

## CHAPTER TWO

# LOCATION AND DESIGN STANDARDS ("UTILITY ACCOMMODATION PLAN")

The "Utility Accommodation Plan" must address a number of federal requirements. It also should take into consideration the 2005 printing of *A Guide for Accommodating Utilities Within Highway Right-of-Way* (AASHTO Guide), adopted by the American Association of State Highway and Transportation Officials (AASHTO). The Federal Highway Administration (FHWA), by regulation, "should use the current editions of the AASHTO Publications, *A Guide for Accommodating Utilities Within Highway Right-of-Way* and the *Roadside Design Guide* to assist in the evaluation of adequacy" of a state plan. In addition, the accommodation plan must apply to all state highways, roads, and streets that are under the jurisdiction of the Vermont Agency of Transportation (VTrans); and will be the foundation of formal agreements between the State and local governmental subdivisions relating to the permitted use of Federal-aid highways, roads, and streets that are under local jurisdiction.

### **POLICY ON OCCUPANCY OF, AND CONSTRUCTION WITHIN, HIGHWAY RIGHTS-OF-WAY**

#### **Purpose**

The purpose of this part of the chapter is to set forth the regulations and procedures governing the relationship between VTrans and other entities that occupy or otherwise affect highway rights-of-way.

#### **Authority**

The regulations and procedures governing installations and construction within the rights-of-way of the state highway system are authorized by Title 19, Section 1111, of the Vermont Statutes Annotated (VSA). They are required for conformance with *Code of Federal Regulations* (CFR) 23—Section 1.23 and Part 645 Subpart B—and are adopted by the Agency of Transportation.

#### **Intent**

These regulations and procedures are intended to provide for the safety of the traveling public, and to promote a coordinated relationship between highway and utility use within state highway rights-of-way so as to protect the substantial public investment in our highway system.

#### **Background**

VTrans is charged with developing and perpetuating the state highway system under its jurisdiction. To perform this duty, the Agency is empowered by law to promulgate rules and regulations for the free and safe movement of traffic and for protection of the highway. Because physical obstructions within a highway right-of-way affect the safe movement of traffic and the condition of the highway, it is necessary that they be controlled in the public interest.

#### **Standard Agreements between VTrans and Utility Companies**

Whenever utility work is performed within the highway right-of-way, it must be covered by a written agreement between the Agency and the utility company. When a utility company proposes the work, the agreement form is a permit to work within the right-of-way authorized by

Title 19 VSA Section 1111. When the work is initiated by the Agency, the agreement form is either the above permit or a formal written agreement. Examples of these agreements are in Appendix B, standard agreements 800.500 through 800.505.

### **Accommodation Standards**

The installation, operation, maintenance, and emergency repair of utility facilities and other construction within the limits of a state highway right-of-way or a Federal-aid highway construction project are governed by the provisions of the Accommodation Standards of VTrans described in this chapter.

## **PERMITTED USE**

### **Access to State Highway System**

Authorization for access to the State Highway System is to be limited with due consideration to preserving the flow of traffic on the surrounding highway network in terms of safety, capacity needs, and speed. In the implementation of this policy, permits for entrances and exits are to be issued in conformance with the current edition of *Standards for Residential and Commercial Drives* (Standard B-71) and *Standards for Town & Development Roads* (Standard A-76) and the *Access Management Program Guidelines*, as prepared and published by the Agency of Transportation. Generally, only one access point will be authorized for a single property. Property owners who subdivide for any purpose should provide for a collector facility leading to a controlled access to the state highway system. Additionally, direct access to the state highway system may be denied when the property in question has other reasonable opportunity to access the general street or town highway system.

Regulations and procedures governing fences, access driveways, and certain other specified obstructions within the right-of-way limits of the state highway system must be in accordance with the standards, specifications, and regulations adopted by the Agency.

An application to the Agency for a permit, by reason of development, must comply with the provisions of Title 19 VSA Section 1111(e), and must include the following information.

- The type of development—residential, commercial, or industrial.
- If commercial or industrial development—the dimensions of buildings, gross square footage of buildings, and number of employees.
- If residential development—the number of housing units for year-round or seasonal use.
- The size and capacity of parking areas.
- A detailed design plan showing the entire property, adjacent properties with access locations, other public highways intersecting the state highways or bordering the development property and proposed access location.

At the Agency's request, the applicant must do the following.

- Conduct, or have conducted, traffic and field surveys, and analyses of these surveys;
- Develop a proposed design for the access, including traffic control facilities, the need for which is demonstrated by traffic and field surveys; and
- Submit a complete set of design, construction, and operation plans for review and approval by the Agency.

The Agency must supply the applicant with such design, construction, and operational standards required by the Agency that are appropriate to the proposed development described in the proposal.

If the applicant requests them, the Agency must supply traffic counts, surveys, right-of-way information, and similar data—as available—that could be useful to the developer in preparing the permit application.

### **Utility Facilities Within the Highway Right-of-Way**

Permits for placement of longitudinal and other utility facilities within the highway right-of-way may be issued with appropriate conditions by the Agency, provided the facilities are owned, controlled or managed by a utility company.

Permits for placement of cooperatively owned longitudinal utility facilities within the highway right-of-way may be issued with appropriate conditions by the Agency, if it is demonstrated by charter or other covenant that the facilities will serve all abutting property owners on an equitable basis.

Permits for placement of longitudinal facilities within the highway right-of-way may be issued to owners of private lines, following notice and hearing, and if the Transportation Board certifies to the Agency that the installation will be supportive of the public good.

Permits for placement of pipes, conduits, or wires crossing the highway may be issued with appropriate conditions by the Agency.

### **Drainage Facilities Within the Highway Right-of-Way**

Permits for discharging water runoff into the highway drainage system may be issued with appropriate conditions by the Agency, provided the Agency determines that no detrimental effects are anticipated from the additional water runoff. Per Title 19 VSA Section 1111(b), “It shall be unlawful to...obstruct a ditch, culvert or drainage course that drains a highway, or fill or grade the land adjacent to a highway so as to divert the flow of water onto the highway right-of-way, without a written permit.” The Agency will only authorize discharge from a defined area which is to be specified in the permit application.

Rising ground water from perimeter or foundation drains is generally acceptable to the Agency. Additional sources of drainage from outside the highway right-of-way that may generally be allowed are from landscaping irrigation, lawn watering, air condition condensation, and water line flushing or other potable water sources.

## **REFERENCES**

In addition to this manual and applicable statute, the following publications provide guidance in the accommodation of non-highway uses of the state highway system.

- AASHTO’s *A Guide for Accommodating Utilities Within Highway Right-of-Way* sets forth suggested location and design standards applying to the accommodation of utility facilities within highway rights-of-way.
- AASHTO’s *A Policy on the Accommodation of Utilities Within Freeway Right-of-Way* is used in conjunction with the *Vermont Policy for Accommodation of Utilities Within Interstate/Freeway Corridor Rights-of-Way (Limited Access)* for all limited-access highways on the state highway system.

