet traffic or other conditions.

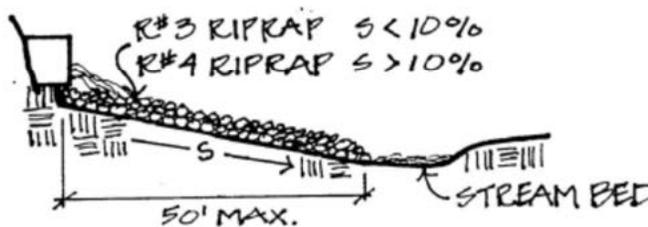
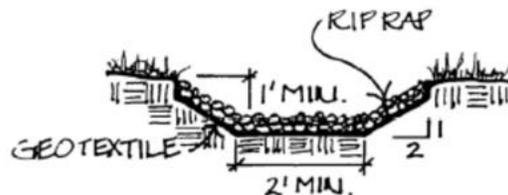
6 All new road culverts shall be a minimum of eighteen inches (18") in diameter or as directed
7 by the Selectboard. Driveway culverts shall be a minimum of fifteen inches (15") or as directed
8 by the Selectboard. The Road Commissioner and the Selectboard shall specify the diameter
9 of the culvert in the road access permit using:

- 10 • All new and replacement bridges and culverts will meet the 50-year event or "Q-50"
11 standard.
- 12 • All stone riprap and any other stone used in road, ditch or bridge or any other
13 construction on Town roads shall be of a type and color approved by the Selectboard.
14 The purpose of this standard is to avoid the use of stone that will be functionally
15 inappropriate or aesthetically unpleasing.
- 16 • Roadside ditches shall be constructed and treated to minimize erosion and to remove
17 sediments and other pollutants from runoff water by:
 - 18 ○ Seeding and mulching ditches having a slope of less than 2.5%;
 - 19 ○ Placing biodegradable matting and seed in ditches with slopes between 2.5%
20 and 5%;
 - 21 ○ Stone lining ditches having a slope of 5% or greater. Stone riprap shall be at
22 least 12" stone.

23 Additional guidance is available at the
24 Vermont Local Roads Program
25 website and Better Roads Manual
26 ([available here](#)).

27 All bridges shall have a minimum two-
28 lane width consistent with the width of
29 the approaching travel lanes. Each
30 travel lane on a bridge or large
31 structure shall have a shoulder width of
32 at least 3-feet or a designated bicycle
33 and pedestrian lane of 5-feet added to
34 at least one side of the bridge deck.

35 Note: Road construction and right-of-
36 ways require review by the Hyde Park
37 Development Review Board. The
38 Town requires a zoning permit for all
39 new roads, driveways, subdivisions
40 and changes of use. Coordination with
41 both the Selectboard and Town Zoning
42 Office are critical to a successful
43 development projects.
44

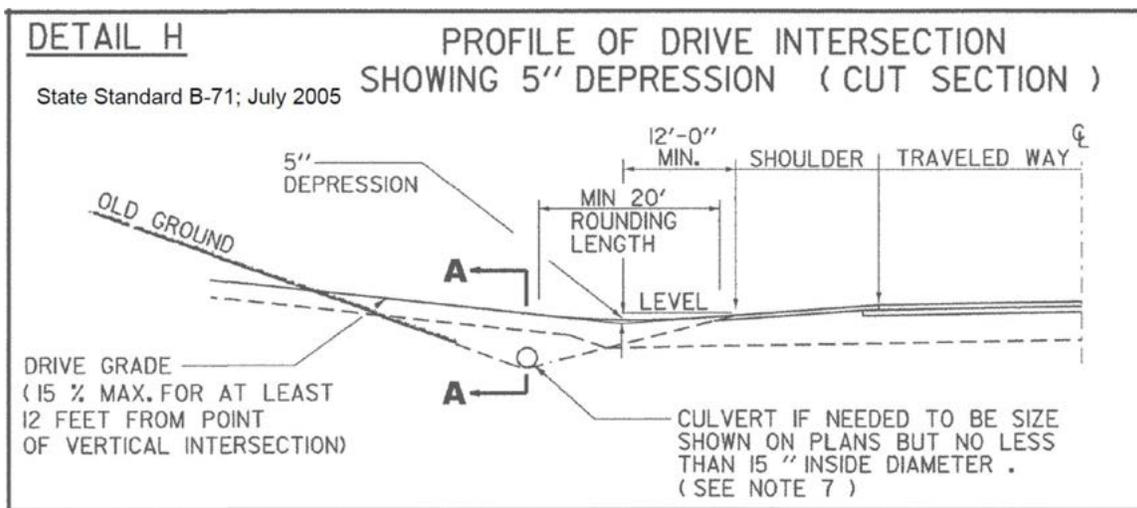


RIPRAP CONVEYANCE CHANNEL

Section 2: Highway Access Permit

All new land development and changes of use on any parcel require a highway access permit application (under 19 VSA 1111) to be first submitted to the Selectboard, and approved, prior to the issuance of a local zoning permit. The State of Vermont expects all land development proposed to access a state highway, directly or indirectly via a private access, to be reviewed prior to issuance of a local zoning permit application. Driveways shall meet the minimum width requirements in the zoning bylaw as well as this Policy and the B-71 State Standard, including Detail H, below. Applicants before the Hyde Park Development Review Board shall meet with the Selectboard prior to submitting an application for public hearing for any project that:

1. Proposes to offer roadways or other infrastructure to the municipality, and
2. If no offer is being made to the municipality, the proposed project will not strictly comply with these Road and Bridge Standards. In this case, the Selectboard may be asked to modify the standards or request that the proposal be modified as part of the land use application review process.