- AASHTO's *Guidance on Sharing Freeway and Highway Rights-of-Way for Telecommunication*, provides guidance on shared resources between the public and private sectors for telecommunications projects.
- Part 645 Subpart B of 23 CFR, *Accommodation of Utilities*, prescribes federal regulations for accommodating utility facilities on the rights-of-way of Federal-aid highway projects. This reference applies to the entire state highway system.
- FHWA's *Design Guide for Fiber Optic Installation on Freeway Right-of-Way* sets forth practical guidance for the planning, design and construction of a telecommunications network on freeway rights-of-way.
- FHWA's *Telecommunications Handbook for Transportation Professionals: The Basics of Telecommunications* sets forth practical guidance for individuals responsible for managing and implementing Traffic Signal, and Freeway Management programs with an understanding of the basic technologies of telecommunications.
- FHWA's *Manual on Uniform Traffic Control Devices (MUTCD)* sets forth information needed to make appropriate decisions regarding the use of traffic control devices on streets and highways. Vermont, pursuant to Title 23 VSA Section 1025, has adopted the MUTCD for all signs, signals and markings within the State. These standards apply for both State and local authorities as to traffic control devices under their respective jurisdiction.
- AASHTO's *Roadside Design Guide*, provides guidance related to roadside safety. This Guide focuses on safety treatments that can minimize the likelihood of serious injuries when a motorist leaves the roadway.
- The *Vermont Policy for Accommodation of Utilities Within Interstate/Freeway Corridor Rights-of-Way (Limited Access)* does the following:
  - Establishes certain Vermont policy goals for utility installations in limited-access facilities.
  - Delineates the 658.48 kilometers (409.25 miles) of highway affected by this policy.
  - Specifies certain criteria and requirements of the "1988 Growth Management Act" (Act 200 of 1988, Title 24 VSA Chapter 117).
  - References certain federal regulations.

### **Federal-Aid Highway Construction Projects**

The installation or relocation of utility facilities located within the limits of a Federal-aid highway construction project will be authorized either by the approval of a highway permit application or by the execution of a utility agreement prepared in accordance with 23 CFR 645 Subpart A. In general, a utility agreement will be prepared when reimbursement for relocation costs is requested by the utility company and is allowable under applicable state statutes and regulations.

The use of the highway right-of-way for longitudinal facilities for non-highway purposes within the limits of a Federal-aid highway construction project will require the approval of the Federal Highway Administrator, as stated in 23 CFR 1.23 (c).

## NON-LIMITED-ACCESS HIGHWAYS

### Accommodation Standards for Occupancy of, and Construction within, Highway Rights-of-Way

This section of the manual contains the standards for accommodating installations and construction within the rights-of-way of non-limited-access state highways.

#### Application and Interpretation

##### *Application*

The *accommodation standards* apply to the accommodation of permit-related uses within or adjacent to the rights-of-way for non-limited-access state highways. They are the basis for approval of all permits and utility agreements processed by the Agency of Transportation. All plan reviews are to be guided by the applicable standards contained herein. The circulating of these standards to permit applicants and utility companies is encouraged.

##### *Interpretation*

These accommodation standards are to be regarded as *minimum* requirements. Whenever clearances exceeding the minimum requirements can be achieved without undue hardship or expense to the owner, such additional clearances are to be provided. It is recognized that—in heavily populated areas, and occasionally because of other special conditions—the standards may impose impossible conditions. In such events, the application and detailed plan must note the deviation from the standard and state the reason for it. VTrans personnel will then give special consideration to the problem, and the Agency may grant an exception.

#### General

##### *Review and Approval*

VTrans reviews proposals for utility installation(s) and construction within or adjacent to state highway rights-of-way. If the proposals comply with its regulations and procedures, the Agency grants approval in the form of a highway permit and/or a detailed formal agreement.

##### *Location*

Utility facilities and their construction must comply with the following criteria.

- Be compatible, insofar as possible, with planned highway improvements.
- Avoid hazards to travelers.
- Does not negatively affect operational efficiency.
- Create minimal interference with highway maintenance activities.
- Preserve or improve the appearance of the highway.

##### *Materials*

Materials incorporated into the work must not jeopardize the integrity of the highway. They must be durable and designed for long life expectancy to require minimal servicing and maintenance.

*Work Areas*

Areas disturbed by installations or construction activities must be kept to a minimum. Materials are never to be placed or stored on the traveled way unless the Agency authorizes it in writing or as part of the permit.

*Construction in Contaminated Areas*

If, during the course of working within highway right-of-way, contaminated soils are encountered, the area District Transportation Administrator and Hazardous Materials and Waste Coordinator shall be immediately notified.

*Facility Characteristics*

Utility permit applications should specify the following information.

- Class of transmittant.
- Maximum working, test, or design pressure or voltage.
- Design standards for the carrier.

Advance notice is to be given if and when any of the above is planned to be changed.

*Field Staking, Inspection, and Review*

Where appropriate, the proposed work should be staked before the permit application is submitted to VTrans for approval. The staking should be done in a manner that allows the proposed work to be easily found and identified on site.

A joint field inspection of the proposed work may be conducted. Issues may include traffic control, public safety, affected property owners, drainage, and other critical matters.

Most proposals will be reviewed in the field by Agency representatives.

*Preconstruction Meeting and Work Schedule*

When the construction work is deemed sufficiently extensive and/or complicated, a preconstruction meeting may be held prior to the start of the work. In these cases, some or all of the following may be present: District Transportation Administrator (DTA), Chief of Utilities and Permits (or representative), permit holder (and/or representative), and—in some cases—the Agency inspector assigned to the project . . . and others, as applicable.

Discussions should cover anticipated and/or known problems, along with tentative solutions. Such problems may include work scheduling, traffic control, public safety, affected property owners, drainage, and other critical matters. No work is to proceed until plans and schedules have been approved *in writing* by the Agency.

Upon completion of the work, a final inspection may be required with the presence of the same parties or their representatives as at the preconstruction meeting. The permit holder is required to restore the highway right-of-way to as good a condition as it was in before doing the work—or as otherwise specified and to the satisfaction of the Agency representatives.

*Traffic Control and Protection*

The extent of the impact of utility work on the highway determines the type of traffic control to be specified. Suitable barricades, warning and advance warning signs, other devices, and

the procedures outlined in the *Manual of Uniform Traffic Control Devices* (MUTCD) are to be used to promote the safety of travelers during the construction period.

Proposals with a minimum impact and/or duration must be in accordance with Agency standards for *Utility Work Zone* (Standard E-119), *Minor Maintenance Operations* (Standard E-111) and *Traffic Control for Typical Moving Maintenance Operations* (Standard E-112). Proposals with greater impact may require temporary traffic signals, detours, etc., in addition to the normal signing required.

At least one-way traffic must be maintained at all times. Two-way traffic is to be maintained whenever construction operations are *not* in progress. Uniformed traffic officers and/or flaggers must be provided by the permit holder to control traffic when two-way traffic cannot be maintained, and at such other times as may be directed by the DTA or other authorized Agency representatives. The uniformed traffic officers and flaggers must have completed an approved training course before being allowed to direct traffic on state highways.

When traffic becomes so complex that it cannot be controlled using VTrans standards, the permit holder must submit a traffic control plan to the Agency for approval before beginning work.

All costs associated with the required traffic control and protections are the permit holder's responsibility.

#### *Pipeline and Other Underground Highway Crossings*

Locations or conditions that are unsuitable or undesirable for pipelines and other underground crossings should be avoided, including those described below.

- In deep cuts.
- Near footings of bridges, luminaries, signal and sign support bases, or retaining walls.
- Across at-grade intersections or ramp terminals.
- At cross drains where the flow of water, drift, stream bed load may be obstructed.
- Within basins of an underpass drained by a pump, if the pipeline carries a liquid or liquefied gas.
- In wet, rocky terrain where it would be difficult to attain minimum cover over the facility.

A casing pipe and/or concrete encasement is normally required for all crossings for the reasons listed below.