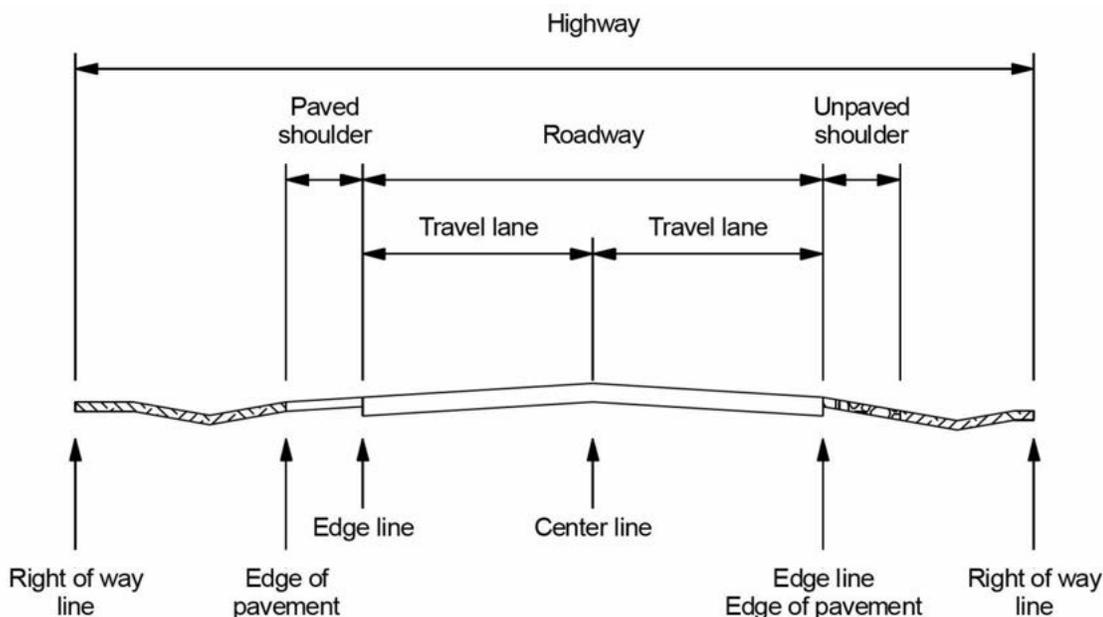
As authorized under 19 V.S.A. Section 1111, the following activities require the approval of the Selectboard after submission of a complete highway access permit application, including any required fees. Construction costs are borne by the applicant unless shared by formal agreement with the Town or other property owners benefiting by the improvements.

- All proposed drive accesses and development roads where they intersect a town highway (VTrans approval is required for VT100, VT100C and VT15).
- Any change in the use on parcel when the land development is accessed by an existing private roadway or driveway that enters a town highway right-of-way.
- Any change in an existing road or driveway where it intersects a town highway, including any changes within 25-feet outside of the edge of the roadway shoulder.
- Any increase in the volume of traffic or change in type of vehicles entering the town highway.
- Any work within the town highway right-of-way not previously approved by the Selectboard, excepting utility work for electric poles and wires, but including underground cables or pipes, water or wastewater system infrastructure, including stormwater system components; not owned or controlled by the Town of Hyde Park.
- The Town encourages project developers to combine driveways before entering a town highway to reduce the number of access points and related highway maintenance costs.

Section 3: Roadways & Design Guidelines

The term “roadway” refers to the area of the street right-of-way used for vehicular travel, including cars, trucks, bicycles and transit. The roadway may also include a number of additional uses such as on-street parking, bicycle & pedestrian facilities, curbed structures such as medians and crossing islands, and utility access points, see Typical Roadway U diagram below.

- All new or substantially reconstructed gravel roads shall have at least 12” thick processed gravel sub-base, with an additional 3” (minimum) top course of crushed gravel.
- All new or substantially reconstructed paved roads shall have at least 15 inches in depth of processed gravel sub-base with an additional 3 inches (minimum) of bituminous concrete (paved hot mix).
- All roadways shall be graded so water does not remain on the road surface. For roadways that are not super-elevated, this generally means a 2% to 4% (1/4” – 1/2” per ft) crown for gravel roads and a 1% to 2% (1/8”– 1/4” per ft) crown for paved roads to promote sheeting of water.
- Proper grading techniques for gravel roadways must be used to avoid creating a ridge or berm between the crown and the ditch.
- Any berm along the roadway shoulder that prevents the proper sheeting of water must be removed.
- The town may replace or repair existing structures in undeclared disasters to its prior condition if the replacement or repair costs less than 50% of the cost that would be required to meet these standards. Documentation shall be kept on file for each such repair or replacement. See: [FEMA “50% Rule”](#) for additional guidance.



Typical Roadway Use within ROW Limits

Section 3: Roadways & Design Guidelines - continued

3.1 Basic Geometric Standards

Design criteria for Town roads and Private Subdivision Roads are summarized below.

3.2 Design Speed

Currently the town traffic ordinance only applies to state highways. There is no town ordinance in place for town roads including the option to set a town-wide speed limit for unpaved roads as provided by 23 V.S.A. 1007:

§ 1007. Local speed limits

(a)(1) The legislative body of a municipality may establish, on the basis of an engineering and traffic investigation, a speed limit on all or a part of any city, town, or village highway within its jurisdiction, which:

(A) is not more than 50 miles per hour; however, after considering neighborhood character, abutting land use, bicycle and pedestrian use, and physical characteristics of the highways, the legislative body of a municipality may vote to set the maximum speed limit, without an engineering and traffic investigation, at not more than 50 miles per hour nor less than 35 miles per hour, on all or a portion of unpaved town highways within its boundaries, unless otherwise posted in accordance with the provisions of this section;

Generally, design speeds are higher than 35 mph on Class 2 roadways. For other local roads, the design speeds are generally 30 to 35 mph. however, speeds may be posted lower than the design speed to:

- avoid and/or minimize impacts to historical, architectural, scenic, natural or other resources.
- avoid excessive costs of construction.
- better comply with a town or regional plan.

3.3 Stopping Sight Distance

Minimum stopping distances on Town roads will adhere to the values in Table 3.3.

| Table 3.3 | | | |
|---|--|----------------------------------|--------------------------------|
| Minimum Stopping Sight Distance for Local Roads/Streets (Wet Pavement) | | | |
| | Rehabilitation, Reconstruction or New Construction | | |
| Design Speed (mph) | Stopping Sight Distance (ft) | K Value for Crest Vertical Curve | K Value for Sag Vertical Curve |
| 25 | 150 | 20 | 30 |
| 30 | 200 | 30 | 40 |
| 35 | 225 | 40 | 50 |

For design speeds over 35 mph, contact VTrans, regional planning or traffic consultant.

1 Section 3: Roadways & Design Guidelines – continued

2

3 3.4 Corner Sight Distance

4 Corner sight distances for Town roads will meet the minimum requirements of Table 3.4.

| Table 3.4 | |
|---|----------------------------|
| Minimum Corner Sight Distances (a) | |
| For Local Roads & Streets | |
| Design Speed (mph) ^(b) | Corner Sight Distance (ft) |
| 25 | 275 |
| 30 | 330 |
| 35 | 385 |

5 (a) Corner sight distance is measured from a point on the intersecting road or driveway, at
6 least 15 feet from the edge of traveled way on the main road.

7 (b) For design speeds over 35 mph, contact VTrans, regional planning or traffic consultant.

8 3.5 Land and Shoulder Widths on Local Roads

9 Lane widths may vary from 7 to 11 feet. The 7 and 8-foot widths may be appropriate in areas
10 having very low traffic volume and little or no truck traffic. Lane and shoulder widths within
11 Historic Districts should be compatible with the historic character of the District. For new
12 construction, lane and shoulder widths will adhere to values in Table 3.5. Note that the
13 shoulder widths in this table are considered necessary for adequate safety and service for this
14 class of highway.

| Table 3.5 | | | | |
|---|-------------------------------|---------------|----------------|------------------|
| Lane and Shoulder Widths on Town Roads (Lane/Shoulder in feet) | | | | |
| Design Speed (mph) | Design Traffic Volume | | | |
| | AADT ^(a) 0 - 25 | AADT 26-50 | AADT 51-100 | AADT Over 100 |
| 25 | 7/0 | 8/0 | 9/0 | 9/2 |
| 30 | 7/0 | 8/0 | 9/0 | 9/2 |
| 35 | 7/0 | 8/0 | 9/0 | 9/2 |
| Over 35 | 9/0 | 9/0 | 10/1 | 11/1 |

15 (a) – Minimum width of 8/0 whenever there is guardrail

16 For reconstruction and rehabilitation, the median existing roadway lane and shoulder width
17 within a project area shall be the minimum lane and shoulder widths, with additional shoulder
18 width to accommodate bicycles as outlined under “Bicycle and Pedestrian Considerations” in
19 this Section.

20

1 **3.6 Grades and Cross Slopes**

2 For existing Class 2 or Class 3 town highways – these roads will be eligible for land development,
 3 including subdivision, with any centerline grade.

4 For existing Class 4 town highways or unclassified town highways – these roads will not be
 5 eligible for reclassification to Class 3 if the road centerline grade is in excess of 15% at any point
 6 (measured at intervals of no less than 50 feet and no more than 150 feet).

7 For private roads – private roads will not be accepted as a town highway or approved for the
 8 creation of new lots, if the road centerline grade is:

- 9 1) more than 8% at any point on a gravel road (measured at intervals of no less than
- 10 50 feet and no more than 150 feet) or
- 11 2) more than 10% for paved roads, or paved sections of a gravel road.

12
 13 Maximum grades on Local Roads will adhere to the values shown in Table 3.6.

14

| Table 3.6 | | | | |
|-----------------------|-------------|-------------------------|----|-------------|
| Maximum Grades | | | | |
| Type of Terrain | | Design Speed (mph) | | |
| | | 25 | 30 | 35 and over |
| | | Maximum Grade (percent) | | |
| | Level | 7 | 7 | 7 |
| | Rolling | 11 | 10 | 10 |
| | Mountainous | 15 | 14 | 10 |

15 For design speeds over 35 mph, contact VTrans, regional planning or traffic consultant.

16 Grades for Local Roads should be as flat as is consistent with the surrounding terrain. Where
 17 grades of 4 percent or steeper are necessary, the drainage design may become critical. On such
 18 grades special care must be taken to prevent erosion on slopes and open drainage facilities. To
 19 provide for proper drainage, the desirable minimum grade that should be used for streets and
 20 bridges with outer curbs is one percent (1.0%).

21 Two-lane pavements are normally design with a centerline crown and parabolic surface with an
 22 average cross slop of 2 percent (2.0%).

23 When the use of curves is required, a superelevation rate compatible with the design speed
 24 must be used. Superelevation of curves on rural paved roads should not exceed 8 percent and
 25 6 percent on unpaved roads. Where a side road intersects on the outside of a main road curve,
 26 superelevation of the main road curve should be limited to 6 percent or less to prevent
 27 operational difficulties for vehicles entering the main road under snowy or icy conditions. Super
 28 elevation is tilting the roadway to help offset centripetal forces developed as the vehicle goes
 29 around a curve. Along with friction, super elevation helps keep a vehicle from going off the road.
 30 A super elevated section is proceeded by a transition section. The values of super elevation are
 31 determined from the AASHTO Design Guide and are a function of the rate of super elevation
 32 and the curve radius.

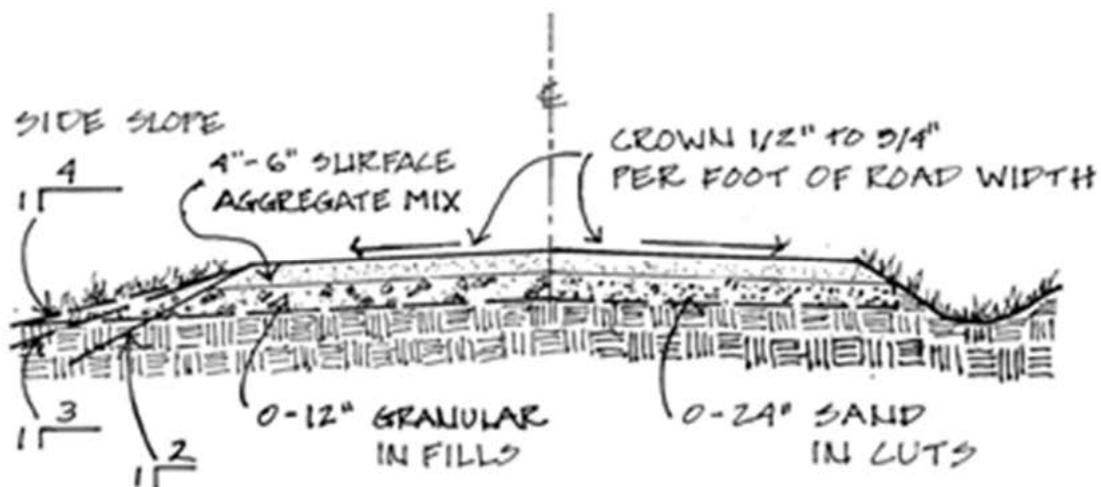
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1 Section 4: Ditches & Slopes

2 Soil exposed during ditch and slope construction, repair or maintenance must be treated
3 immediately following the operation and temporary erosion prevention and sediment control
4 practices must be installed and maintained during construction activities and until the ditch or
5 slope is permanently stabilized.