- To make the carrier independent from the surrounding earth.
- To eliminate the need for trenched excavation in the foreseeable future to replace, repair, or enlarge the facility.
- To provide a means of preventing leaking fluids or gases from entering the earth beneath the roadway.
- To protect highway structures that could be endangered by trenched excavation.
- To protect the existing pavement structure from impairment by the depression of flexible carriers.

Casings must be designed to support the load of the highway and superimposed loads thereon, and (as a minimum) must equal the structural requirements for highway drainage facilities. Casings must be composed of materials of satisfactory durability for conditions to which they may be exposed. Casing pipes must be sealed at the ends with a flexible material to prevent flowing water and debris from entering the space between the casing and the carrier. Where the carrier will conduct a flammable product, the casing must be properly vented at each end.

For jacking, boring, or tunneling operations, the construction of the casing pipe under the highway—as indicated on the approved plans, specifications, and working drawings—must be done in a way that interrupts traffic or disturbs the roadway not at all or very little. Such operations must be confined to areas outside the highway’s roadway as indicated by the Agency’s standard, *Highway Crossing Sleeves for Underground Utilities* (Standard D-20).

In excavating from within the jacking or boring casing pipe, extreme care must be exercised to avoid the loss of material from outside the limits of the pipe in its final position. Excavated material must be carried ahead of the casing pipe only to the extent possible without loss of surrounding material.

When sheet piling is used to form the highway side of the jacking or boring pit, the top of the piling must be cut off 610 millimeters (24 inches) below grade; and the remaining sheeting length must be left in place undisturbed following completion of construction operations. The sheet piling may be removed, with Agency approval.

Open cut for pipe and other underground highway crossings is *not* normally authorized in a permit, and is NOT an option of the permit holder.

Open cut may be utilized only where attempted jacking, boring, or tunneling methods fail or prove impractical. In those instances, the permit holder must obtain appropriate written modification of the permit from the Agency prior to using any open cut procedure.

#### *Pipe Coatings/Cathodic Protection*

Pipe coatings and/or cathodic protection is routinely used for steel gas lines and may be employed by other users of underground pipes when additional protection from metal degradation is necessary. These methods are used at the option of utilities owners and in general do not obviate the need for protective sleeves at road crossings.

#### *Clearing*

The removal of trees, brush, and vegetation from the right-of-way may be permitted with the approval of the abutting property owner (Title 30 VSA Section 2506).

#### *Excavation*

Excavation must be done in such a way as to protect the structural integrity of the roadbed, as well as to protect any facility that may be installed from deformation that likely would cause it to fail. Penetrations of the structural prism of the roadway should be avoided. The prism is enclosed by the roadway surface and a 1-to-1 slope projecting downward from the shoulder point of the highway, as shown on the Agency standard, *Highway Crossing Sleeves for Underground Utilities* (Standard D-20).

Trenches are to be cut with vertical faces when soil conditions permit. Trench sides should be shored if/when necessary, as required by the Vermont Occupational Safety and Health Administration (VOSHA).



Where existing cement concrete pavement must be cut, the existing reinforcing steel is to be cut in the center of the trench and bent back for reuse in the replacement of concrete, in accordance with the Agency standard, *Highway Crossing Sleeves for Underground Utilities* (Standard D-20).

Excavation areas must be protected from intrusion by vehicles, pedestrians, and construction workers. This may be accomplished by installing fencing or other barrier around the excavation, steel plates over the excavation, or any other method acceptable to the State.

*Preservation of Bounds, Monuments, Etc.*

The permit holder has the responsibility to carefully protect and preserve any marker, bound, monument, pin, iron pipe, or other object serving as a position reference for a property line, highway control point, bench mark, etc. Any questions arising from such an object are to be discussed and resolved with the DTA.

*Blasting*

No blasting is permitted under or adjacent to the highway unless special permission has been received from, and arrangements have been made with, the DTA or other authorized Agency representative.

*Backfill*

Pipes and casings are to be embedded to a depth of 152 millimeters (6 inches) or half the diameter of the pipe, whichever is less. Bedding is to consist of granular material that is free of lumps, clods, stones, and frozen particles. It should be graded to a firm but yielding surface without abrupt change in bearing value. Unstable soils and rock ledges are to be removed from the bedding zone and replaced with suitable material. The bottom of the bedding must be uniform throughout the length of the installation. Backfill must be completed in accordance with the Agency standard, *Highway Crossing Sleeves for Underground Utilities* (Standard D-20).

Backfill for other excavations must be performed as set forth in the Agency standards, *Standards for Town and Development Roads* (Standard A-76) or *Standards for Residential and Commercial Drives* (Standard B-71). Consolidation of backfill by saturation or ponding is *not* permitted.

*Grading*

Placing clean fill material within the highway right-of-way—and/or reshaping it—is normally permitted, provided that such placement and/or reshaping does not interfere with maintenance operations or drainage, or create an unsafe condition.

*Seasonal Prohibition of Permit Work*

All earth-work, including rock excavation, must be suspended within the state highway right-of-way during the period from December 1 to April 15. The permit holder must check with, and receive instruction and approval from, the DTA regarding restoration of bituminous and gravel surfaces and other necessary work needed for the suspension period. All such work must be completed before December 1. The permit holder is responsible for the maintenance of the construction area throughout the construction period, but more particularly during the suspension period.

*Surface Restoration and/or Existing Conditions*

Temporary pavement may be required—before weekend shutdown and after completion of backfilling—where an open cut has been made through a roadway subject to vehicular traffic, or where construction for any road widening for turn lanes has been brought to grade. The temporary pavement must consist of at least 51 millimeters (2 inches) of thoroughly compacted bituminous concrete. Temporary pavements must be properly maintained, and must be replaced with permanent pavement before the project is completed or work is suspended for the winter season.

Permanent pavement may be used upon completion of the backfilling operation. The permit holder must maintain the surface as long as necessary, or until all signs of the excavation have been eliminated and the area has been accepted by the DTA.

Portland cement concrete (PCC) pavement patches must have a minimum thickness of 203 millimeters (8 inches), with the top surface shaped to match the adjoining PCC pavement. Where the existing PCC pavement has been cut and removed, the existing longitudinal reinforcing steel is to be bent back to allow for trench excavation. Following trench operations and backfilling, the reinforcing steel must be bent back in place and spliced, and new transverse reinforcing steel must be tied to the longitudinal reinforcing. Reinforcing steel must be placed so that it has a minimum concrete cover of 65 millimeters (2.5 inches). Portland cement concrete must be consolidated and finished to the desired grade. Before being subjected to traffic load, the concrete has to be cured as noted on the Agency standard, *Highway Crossing Sleeves for Underground Utilities* (Standard D-20). Adequate steel plates may be used to span the patch while the concrete is curing.

Removed bituminous pavement must be replaced with bituminous concrete material that is equal to the thickness of the adjacent bituminous pavement. In constructing the finished surface, the patching crew must consider the possible additional consolidation of the trench backfill. Otherwise, the patch may become a depression.

Sidewalks that are disturbed by utility construction must be replaced. Existing granite curb that is disturbed by the construction may be removed and reset. Removed granite curb not needed for driveway access construction must be delivered to the nearest district transportation garage, or handled as directed by or arranged with the DTA. New sidewalk and curb installations must be in accordance with the appropriate Agency standards, *Portland Cement Concrete Sidewalk, Drive Entrances with Sidewalk Adjacent to Curb* (Standard C-2A) and *Portland Cement Concrete Sidewalk, Drive Entrances with Sidewalk and Green Strip* (Standard C-2B), or as otherwise specified. In accordance with Agency policy, new sidewalk installations will meet the appropriate state and federal design criteria for pedestrian accommodation. A new sidewalk will be authorized identifying the municipality responsible for all maintenance, including (but not limited to) winter snow and ice removal when deemed appropriate.