6 The following are minimum erosion control measures. Careful attention must be given to areas
7 vulnerable to erosion and immediately adjacent or discharging to surface waters and/or roadway
8 drainage facilities:

- 9 • Removal of any public shade tree that is not a hazard nor a safety risk to the traveling
10 public requires prior review of the Town Tree Warden or may be removed in
11 conformance with an agreed upon set of procedures between the highway department
12 and the Town Tree Warden. Notice to neighbors adjacent to the roadside clearing
13 shall be contacted prior to removal of any tree greater than 4" in diameter and the
14 landowner may ask that some or all cut wood greater than 4" in diameter remain for
15 the landowner to move out of the public right-of-way. The Town Highway Road
16 Foreman may order the removal of public shade trees that are impacting sight
17 distances, may create or are creating or safety risk to the travelling public.
- 18 • Seed and mulch all ditches with grades less than 5% when undertaking projects or
19 repairs or maintenance activities that result in exposed soil. Vegetation must be
20 established and monitored. If vegetation is not established within 10 days of
21 placement, install biodegradable non-welded matting with seed.
- 22 • Stone line all new or reconstructed ditches or whenever soils are disturbed by
23 maintenance activities with grades equal to and greater than 5%; alternatively, install
24 stone check dams. The check dams must meet criteria outlined in the "Standards
25 and Specifications for Check Dams, from the Vermont Standards and Specifications
26 for Erosion Prevention and Sediment Control. Specifically, dams must be placed so
27 that the crest of the downstream check dam is at the same elevation as the base of
28 the upstream dam.



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Section 4 – Ditches and Slopes (Continued)

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- Create parabolic (wide "U" shaped) ditches when constructing new or substantially reconstructing ditches, rather than narrow "V" shaped ditches wherever lateral space allows. Ditches with gradual side slopes (maximum of 1:2, vertical to horizontal ratio) and a wide bottom (at least 2 feet) are preferred. Use biodegradable, non-welded matting to stabilize side-slopes where slopes are greater than 1:2; apply seed and mulch to any raw or exposed side-slope if slopes are less than 1:2.
- All ditches must be turned out to avoid direct outlet into surface waters. There must be adequate outlet protection at the end of the turnout, either a structural (rock) or vegetative filtering area.
- If in the best professional engineering judgment of the VTrans Operations Division, there is a cost effective ditch treatment that will meet the intent of the management practices described above, but represents a departure from these standards, the municipality may implement the more cost effective ditch treatment alternative with the professional recommendation submitted in written form by VTrans prior to the municipality executing the work.
- When constructing new or substantially reconstructing side slopes, use appropriately sized stone armament on slopes that are 1:1½ or greater. If perennial streams are affected by the toe of slope the project must conform to the statewide [Stream Alteration standards](#).

Section 5: Culverts & Bridges

Replacement of existing roadway cross culverts and any new roadway culvert, except driveway culverts, must have a minimum culvert diameter of 18 inches.

Replacement of existing bridges and culverts and any new bridges and culverts must be designed in accordance with the VTrans Hydraulics Manual, and, in the case of perennial streams, conform to the statewide Stream Alteration standards.

All new driveway culverts must have a minimum diameter of 15 inches, or as directed by the town. When installing or replacing culverts, use appropriate techniques such as headwalls and wingwalls, where there is erosion or undermining or where it is expected to occur. Installation of a splash pad or plunge pool at the outlet of new or repaired drainage culverts may be required where there is erosion or where erosion may occur. Splash pads and plunge pools are not appropriate for use in streams supporting aquatic life.

The Town favors reconstruction of bridges within existing footprints, in order to ensure compatibility with the historic setting and to reduce costs and environmental impacts. Where reconstruction within the existing footprint is not feasible, the full width of approach roadways as shown in Table 4.5 should be provided across all new bridges on Local Roads. New bridges should be designed to HS-25 loading capacity. Where an existing road is to be reconstructed, an existing bridge which fits the proposed alignment and profile may remain in place when its structural capacity in terms of design loading and roadway width area at least equal to H-12 for AADT up to 50 and H-15 for AADT exceeding 50.

1 Town highway bridges will be designed to pass the 50-year frequency flood with a minimum
2 clearance of 1 foot between water surface elevation and the low chord of the bridge.
3 Consideration shall also be given to the potential effects of the 100-year flood on upstream
4 property, the environment, hazards to human life and floodplain management criteria. A local
5 zoning permit for any new or reconstructed structure within a flood hazard area shall be required,
6 whether on a state highway, local highway or private road.

7 All new roadway culverts, private or public, will have a minimum diameter of 18 inches and shall
8 be located as follows: - one cross culvert every 500 feet for roads with a discernable slope or;
9 every 400 feet on roads with slopes of 1-2%; every 300 feet on roads with slopes of 3-5%; every
10 200 feet on roads with slopes of 5-10%; every 100 feet on roads with slopes over 10%. Culverts
11 are to be installed in accordance with standard generally recognized construction practices and
12 manufacturer's recommendations – see also VTrans standard details "D" series.

13 Replacement of existing bridges and culverts and any new bridges and culverts must be
14 designed accordance with the [VTrans Hydraulics Manual](#). In the case of perennial streams,
15 conformance with the statewide Stream Alteration Standards is required. The Road
16 Commissioner may also require that a stormwater management plan be prepared as part of a
17 site plan review (see also the Hyde Park Land Use and Development Regulations – zoning
18 bylaw), when, in his/her judgment, potential risk to private or public infrastructure warrants a
19 higher margin of safety.

20 Culverts are to be new or like new and of a material approved by the Town; either sixteen (16)
21 gauge galvanized steel or corrugated polyethylene, silt tight, to meet ASTM standards and will
22 have guideposts at each edge of the traveled way if required by the Town.

23 The culvert length and lateral separation from the road shoulder shall be sufficient to achieve
24 3:1 front slopes to the extent feasible. Soil cover over the culvert shall be at least the minimum
25 recommended by the culvert manufacturer; squash (pipe arch) culverts may be used when
26 inadequate cover conditions exist, provided the necessary carrying capacity of the culvert is not
27 compromised.

28 When installing or replacing culverts, use appropriate inlet and outlet flow control techniques
29 such as headwalls, wing walls or manufactured culvert aprons of a traversable design, where
30 there is erosion or undermining or where it may occur. Inlet and outlet devices shall be sufficiently
31 separated from the edge of the road so as not to be a hazard, or shielded if the foregoing is not
32 practical, as approved by the Town.

33 Install a splash pad (energy dissipater) or plunge pool at the outlet of drainage culverts where
34 there is erosion or where erosion may occur. Splash pads and plunge pools are not appropriate
35 for use in streams supporting aquatic life. – Culverts shall be placed in alignment with the flow
36 to the extent possible and not at right angles to the channel.

37

1 **Section 6: State Design Standards**

2 Class 2 Town Highways

3 All new Class 2 town highways, including major reconstruction of existing Class 2 town
4 highways, or any roadway being offered for acceptance as a Class 2 town highway, shall strictly
5 comply with or exceed the minimum requirements in this Policy and VTrans A-76 Standards for
6 Town & Development Roads, B-71 Standards for Residential and Commercial Drives; and shall
7 also comply with the VTrans Access Management Program Guidelines for other design
8 standards and specifications.

- 9 A-76 Design Standard for Town and Development Roads
- 10 B-11 Design Standards for Under-Drain
- 11 B-71 Design Standards for Residential and Commercial Drives
- 12 D-2 Design Standards for Headwalls and other reinforcements
- 13 D-3 Design Standards for Treated Gutters

14 Applicants for land development projects will generally not be required to improve existing Class
15 2 roads, unless the proposed activity will generate excessive weights, safety concerns or traffic
16 volumes sufficient to require improvements to the Class 2 road, such as bridge weight capacity,
17 road or bridge width, and intersection upgrades, as determined necessary by the Selectboard,
18 a local zoning review process or a state governmental agency.

19 The width of travel lanes and shoulders on Class 2 roadways are determined by Table 4.3 in the
20 State Design Standards manual. Class 2 roads shall be paved.

21 Class 3 Town Highways and Private Roads

22 All new Class 3 town highways and private roads, including major reconstruction and significant
23 repairs from major weather events or from deterioration, or any road being offered for
24 acceptance as a Class 3 town highway shall comply with the below State Standards and this
25 Policy. Where conflicts exist between this Policy and State standards, the Selectboard shall work
26 with VTrans to resolve the conflict:

- 27 A-21 Class 3 Town Highway guidelines for Average Daily Traffic (ADT) of 0-250
- 28 A-22 Class 3 Town Highway guidelines for Average Daily Traffic (ADT) of 250-400
- 29 A-23 Other than class 3 Town Highway guidelines for ADT of 0-400
- 30 A-24 Guidelines for all ADT Highways 400-750
- 31 A-76 Design Standard for Town and Development Roads
- 32 B-11 Design Standards for Under-Drain
- 33 B-71 Design Standards for Residential and Commercial Drives
- 34 D-2 Design Standards for Headwalls and other reinforcements
- 35 D-3 Design Standards for Treated Gutters

36 Class 4 Town Highways and Public Trails

37 Class 4 town highways proposed to be utilized for access to new land development shall meet
38 the minimum access requirements in this Policy, in particular for fire service access, but are
39 exempt from the strict compliance with the State Design Standards. The Selectboard shall
40 determine, as part of the 19 VSA 1111 permit process, the extent of town road improvements.

41 Existing public trails may not be utilized for land development purposes other than primitive
42 camps and non-structural uses. Upgrades to trails can be extensive in order to meet the needs
43 of most new land development, thus interested parties are advised to being discussions with the
44 Selectboard very early in their land development process to determine the feasibility of the
45 project in regard to minimum standards to be required for access.

46

1 **Section 7: Guardrails and Horizontal Clearance**

2 When a roadway, culvert, bridge, or retaining wall construction or reconstruction project results
 3 in hazards such as foreslopes, drop offs, or fixed obstacles within the designated clear-zone, a
 4 roadside barrier such as guardrail must be installed. For example, and subject to review by a
 5 professional engineer, roadways with a 25 MPH speed limit that include a shoulder with a slope
 6 of 1 on 4 or flatter, and being at least 9 feet in width, will generally not require installation of
 7 guardrail. Each location should include a review of the most current version of the AASHTO
 8 Roadside Design Guide which will govern the analysis of the hazard and the subsequent
 9 treatment of that hazard.

10 A clear unobstructed roadside is highly desirable for motorist safety along Local Roads. Clear
 11 zone distances for new construction and reconstruction projects will normally be based on the
 12 values shown in Table 7.1. The placement of poles or other non-crashworthy features in the
 13 shoulder or ditch is not desirable, as errant vehicles are likely to travel to the bottom of the ditch.

14

| Table 7.1 | | | | |
|---|--------------|-----------------------|-----|----------------|
| Minimum Clear Zone Distance (in feet from edge of traveled lane) | | | | |
| Design Speed (mph) | Design AADT | Design Traffic Volume | | |
| | | Fill Slopes | | Cut Slopes |
| | | 1:4 or flatter | 1:3 | 1:3 or flatter |
| Any | Under 750 | 7 | (a) | 7 |
| | 750 and over | 12 | (a) | 10 |

15 (a) Since recovery is less likely on unshielded, traversable 1:3 slopes, fixed objects should
 16 not be presented from the edge of the traveled lane to the toe of these slopes.

17 Despite the recommendations in Table 7.1, clear zones as narrow as 5 feet may be used on
 18 Local Roads, without design exception, where necessary to avoid or minimize disturbance of
 19 significant historic archaeological, scenic, natural or other resources.

20

1 **Section 8: Modifying Minimum Roadway Widths**

2 Considerations for modifying the minimum roadway dimensions of Class 2, Class 3 and private
3 roadways should be made within the context of how the entire right-of-way will be developed
4 over time. This includes public safety; available right-of-way; land use and zoning, current and
5 projected roadway capacity; pedestrian facilities, landscaping (including natural drainage where
6 allowable), bicycle facilities, freight and transit needs, and other intended uses of the public
7 realm. The Selectboard may also require that the width of the travel lane or shoulder for private
8 or public roads be increased above these minimum standards, depending on topography, grade
9 of the roadway, fire safety and access needs, vehicular safety, drainage needs or other factors
10 on a case-by-case basis. In no case shall the minimum widths be waived. Considerations for
11 establishing lane widths, including length and width of fire lanes, turnaround locations and one-
12 way travel, should be influenced by street type designations, street classifications, and the need
13 to have a reasonable balance among competing uses in the right-of-way. They are as follows:

- 14 • Lane widths that need to support large vehicle movements such as trucks and transit.
15 Wider lanes should be considered for commercial and industrial access roads.
- 16 • Areas where high pedestrian is occurring, consider options that keep travel lanes as
17 narrow as possible. On streets with transit service or that accommodate high volumes of
18 trucks and transit vehicles, consider options that have wider lane widths.
- 19 • Narrow lanes support slower vehicle speeds, and minimize overall roadway width which
20 supports pedestrian activity. Narrower lanes can be challenging for larger vehicles to
21 navigate, especially on roadways that carry high volumes of trucks and transit vehicles.