In areas to be grass-covered, turf must be reestablished according to the Agency's *Standard Specifications for Construction* currently adopted and in use by the Agency, to the satisfaction of the DTA or other authorized representatives of the Agency. The permit holder must be responsible for the turf and the grade of the ground surface for 18 months following the completion of the work, or as otherwise directed or specified.

### *Failure to Obtain a Permit and/or Agreement*

Authorized Agency personnel who discover construction work in progress without a permit must immediately take steps to stop the work until a permit is obtained. Such work in progress is to be brought to the DTA and Chief of Utilities and Permits attention. At the Secretary's discretion, the removal of such installation may be directed, pending issuance of a permit authorizing the work under such conditions as the Secretary may stipulate.

### *Existing Nonconforming Uses*

Existing uses of the right-of-way that do not conform to current accommodation standards will be allowed to continue if they are not illegal and do not constitute a substantial safety hazard. Reestablishment following cessation of a nonconforming use will not be permitted. In general, nonconforming use will be corrected when the owner applies for a permit to work within the highway right-of-way or for a change in use of the property.

### *Operation and Maintenance*

Utilities legally occupying state highway rights-of-way are permitted to perform routine maintenance on their facilities under an annual maintenance permit. Adherence to Agency standards, *Utility Work Zone* (Standard E-119) and/or *Minor Maintenance Operation* (Standard E-111), in conjunction with Part VI of the MUTCD, is required for warning and protecting motorists.

### *Emergency Repairs (All Systems)*

Utilities may perform unscheduled maintenance or repair of facilities within the right-of-way without obtaining a permit beforehand. The DTA must be notified by telephone prior to starting such work, and arrangement must be made for filing a permit application as soon as possible. Adherence to Agency standards, *Utility Work Zone* (Standard E-119) and/or *Minor Maintenance Operation* (Standard E-111), in conjunction with Part VI of the MUTCD, is required for warning and protecting motorists.

### *Prohibited Uses*

The following types of construction and/or activity are *not* permitted within state highway rights-of-way (except as noted):

- Construction or installation of above-ground privately owned structures, including buildings, canopies, fences, and pipelines (but excluding poles and repeaters).
- Construction or installation of underground structures, such as storage tanks. Utility manholes, vaults, pull boxes, pits, and appurtenances are permissible if they are protected from errant vehicles, are flush with the finish grade, and/or can support vehicular loads if necessary.
- Storage of motor vehicles.
- Construction or installation of parking lots without issuance of a 19 VSA Section 1111 permit.
- Placement or storage of any materials other than those to be used for highway construction or repair (which nevertheless must not be placed on the pavement).
- Filling, grading, or placing materials in such a way as to obstruct a stream or direct the flow of water onto the highway right-of-way.

- Erection of signs or other traffic control devices that do not conform to the MUTCD and the approved traffic control plan (if required).
- Installation of longitudinal facilities for private use without Transportation Board certification. (See statement under “Permitted Use, Utility Facilities within the Highway Right-of-Way,” earlier in this chapter.)
- Any utility facility within an area needed for probable highway expansion.
- Any utility facility that may be prohibited by AASHTO, as adopted by the Agency.

## **Landscaping Activities**

### *Overview*

It is common, and also historical practice, for landowners whose properties abut the state highway system to conduct landscaping/yard work activities within the strip of land lying between the edge of the highway shoulder and the highway right-of-way line. This is especially true in village and urban settings where abutting property owners typically maintain their lawns to the back edge of sidewalks/curbs or to the edge of pavement. This practice benefits both the property owner and the State in the following ways: enhances roadside aesthetics, improves sight distance, provides traffic calming, and reduces highway maintenance costs. Never-the-less landscaping activities within this strip of land require close scrutiny by the Agency to ensure that the public interests and highway safety are preserved.

### *Uses Not Requiring a Permit*

General yard maintenance and property enhancement by abutting property owners such as lawn mowing, brush cutting, and seasonal planting of low growing annuals do not require a highway permit. Plant height should be limited to 610 millimeters (24 inch) mature height above pavement elevation, and be located at least 3.05 meters (10 feet) from the highway’s white edge line. These non-permitted activities cannot compromise the safety of the highway users or interfere with highway infrastructure or utility plant maintenance.

### *Residential/Commercial/Municipal Landscaping Requiring a Permit*

Any landscaping activities located within the highway right-of-way, which involve the placement of boulders, planters, fences, berms, landscaping timbers, hedges, shrubs, trees, perennials, etc., or use of construction equipment or work vehicles within the right-of-way will require a highway permit. In most cases, this type of landscaping development must be located outside the highway clear zone. Exceptions may be allowed behind guardrail and in village or urban settings where reduced speed limits, curbing, sidewalks, and established tree lines exist. Landscaping activities which obstruct corner sight distances, present safety hazards, or have the potential to interfere with the operation and maintenance of the adjacent highway and existing public utility facilities will not be allowed. In all cases, the operation and maintenance of the highway and utilities serving the public will have precedence over landscaping activities. Landscaping on state highways is by suffrage only, and the State may, when necessary, exercise its right to have it removed for public good. Activities associated with state/community sponsored non-construction highway beautification projects require permitting.

### *General Guidance for Fences*

- Agricultural fencing is allowed to be placed in the highway right-of-way providing it is the typical light duty easily removed type (i.e., electric fences). This type of fencing is not a safety hazard to the traveling public and may be constructed without applying for a permit to occupy the highway right-of-way. The more permanent agricultural fencing such as stone walls, stump, and heavy duty wire fences with steel posts or wooded posts larger than 102 millimeters (4 inches) in diameter should be constructed outside the state highway right-of-way.
- Residential/Commercial types of fencing are generally permanent structures such as stone walls, wood rail, hedges, concrete block, ornamental iron, chain link, etc., and must be kept outside the highway right-of-way. This type of fence presents a safety hazard to the traveling public, restricts sight distances, disrupts maintenance operations, competes with allowed right-of-way uses for public utilities and sidewalks, and can become a cost liability to the Agency if they need to be removed or relocated to accommodate highway transportation projects.

## **Aerial Utilities**

### *Types/Owners of Facilities*

Aerial facilities include, but are not limited to, power, telephone, cable TV, and fire alarm. The facilities are owned by private for-profit companies and by municipalities.

### *Rural Locations*

In general, all aerial utility facilities may be located within the highway right-of-way boundary line. They must be installed in such a manner that no damage occurs to highway property. All poles, push-braces, guys, and anchors—or other above-ground facilities—that are new installations, reconstructions, or relocations, are located outside the clear zone as specified in the *clear zone criteria*, except as covered by a variance. In areas where the right-of-way width follows the statutory presumption of “3 rods”—15.1 meters (49.5 feet)—the considered clear zone is 3.05 meters (10 feet) from each outside edge of the traveled way. Should the aerial utility facility be at a location with a high accident history, or if it obstructs traffic control devices, the situation must be reviewed and addressed by adapting a countermeasure based on a benefit-cost analysis.