22 **Section 9: Land Development Projects & Existing Roads**

23 If any parcel is proposed for subdivision, or road submitted for reclassification or town
24 acceptance, or there is a change of use or creation of additional units on a parcel then the
25 proposed access (public or private) whether within or not within the project site, may need to be
26 improved at the applicant's cost. The length of the section(s) of any roadway to be improved
27 outside the development parcel and extending away from the project site shall be proportionate
28 to the proposed land development project as determined by the Selectboard. The improvements
29 shall be based on providing adequate access by fire, ambulance and other private or public
30 services and the costs of improvements shall be the responsibility of the applicant and/or
31 landowners utilizing the road. The Town may enter into written agreements to facilitate the work
32 or share in the cost of road improvement projects, but is not required to do so. If town funds are
33 to be utilized for road improvements that primarily benefit a private entity, a public vote
34 authorizing the expenditure of public funds may be requested by the Selectboard. The
35 Selectboard or Development Review Board may, in any matter, utilize the adopted State Design
36 Standards when the specific issue is not adequately addressed by these Town Standards, such
37 as A-76 and B-71. Example of proportionate share include how infrastructure costs are shared
38 by multiple parties in an electric line extension, or the town managing the costs of an upgrade
39 based on each lot's road frontage.

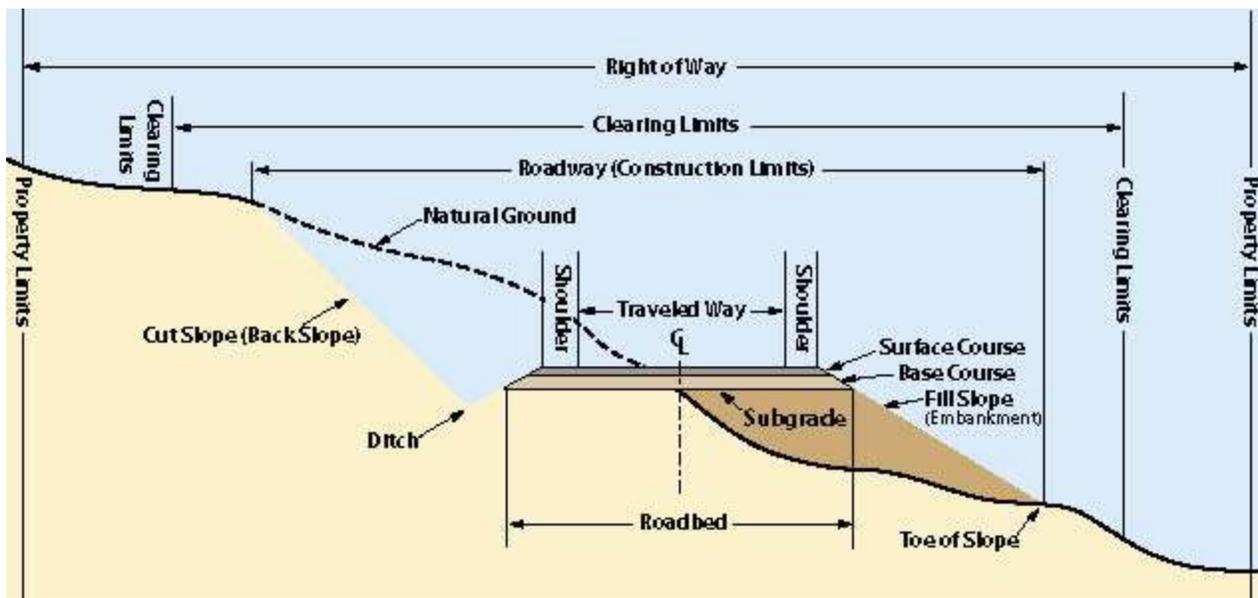
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1 Section 10: Class 4 Town Highways & Public Trails

2 Class 4 highways may be maintained to the extent required by the necessity of the town, the
3 public good and the convenience of the inhabitants of the town, or may be reclassified using the
4 same procedures as for laying out highways and meeting the standards set forth in 19 V.S.A. §
5 302. The town provides only minimal maintenance on Class 4 roads, if any, and there are no
6 minimum standards for Class 4 roads or trails. Any work on these roads, whether by the town
7 highway department or others, shall first be reviewed and approved by the Selectboard. A 19
8 VSA 1111 permit may be required in addition to insurance certificates provided by the individuals
9 performing the work that identify the Town of Hyde Park as certificate holder. According to 19
10 V.S.A. § 302 (c) (5): "Trails shall not be considered highways and the town shall not be
11 responsible for any maintenance including culverts and bridges." In cases where land
12 development is proposed on Class 4 town highways or public trails, the extent of any roadway
13 improvements will be determined by the Selectboard through the 19 VSA 1111 review process
14 to address any safety, fire access or environmental concerns.

15 Section 11: Minimum Depths for Materials

16 All gravel roads serving 4 or more units shall have a minimum of 12" of compacted gravel
17 subbase (or base) and 3" of crushed gravel top course. Paved roads shall have a minimum of
18 15" of subbase compacted gravel & 3" of top course hot mix bituminous concrete pavement.
19 Driveways serving 3 or less units must have a minimum of 3" crushed gravel top course with 6"
20 well-drained compacted subbase material.



http://www.nativerevegetation.org/learn/manual/ch_3.aspx

Section 12: Complete Streets – Paved Roadways Only

1 The Town recognizes the value of designing roadways for all users. For grant funded projects
2 or projects requiring consideration of complete streets objectives, the town will incorporate those
3 objectives, if financially and practically feasible, including typical elements that make up a
4 complete street include sidewalks, bicycle lanes (or wide, paved shoulders), shared-use paths,
5 safe and accessible transit stops, and frequent and safe crossings for pedestrians, accessible
6 pedestrian signals, and curb extensions. In rural areas examples could be the striping of
7 shoulders on paved roads to accommodate bicyclists and others or the development of a
8 separate multiuse path. Balancing safety and convenience for all users is the common
9 denominator. The state law regarding Complete Streets is not a mandate to retrofit existing
10 roads.



11 12.1 Bicycles on Bridges

12

13 Wherever bicycles are to be accommodated on newly constructed bridges or large structures,
14 shoulders with a minimum dimension as shown in Table 3.5 should be provided between the
15 parapet, rail or barrier and the edge of the nearest travel lane, and if no shoulder required, then
16 shared use signs shall be installed on each approach to the bridge.