### *Urban Locations*

The locating of aerial utility installations on highways with narrow rights-of-way, or on urban streets with closely abutting improvements, are special cases that must be resolved in a manner consistent with the prevailing limitations and with the conditions discussed in the previous paragraph. Before locating the facility somewhere other than the right-of-way line, consideration must be given to one of the following.

- Designs employing self-supporting, armless single-pole construction with vertical alignment of wires or cables.
- Other techniques permitted by governmental or industrial codes that are conducive to a safe traffic environment, including “under-grounding”—converting aerial or ground-level facilities to underground configurations.

### *Clear Zone Criteria*

The clear zone width must conform to the *Vermont State Design Standards*.

### *Countermeasures*

Where the acceptable clear zone offsets from the edge of the traveled way to the aerial utility facility cannot be achieved, countermeasures are to be implemented to ensure reasonable safety. Various countermeasures that may be used are listed below.

- Reducing the number of utility objects by increasing the span lengths, placing objects on one side of the roadway, and/or implementing joint use of facilities.
- Placing utility objects behind existing protective devices, namely berms, guardrail, or retaining structures.
- Locating utility objects in inaccessible areas—for example beyond steep drainage ditches or at the tops of steep cut slopes.
- Installing protective devices, namely impact attenuators, berms, or traffic barriers.
- Using breakaway features.
- Delineating the utility objects.

### *Variations*

Many conditions make compliance with the clear zone criteria unreasonable and/or uneconomical. The Agency may allow variations provided that an engineer has studied the traffic and highway safety implications. Examples of situations that may justify a variation include (but are not restricted to) the following.

- Insufficient highway right-of-way to accommodate the utility facilities outside the clear zone.
- Existing natural physical barriers—for example, wooded areas, hedgerows, steep terrain, and other features—within the clear zone.
- Irregular right-of-way offset that would not allow a reasonable uniform longitudinal alignment of the facility.

The request for variation must provide the Agency with adequate background information for it to grant the variation. The minimum information must include the following.

- The reason the facility cannot be located outside the clear zone.
- The accident history of the utility objects of the facility.
- A detailed cost study of the alternative(s) and/or an explanation of why alternatives such as moving outside the clear zone or right-of-way are not feasible.
- Provisions for the use of countermeasures.

### *Median Occupancy*

The longitudinal installation of poles, guys, or other related facilities must not be allowed in a highway median. On highway crossings, no such facility is to be located in a highway median unless the median's width is sufficient to meet the requirements of the clear zone criteria. Poles and other appurtenances for highway lighting may be located in a median if other alternatives are determined to be impractical, and where suitable protection is provided to the traveling public.

### *Joint Use*

At the initial installation of a pole line within highway limits or when an existing line is to be replaced or subjected to major repairs, every possible consideration must be given to consolidating all types of aerial facilities onto one pole line to avoid duplicating pole lines. A utility's failure to consider joint occupancy is regarded as sufficient cause for the Agency to deny a permit, pending receipt of either a) a revised application that contemplates joint occupancy to the fullest possible extent, or b) a satisfactory explanation defending the initial application.

In general, all types of utility facilities should be designed for general occupancy.

### *Scenic Areas*

New aerial installations, including those needed for highway purposes, are not permitted in areas of scenic enhancement and natural beauty, rest areas, or recreation areas. Nor are they permitted in the right-of-way of adjacent highways or other lands that are acquired or improved with federal-aid or direct federal funds, where there is a feasible and prudent alternative to the use of such lands. Exceptions may be allowed if the following conditions are adhered to.

- Other locations are unusually difficult and uneconomical, or are more undesirable from the standpoint of visual quality.
- Under-grounding is not technically feasible or is unreasonably costly as determined by the Agency after the submission of documentation by the applicant.
- The proposed installation will be made at a location, and will employ suitable designs and materials, that give the greatest weight to the visual qualities of the area being traversed.

### *Facility Design*

Ground-mounted utility facilities must be designed to be compatible with the visual quality of the specified highway section being traversed.

### *Drainage System Clearances*

Poles and appurtenances must be so installed that a minimum distance of 1.22 meters (4 feet) is maintained between the centerline of a ditch and the face of the pole or appurtenance. In no event are poles or their appurtenances to be placed within 3.05 meters (10 feet) of the inlet or outlet of a culvert or any type of waterway that crosses under the highway. Anchor guys, push-braces, or other appurtenances must not cross a ditch, and thereby must not be installed between the ditch and roadway.

## **Underground Utilities**

### *Types/Owners of Facilities*

Underground facilities include, but are not limited to, water, sewer, gas, power, telephone, and other communications cable. The facilities are owned by a variety of private for-profit companies as well as municipalities, cooperatives, and fire districts.

### *Rural Locations*

In rural areas, underground facilities must be located between the shoulder point and highway right-of-way boundary line. The preferred location is as close to the boundary line as possible. In cases of ledge cut or other extenuating circumstances, consideration may be given to placing the facilities in the shoulder slopes, but in no case less than 610 millimeters (24 inches) from the roadway.

### *Urban Locations*

In urban areas, underground utilities must be located between the curb line and the highway right-of-way boundary line. They must not disturb the foundations of highway structures. Sewer lines may be retained or installed beneath the roadway where no practical alternative exists, and where the Annual Average Daily Traffic (AADT) is less than 750. The preferred location for underground utility facilities is beneath the sidewalk or as close to the boundary line as practical.

### *Uniform Offset and Consolidation of Like Facilities*

At the initial installation, longitudinal facilities should be located at a uniform distance from the highway centerline as far as practical. Where an existing facility is to be replaced, subjected to major repair, or supplemented, all possible consideration must be given to the consolidation—or grouping—of the facilities. The area in which the facilities are consolidated or grouped is called a utility *strip* or *corridor*. Because of increasing demands on space available to accommodate utilities, it is imperative that all proposals be planned to make the most economical use of the available space. A utility's failure to demonstrate a good faith effort in consolidation must be regarded as enough cause for denying a permit, pending receipt of a revised application. In general, all types of utility facilities should be designed for economy of space occupancy.

### *Relocation Criteria*

Facilities existing beneath the traveled way of a proposed highway improvement may be retained in place where either a) sufficient cover will exist to protect the facility from damage during and following construction; or b) it is feasible to adequately protect the facility with insulation and/or encasement, or with construction of a floating structural slab.

### *Scenic Areas*

New underground installations may be permitted within scenic areas, rest areas, etc., where they do not require extensive removal or alteration of trees or other natural features visible to highway users, and where they do not impair the visual quality of the area.

### *Cover*

The minimum cover must be 760 millimeters (30 inches).

### *Manholes and Tops*

Manholes must be designed and located in such a manner as to minimize interference with other utilities and with future highway expansion. They must be flush with the finish grade unless located in a protected location. Manholes pull boxes, and other appurtenances must not be placed in wheel paths. Tops and covers must be designed to withstand an MS 22.5



(HS 25) live load if they are placed anywhere within the highway right-of-way that is subject to vehicle loading.

#### *Appurtenances*

Pedestals and other above-ground utility appurtenances must be located at or near the right-of-way line, well outside the highway maintenance operating area and safety-related design offsets.

#### *Valving and Valve Vaults*

Shut-off valves, preferably automatic, must be installed in lines at or near the ends of structures and near unusual hazards, unless hazardous segments can be isolated by other sectionalizing devices within a reasonable distance. In the case of unusual systems, protective valves or other devices may be required as conditions of permit approval.