17 12.2 Designated Bicycle Routes and Lanes

18

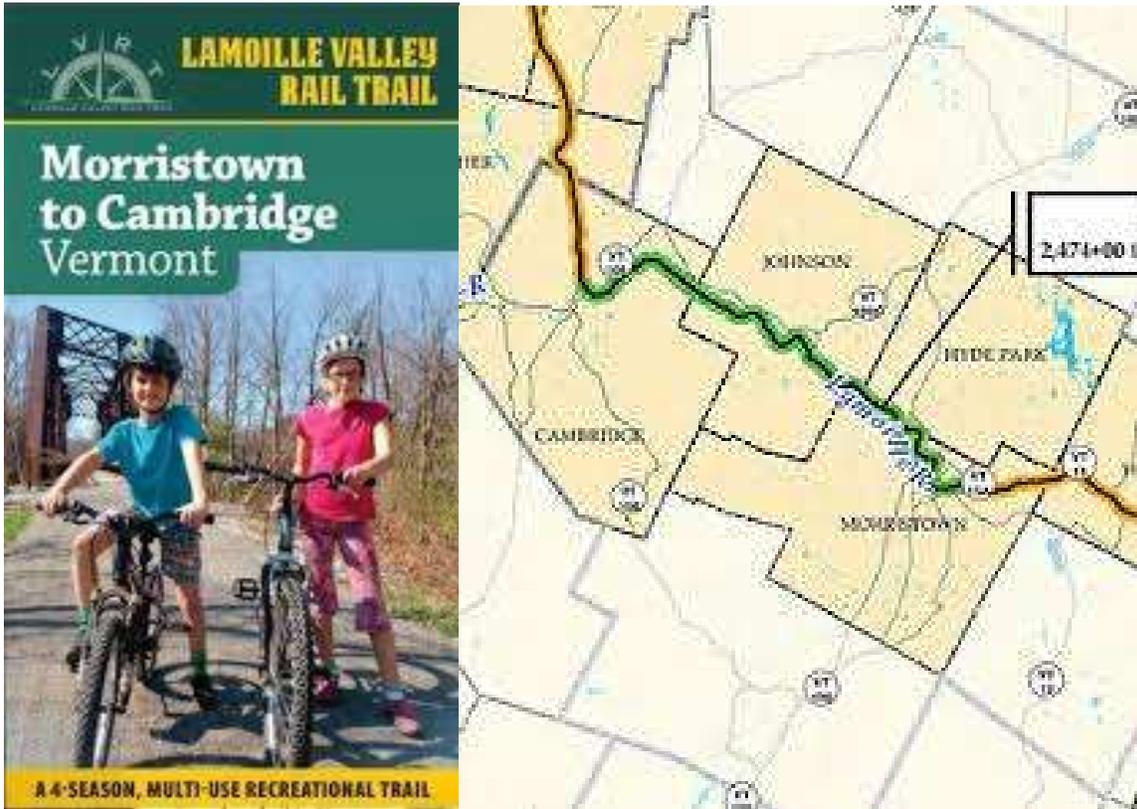
19 Designated bicycle routes or lanes may be appropriate along Town Roads. Because designated
20 routes and lanes will attract bicyclists encompassing a wide range of abilities, special care must
21 be taken to ensure adequate widths. Principal concerns for designated bicycle routes and lanes
22 are rider safety and comfort. Because of these concerns, some high speed and/or high volume
23 routes may not be appropriate for designated routes and lanes. In such cases, alternate routes
24 or separate paths for bicycles may be desirable.

25

1 12.3 Pedestrian Facilities
2

3 Adequate accommodation of pedestrians must be designed for all roadway projects. Depending
4 on the locality and expected frequency of pedestrians, adequate accommodation may range
5 from a graded space alongside a rural road to a sidewalk in a village. Projects in village areas
6 shall include consideration of sidewalks and crossing locations. In addition, sidewalks should be
7 considered in other areas of expected pedestrian use such as near schools and recreation areas.

8 Where pedestrians are accommodated on sidewalks, the design must observe, to the extent
9 possible, current Americans with Disabilities Act Accessibility Guidelines (ADAAG). These
10 guidelines establish acceptable grades, cross-slopes, widths, ramps, surface textures and other
11 facets of pedestrian facility design. Pedestrian accommodation on combined bicycle/pedestrian
12 paths must also respect the ADAAG to the extent feasible. Pedestrian accommodation along the
13 shoulders of roadways do not need to comply with ADAAG. However, to the extent that those
14 guidelines can reasonably be achieved, the designer is urged to do so.
15
16



1 **SECTION 13: SPECIAL DESIGN GUIDELINES**

2 These Special Design Guidelines are presented to assist the designer in avoiding, minimizing,
3 or mitigating negative impacts upon the environment and other sensitive resources as well as to
4 enhance the design to fit the context of the project site. These Special Design Guidelines note
5 the importance of the individual resources and suggest tools which may be used in the
6 development of a design which recognizes the resource at the proper level of importance. Under
7 this Functional Classification there are guidelines for:

- 8 • Historic/Archaeological Resources
- 9 • Natural Resources
- 10 • Recreational Resources
- 11 • Scenic Resources

12 When such resources are present within a project site and the use of the tools suggested do not
13 provide an adequate protection of the resources then the design may be eligible for reductions
14 in geometric values. The decision to pursue reductions in the standards is subject to approval
15 by the funding or governmental agency and in accordance with the "VAOT Design Exception
16 Policy". The primary strategy for Town Road projects on new alignment should be to use
17 alternative roadway alignments to avoid the impact on the resource. When the project must
18 remain on existing alignment such as roadway reconstruction, "Preservation" or "3R" project,
19 bridge repair or replacement, design solutions should be pursued that minimize the extent of the
20 impact. Town Road projects are intended to provide land access with minimal emphasis on
21 mobility and as such should be treated with the most flexibility when considering design solutions
22 for avoidance of impact to sensitive resources. Reduction in the size/area of impact and the
23 utilization of creative design and engineering solutions should be pursued to the maximum extent
24 possible. The following "common tools" should be used to reduce impacts to the natural and built
25 environment.