#### *Markers*

Utilities must place readily identifiable and suitable markers where right-of-way lines are crossed by buried cables or by pipelines carrying transmittants that are flammable, corrosive, expansive, energized, or unstable—particularly if these are carried at high pressure or potential. The exception to this requirement is when a vent will serve as a marker.

#### *Drains*

Drains must be provided for casings or galleries enclosing carriers of liquid, liquefied, or heavy gas. Drains may outfall into roadside ditches or natural water courses at locations approved by the appropriate agencies. Such outfalls, however, must not be used as waste-ways for purging the carriers unless specifically authorized by the VTrans.

#### *Duct System*

In urban areas, power and communication facilities should generally be installed in a conduit or duct system designed with adequate provisions for future expansion. Also, the conduit or duct system must be accessible by properly installed manholes in order that future additions or maintenance work to the underground facility will not damage highway property.

## **Underground Highway Crossings**

#### *Future Expansion*

During the review of proposed highway project crossings—especially where open-cut methods will be used—the Agency will consider whether or not oversized or multiple-space facilities should be installed in anticipation of future utility plant expansion.

#### *Utility Gallery (Tunnel)*

A utility gallery or tunnel (typically either a large casing or a box culvert), or a structure, may be provided or permitted for a utility facility crossing a highway at a strategic location. When several utility crossings will be needed, it may be anticipated that the cost of a tunnel or a structure may be less than the proposed cost of several un-trenched or separately encased pipelines. In such a case, the VTrans will take the necessary steps to ensure that the utilities make an adequate study to anticipate their needs for future crossings and to consolidate their facilities to a joint-use single crossing.

In a combined-use tunnel or structure, provision has to be made to isolate mutually hazardous transmittants—such as fuels and electricity. Incompatible carriers must be compartmentalized or placed in auxiliary encasements to separate them from each other. The utility tunnel or structure must conform in design appearance, location, cover, earthwork, and markers to the culvert and structure practice of the Agency.

#### *Boring or Jacking Pit*

The portal of a boring pit and the casing length must be determined by intersecting a 1:1 slope projecting down and outward from a point at least 1.52 meters (5 feet) outside the shoulder point or 305 millimeters (12 inches) back of the sidewalk to the lower edge of the installed pipe or casing. If sheeting is used, it must be located no closer to the highway than 1.52 meters (5 feet) outside the shoulder point or 305 millimeters (12 inches) back of a sidewalk. Where appropriate, the encasement must extend to the access control lines, to the outside of frontage roads, or to an indicated line that allows for future widening of the highway. See the Agency standard, *Highway Crossing Sleeves for Underground Utilities* (Standard D-20).

#### *Encased Boring*

Where encased bored installations are proposed, the utility must furnish information as to the controls and construction methods to be employed. Where the soils are favorable and the carrier is 1.22 meters (4 feet) or more deep, the boring hole may be 5 percent oversized in diameter. Grout backfill must be used for pipes more than 305 millimeters (12 inches) in diameter, and for over-breaks, unused holes, or abandoned pipes.

#### *Trenchless Technologies*

Trenchless technologies include not only jacking and boring, but also such procedures as live insertion, small hole vacuum excavation, service terminations utilizing specially designed extension tools, pipe-lining, and pipe-bursting. These methods may be utilized on occasion and will be addressed individually in a similar fashion to other underground facility installations.

### **Attachment to Structures**

#### *General*

VTrans will consider a utility company's proposal to attach its facility to a bridge structure when it demonstrates that alternative locations are unreasonably costly or unfeasible. When making a request to attach to a bridge structure, the utility company shall provide justification to VTrans satisfaction that it demonstrates it is not feasible or too costly to avoid the attachment. The final determination about whether a utility may be attached to a bridge structure shall be made by the Director of Program Development.

#### *Water/Sewer Attachments*

Water and sewer lines must not incorporate blow-offs or any other appurtenances that would allow drainage to occur on any part of the steel superstructure or the concrete substructure.

#### *Power/Communication Attachments*

Communication and electric power line attachments must be carried in protective casings from the point of exit from the ground to reentry. Preferably, the cable should be carried to

a manhole located beyond the back wall of the structure. Suitable insulation and grounding of the casing must be provided.

#### *Design Requirements*

- The utility to be carried by the bridge structure shall be centered between the beams or girders to the extent possible and must be positioned to allow for full access to beams or girders for maintenance purposes such as painting.
- All connecting hardware must be galvanized and meet the requirements of the latest edition of the Agency's *Standard Specifications for Construction*.
- Attachment of utility supports to existing steel beams or girders shall be accomplished by bolting through the web is allowed, whereas bolting through the flange and any field welding is prohibited.
- The preferred location for the utility line is between the fascia beam and first interior beam.
- The utility line shall be positioned above the bottom flange to prevent it from being snagged.
- Prior to attaching any utility to an existing bridge structure, working drawings must be submitted to the Structures Program Manager for approval. The working drawings shall include, but are not limited to, the anticipated loads, materials, and the method of attachment for the proposed utility. Attachments will only be allowed if the strength of the structure is adequate, the utility does not impede maintenance activities, and the support attachments do not cause damage to the structure.

#### *Back Wall and Wing Wall Penetration*

On proposed highway projects, the Agency may allow sleeves below the approach slabs and through the back wall, as well as through the structures wing walls. New sleeves for utilities through back wall or wing walls on existing structures shall not be approved unless it is demonstrated that it is the only feasible alternative. New sleeves shall be designed to prevent damage and loss of functionality of the bridge structure. New sleeves shall be installed without damage to the approach slabs if they are present. A written request to the Structures Program Manager for such installation is required. The request must be received sufficiently in advance of project construction to allow reasonable time for review and approval, and to enable the above to be incorporated into the Structures Section's plans.

### **Power and Communication—Design Standards**

Electric power and communication facilities must conform to the currently applicable *National Electrical Safety Code*.

Conduit for electrical power facilities must conform to the currently applicable section of the American National Standards Institute (ANSI) *Standard Code for Pressure Piping; Power Piping*, ANSI B 31.10.

### **Water Supply Facilities—Design Standards**

Water lines must conform to the currently applicable specifications of the American Water Works Association and the Vermont Agency of Natural Resources.

### **Wastewater Facilities—Design Standards**

Wastewater lines must conform to the currently applicable specifications of the New England Interstate Water Pollution Control Commission, the Vermont Agency of Natural Resources, and the *Recommended Standards for Sewage Works* by the Great Lakes–Upper Mississippi River Board of State Sanitary Engineers.

### **Transmission of Gases and Hazardous Liquids**

Pipelines that transmit gases and hazardous liquids must conform to the requirements stated in 49 CFR 190–195 from the Office of Pipeline Safety, Research, and Special Programs Administration of the United States Department of Transportation.

## **ACCESS TO NON-LIMITED-ACCESS HIGHWAYS**

### **Authority**

Authority for regulating access to state highways is given to VTrans in Title 19 VSA Section 1111 (b) and (e). This statute applies to both non-limited-access and limited-access highways. However, additional requirements for limited-access highways are set forth in Title 19 VSA Section 1708 (b).

### **Access Control**

Generally, only one access point (driveway) is considered for a single property. Property owners who subdivide for any purpose must make provision for a collector road to connect all lots within the subdivision to the authorized access point. Additionally, direct access to the State Highway System may be denied when the property in question has other reasonable opportunity to access the general street or town highway system.

### **Driveway Classification**

For the purpose of applying these standards, driveways are classified as either residential or commercial.

Residential driveway standards apply to driveways serving wood lots, agriculture land and to driveways serving single family residences or one apartment building with three or fewer dwelling units.

Commercial access standards apply to roadways and driveways serving all other purposes, including residential subdivision, industrial, commercial, and institutional land use.

### **Traffic Generation**

#### *Traffic Study*

Any proposed commercial development that is predicted by the Agency to generate enough traffic to adversely impact the state highways or class 1 town highways is studied to determine what traffic control improvements are necessary to maintain current levels of service. The traffic study is done by the developer or the developer's consultant, and should include the following information.

- Existing Conditions Inventory and Surveys—

- Geometrics of immediate access point(s) and any other highway segments/intersections addressed, as well as traffic control devices that might be affected.
  - Speed limit of study area and related information.
  - Sight distances (corner and stopping) at access (es).
  - Accident data/analysis.
  - Traffic data (machine and manual counts).
  - Other pending/planned highway improvements/developments in or directly affecting the study area.
- Project Parameters—
    - General description of project.
    - Plan/layout of site.
    - Data regarding land use type(s) and intensity.
    - Trip generation rate(s)/basis, distribution, and related parameters.
    - Parking demands.
    - Identification of planned phasing of project.
- Type of Development: Industrial, Commercial or Residential—
    - Size of parking.
    - Industrial—gross square footage floor area, number of employees.
    - Commercial—type of activity (that is, lodging, recreational, office, retail, wholesale, etc.).
    - Residential—number of housing units, single or multifamily, and year-round or seasonal use.
- Traffic Projections for Access(es) and Other Study Intersections and Highway Sections (AADT, Daily Design Hourly Volume (DDHV) and Component of Truck Traffic (%T))—
    - Baseline (year of construction/operation).
    - Project generated.
    - Baseline composite (combined baseline and project-generated traffic).
    - Planning projection, generally five years after the baseline year.
    - Planning projection composite (combined planning projection and project-generated traffic).
- Addressing of Improvements to Mitigate Impacts—
    - Level-of-service analyses (baseline, planning, and their composite projection conditions for existing and proposed improvement conditions).
    - Geometric features (immediate access design, left/right turn lane(s), exiting acceleration lane, associated signing, sight distance improvement, etc.).
    - Traffic signal warrants and demonstrated need or modification to existing system(s).
    - Transportation Demand Management (vanpools, ride-sharing, flex-time, etc.)

- Traffic Signal Analyses (if signals are warranted). If signals or lane widening is warranted, the Agency needs to be contacted to confirm the requirements for the Traffic Study.
- Summary of Findings and Recommendations

*Necessity for Improvements*

Improvements to a state highway or class 1 town highway may be determined necessary when a traffic engineering analysis reveals any of the following.

- A condition hazardous to through-traffic or turning traffic will be created.
- Predicted traffic generated by the development will reduce the level of service provided by a public highway.
- The development will contribute 75 or more peak-hour trips to state highways or class 1 town highways. (See Title 19 VSA Section 1111 [b]).
- The criteria below—established in the Agency’s policy on *Traffic Warrants for Right Turn Auxiliary Lanes at Unsignalized Intersections*—are met.
  - Upon review of current literature, with improved traffic operation and reduced accident experience the principal concerns, the following policy is adopted based on traffic volume and speed warrants. Where the approach highway speed limit is 25 MPH or the difference between the speed limit and the intersection design speed for right turning vehicles does not exceed 15 MPH, these criteria are generally exempt. (Reference the table titled “Minimum radii for intersection curves” in the AASHTO publication, *A Policy on Geometric Design of Highways and Streets*.)
  - The need for a right-turn lane shall be met for two-lane highways where the advancing (total approach volume excluding lefts utilizing a separate left turn lane) traffic volume exceeds the relationship  $(33(80-S) \sqrt{R(1-R)})^{1/2}$ ; where S is the highway speed (speed limit assumed), in MPH, and R is the ratio of right turns to the advancing traffic volume for design conditions, expressed as a decimal.
  - The need for a right-turn lane shall be met for four-lane highways where the above two-lane warrant is met and a minimum of 50 right-turning vehicles is exceeded. Two-lane versus four-lane highway determination is based on the number of advancing volume lanes used to carry through traffic—for example, where one approach lane carries through-traffic it is considered a two-lane highway.
  - Specific safety concerns may also be cause for inclusion, on a case-by-case basis, such as restricted sight distance or other severe geometric conditions. In any event it shall be the Agency’s prerogative to determine the implementation of any improvements, in considering any impacts or hardships that might result from such improvements.

*Study Area*

The development access intersection with the state highway will be evaluated. If predicted development traffic will contribute 75 or more peak hour trips or reduce the level of service

on a state highway or a class 1 town highway approaching the intersection, the next public highway intersection on this route will be evaluated. The analysis will be continued on successive intersections until the intersection is reached where no reduction in level of service can be detected.

#### *Highway Improvement*

Highway improvements, including (but not limited to) additional traffic lanes, traffic signal systems, and traffic control signing, will be designed by the developer or developer's consultant and submitted to the Chief of Utilities and Permits for review and approval by appropriate Agency personnel. The improvements will be designed to prevent the creation of hazardous conditions and to prevent a reduction in the level of service provided by the highway.

### **Location**

The authorized location of a proposed access is determined after consideration of all pertinent factors, including those listed below.

- Location as requested by the owner.
- Proximity to adjacent and opposite points of access and public roadways.
- Surface drainage characteristics.
- Existing and proposed roadway structures.
- Proposed roadway improvement projects.
- Effect of off-highway traffic circulation and parking patterns on the highway.
- Sight distances.
- Visibility of access in both directions.
- On-highway control requirements.
- Location is consistent with the Agency's *Access Management Program Guidelines*.

### **Existing Access Points**

A new access should be located directly opposite an existing access when the alternative is the creation of an offset of less than 30 meters (98.4 feet) along the highway—on the basis that one location of traffic conflict is preferable to two such locations.

### **Proposed Highway Projects**

In the event that an access is proposed in a location of potential conflict with a highway construction project that is in the process of being designed, every effort must be made to locate and design the access (and the on-site construction) in a way that will minimize conflict between the proposed highway construction and development.

### **Sight Distance**

At least the corner sight distances shown by Agency standards should be provided for any proposed access location, unless otherwise approved by the Agency. In no case should sight distance be less than stopping sight distances as calculated in *A Policy on Geometric Design of Highways and Streets*.

## Visibility

A point 1.07 meters (3.5 feet) above the access surface, 4.57 meters (15 feet) from the edge of the traveled lane, must be visible to an approaching driver from a distance equal to the minimum sight distance—measured from a point 1.07 meters (3.5 feet) above the roadway surface.

## Surface Drainage

When possible, an access should be so located that no cross culvert is necessary to conduct surface water. If a culvert *is* necessary, it must be installed by the owner, and must be of the size required to carry surface runoff from a design storm with a recurrence interval of 10 years. Cross culverts must be of commercial manufacture and must be at least 381 millimeters (15 inches) in diameter.

## Design

Commercial and residential drives must be designed in accordance with the Agency's *Standards for Residential and Commercial Drives* (Standard B-71). Subdivision access road intersections must be designed in accordance with the Agency's *Standards for Development Roads* (Standard A-76).

## Plan View

The plan view of a driveway design must be developed by superimposing a driveway of the appropriate width and appropriate turning radii on the site plan at the approved location. Where the highway frontage is controlled by curbed islands or equivalent treatment, the frontage control treatment must not encroach on the theoretical opening of the driveway as designed.