26 **13.1 Common Tools**

- 27 • One lane (two-way) low volume, low speed roadways
 - 28 • Alignment modification including: adjustment of horizontal and vertical curves to avoid
29 sensitive areas and to fit with topographical features
 - 30 • Reduction in posted speed
 - 31 • Reduction/minimization of lane and shoulder widths
 - 32 • Reduction/minimization clear zones
 - 33 • Sharpening of horizontal curves with advisory speed postings
 - 34 • Alterations to typical cross sections including:
 - 35 ○ Roadside ditches shallower than normal
 - 36 ○ Sideslopes steeper than normal (in combination with additional guardrail)
 - 37 ○ Use of curb and closed drainage systems, elimination of roadside ditching
 - 38 ○ Retaining walls
 - 39 • Other traffic calming techniques, such as intersection diverters, roundabouts,
40 channelization, speed humps, speed tables, angle points, and gateways
 - 41 • Wetland and wetland buffer restoration/creation
 - 42 • Wildlife habitat restoration/creation
 - 43 • Water quality/stream bank vegetation creation, restoration, and enhancement
 - 44 • On Site and Off site mitigation
 - 45 • View/scenic enhancement through vegetation management and grading of sideslopes
- 46

1 Common tools to reduce impacts – continued

- 2
- 3 • Selection of appropriate guard rail or other roadside barriers to accomplish visibility
 - 4 through to views or to blend in with the foreground views
 - 5 • Use of guard rail to allow steeper than 1:4 graded slopes, retaining walls or cribbing
 - 6 • Use of guard rail to allow preservation of significant features including native and planted
 - 7 vegetation
 - 8 • Use of grade separation/bridging/elevated structures etc.
 - 9 • Separation of vehicular/pedestrian facilities
 - 10 • Fencing or landscaping for screening or earth berm buffers
 - 11 • Retrofitting of historical bridges for alternative uses off-site
 - 12 • Integration of historical features in interpretive facilities, overlooks, etc.
 - 13 • Light poles and fixtures with down shielded luminaires.
 - 14 • Architectural/Landscape design:
 - 15 ○ Street trees
 - 16 ○ Use of native materials
 - 17 ○ Use of architectural design details
 - 18 ○ Pedestrian facilities
 - 19 ○ Signage
 - 20 ○ Historical design elements

21 13.2 Historic/Archaeological Considerations

22 Town Road construction projects on new locations should be designed to avoid historic or
23 archaeological resources wherever possible. This may be in the form of avoiding disturbance
24 of specific sites and structures as well as historic districts or areas where the presence of the
25 road is disturbing to the historic land use and development pattern. Reduction in lane and
26 shoulder widths may be considered where appropriate to avoid the imposition of wider road
27 sections through historically sensitive areas. Additionally, decisions regarding measures to
28 accomplish “speed management” should be considered. Where avoidance proves unfeasible,
29 every effort should be made to minimize impacts and pursue mitigation strategies and design
30 enhancements to enable the maximum integration of the Local road with the historic area.

31 The following additional design techniques address the potential tools available to designers for
32 Town roads:

- 33 • Alignment modification including horizontal and vertical curves to avoid sensitive areas
 - 34 and blend into topographical features
 - 35 • Alterations to typical cross section including:
 - 36 ○ Roadside ditches shallower than normal
 - 37 ○ Sideslopes steeper than normal
 - 38 ○ Use of curb, and elimination of the roadside ditch
 - 39 ○ Retaining walls
 - 40 ○ Selection of appropriate guard rail or other roadside barriers
 - 41 ○ Landscaping for screening or earth berm buffers
 - 42 • Retrofitting of historical bridges should be considered
 - 43 • When existing bridges are structurally deficient, and replacement the only solution, new
 - 44 bridge and approach designs should consider aesthetic treatments consistent with the
 - 45 historical context
 - 46 • The inclusion of design features which enhance integration of the design into the historical
 - 47 setting
- 48

1 13.3 Natural Resources

2 Local road construction projects should be designed to avoid natural resources to the greatest
3 extent possible. This may be in the form of avoiding disturbance of specific sites or areas where
4 the presence of the road conflicts with important natural resources. Where avoidance proves
5 unfeasible, every effort should be made to minimize impacts or pursue mitigation strategies and
6 design enhancements to enable maximum integration of the Local Road with the resource,
7 including:

- 8 • Wetland, rivers, and streams and their shorelines
- 9 • Water supplies
- 10 • Groundwater protection areas
- 11 • Watershed protection areas
- 12 • Agricultural districts and farmland
- 13 • Floodplains/ways
- 14 • Critical wildlife habitat and natural areas
- 15 • Rare and endangered species
- 16 • Designated "Wild and Scenic Rivers"
- 17 • Local Conservation districts or zones
- 18 • State and Federal forests and wildlife management areas

19 13.4 Recreational Resources

20 Town Road projects should be designed to avoid public recreational facilities to the maximum
21 extent possible. Where avoidance proves unfeasible, every effort should be made to minimize
22 impacts including mitigation strategies and design enhancements to enable the maximum
23 integration of the Local Roads with the resource.

- 24 • Federally owned, funded, or managed property
- 25 • State owned, funded, or managed property
- 26 • Locally owned parks and recreational areas
- 27 • Privately owned recreational facilities open to the public
- 28 • Trails and Greenways

29 13.5 Scenic Roads or Views Considerations

30 All Town road projects should consider scenic and aesthetic issues for projects that are either
31 designated Scenic Roads, Byways or other roads with scenic attributes. Techniques for
32 preservation of scenic resources should be employed for both scenic resources seen from the
33 road, as well as views of the road from surrounding areas. The following techniques should be
34 considered where scenic views from the highway are identified:

- 35 • Selection of guardrail type, where required, should be determined based upon visual
36 assessment and the need for visibility through the guardrail vs. blending of the guardrail
37 with the foreground
- 38 • Tree removal or trimming to preserve or enhance views
- 39 • Vegetation management in areas where preservation of existing trees serves to provide
40 visual buffer, frame views, or provide other visual context for the roadway
- 41 • Treatment of bridges, abutments, retaining walls should de-emphasize structures
- 42 • Consider appropriate sign size and placement to prevent blocking of views and to
43 minimize clutter
- 44 • Preservation of old stone walls

45
46

- 1 **Section 14: Training**
- 2 Town highway maintenance crews must collectively attend a minimum total of 6 hours of training
- 3 per year on best road management practices. The town must keep documentation of their
- 4 attendance for a period of three years.

Adopted:

Selectboard of the Town of Hyde Park, Vermont on the 9th day of January, 2017 and effective immediately. Policy to be filed in the Hyde Park Town Clerk's Office.

This Policy for Transportation Construction and Improvements was filed for record in the Hyde Park Town Clerk's Office on the 12th day of January, 2017.

SS Kimberly J. Moulton

January 12, 2017

Hyde Park Town Clerk

Date Received

Acknowledgments:

In addition to the work of the Selectboard, public comments used in the preparation of this Policy were received from Dick Grogan (Town of Stowe standards), Jim Fontaine (consistency, min fire access standards to a structure and width), Fire Chief Ed Webster (emergency responder accessibility), Ron Rodjenski (minor & major roads and grade restrictions), Paul Gillies, Esq. (proportionate costs under 19 VSA 1111 for future improvements shared by multiple owners with the recommendation that the town also consider adoption as a town ordinance as an alternate to a town Policy to clarify enforcement procedures).