## Parking

The parking area served by a proposed commercial drive will be evaluated to ensure that adequate spaces are provided by the owner. This reduces the probability that vehicles will be parked within highway limits, possibly creating congestion and unsafe conditions. The highway-driveway-parking system will be reviewed for traffic circulation patterns that could cause or contribute to highway congestion and/or unsafe operating conditions.

## Frontage Roads

The Agency may impose conditions on developments that might require setbacks of any construction or improvements from the highway right-of-way boundary line to permit the construction of frontage roads and/or connection of frontage roads between contiguous tracts of land as development is occurring or may occur along the highway. If continued development occurs along the highway, the Agency can require the construction of a common frontage road and elimination of an existing access that was permitted.

## State-Owned Signs

State-owned traffic control and informational signs that interfere with the location of a proposed drive, or interfere with sight distances, will be moved by the Agency. The Agency reserves the right to require the applicant to pay the costs of such relocation.

## Utility Facilities

Arrangements and any payment required for the relocation of existing utility facilities that are in conflict with an authorized driveway are the responsibility of the developer. Any relocation of



existing utility facilities within the present highway right-of-way, required by the Agency under its police powers (for example, traffic safety improvements), must be accomplished by the utility at its own expense.

## LIMITED-ACCESS HIGHWAYS

### Accommodation Standards for Occupancy of, and Construction Within, Highway Rights-of-Way

#### Application, Interpretation, and Policy

##### *Application*

These accommodation standards apply to the accommodation of utilities, accesses, and other permitted uses within rights-of-way of limited-access highways. They are the basis for approval of all permits and agreements by the Agency. Highway accesses and longitudinal and other utility installations must be approved by the Agency before issuing a highway permit. All plan reviews will be guided by the applicable standards contained in this subsection.

##### *Interpretation*

The accommodation standards are to be regarded as minimum requirements. Whenever clearances greater than these can be attained without undue expense and hardship to the owner, such additional clearances are to be provided. There may be situations where the standards impose impossible conditions. In such cases, the applicant must note any deviation on the application and plan, and then provide a written explanation of the reasons for the deviation. The clear zone criteria are not subject to compromise. The Agency will study any changes from the standards before issuing approval.

##### *Policy*

VTrans has adopted AASHTO's *A Policy on the Accommodation of Utilities Within Freeway Right-of-Way* as its policy for limited-access highways—except for longitudinal use, clear zone criteria, and any other deviations contained in this document. Longitudinal use policy is given in the companion document, *Vermont Policy for Accommodation of Utilities Within Interstate/Freeway Corridor Rights-of-Way (Limited Access)*. Longitudinal use of telecommunication facilities within limited-access rights-of-way is given later in this Chapter.

#### Procedures for Use of Limited-Access Highways

##### *Utility Facilities*

The Agency must review proposals for installation, construction, and maintenance of all utility facilities that use limited-access highway rights-of-way. Upon complying with VTrans standards, procedures, and state and/or federal regulations, approval will be granted in the form of a highway permit and/or a more formal agreement.

##### *Direct Access*

The following steps are to be followed in direct access situations.

- All applications for direct access are to be sent to the Agency by way of the Utilities and Permits Unit of the Program Development Division.
- The Agency evaluates the submitted material and forwards its findings and recommendations to the FHWA for concurrence.
- Upon concurrence by the FHWA, the Agency issues a standard permit that must contain a listing of all requirements imposed on the applicant.

## General

### *Safety*

The paramount considerations that both the Agency and applicants have to address are highway and traffic safety. Listed below are criteria that must be adhered to.

- The minimum lateral clearance to all utility objects must conform to the requirements of the clear zone criteria (*Vermont State Design Standards*).
- Any work within the confines of the limited-access highway will require an approved traffic control plan before a permit and/or agreement is issued.
  - The traffic control plan, pursuant to Title 23 VSA Section 1025, must follow the procedures stated in the *Manual on Uniform Traffic Control Devices* (MUTCD), and in 23 CFR 630, subpart J.
  - At least one lane of traffic must be maintained at all times. Two-way traffic is to be maintained whenever construction operations are *not* in progress. Uniformed traffic officers and/or flaggers must be provided by the permit holder to control traffic when two-way traffic cannot be maintained, and at such other times as may be directed by the DTA or other authorized Agency representatives. The uniformed traffic officers and flaggers must have completed an approved training course before allowed to direct traffic on state highways.

When installation, construction, service, and/or maintenance operations are *not* in progress, traffic patterns must return to normal—with traffic control devices, equipment, and materials removed from the roadway. All temporary traffic signs related to traffic control must be removed, covered, or turned so that they are not readable from the highway. All equipment and materials must be stored outside the clear zone during nonworking hours unless protected by suitable barriers.

- The traffic control plan must address how the parking for work crews will be handled. No parking is allowed within the specified clear zone.
- All traffic control devices must conform to the requirements of the permit and/or agreement and with the MUTCD. Traffic control devices required in the performance of this work may include barricades, signs with yielding or breakaway posts, reflectorized drums, traffic cones, portable flashing arrow boards, traffic signals, and street lighting. In addition, flashing warning lights may be required by the engineer for use on signs and barricades to improve visibility.

The locations of traffic control devices will be adjusted in the field as directed by the DTA to provide maximum visibility and usefulness. Traffic control devices must be kept clean so that they are clearly visible at all times.

Unless protected by guard rail or other positive barrier, mounted traffic control devices must be erected on yielding or breakaway supports.

Traffic cones must be orange and 711 millimeters (28 inches) high. They must be placed as shown on the plans, and be weighted or nailed for stabilization. Tires may be used to weight the cones only if they have been circumferentially sliced to a minimum of one half their original thicknesses.

Portable flashing arrow boards must be located as specified in the permit and/or agreement or as directed by the DTA. Arrow boards must conform to type C section 6E-9 of the MUTCD. Arrow boards must have a fuel supply to run power for 24 hours without refilling. Flashing arrow boards with independent power drive and battery must be mounted on a trailer or other suitable vehicle for moving to the required locations. Trailers or vehicles must not be rigidly anchored, but be capable of rolling a short distance if struck by an errant vehicle. Generators and their fuel supplies must be located at least 9.14 meters (30 feet) from the traveled edge of the roadway unless powered by a diesel unit, in which case they may be mounted on the vehicle.

The DTA may order the contractor to cease operations if traffic control devices are found to be deficient in any respect and are not immediately replaced or repaired. Time lost due to failure to correct deficient traffic control devices will not be considered justifiable cause for granting a time extension.

- All costs associated with the required traffic control and protection must be the responsibility of the permit holder.
- The applicant must also file an approved emergency traffic control plan with the DTA.
- The permit holder must replace any area in kind that is disturbed during construction, installation, service, and/or maintenance operations. The permit holder must not leave the area in a condition that jeopardizes workers and machinery during routine highway maintenance (for example, leaving stumps above ground and thereby hindering mowing operations).

#### *Agricultural Land*

As stated in 23 CFR 645.211 (5), whenever the federal regulatory requirements are used as a basis for denial, the applicant must prepare an evaluation of the direct and indirect environmental and economic effects of any loss of productive agricultural land or any impairment of the productivity of any agricultural land that would result from the denial. This report must be submitted before any final action is taken.

#### *Highway Maintenance*

A sizeable amount of money is spent each year to maintain our highway corridors. The effects of any new non-highway installation on corridor maintenance must therefore be addressed. Before any permit is issued, the plans will be reviewed and approved by the DTA.

- Materials incorporated in the construction of new utility facilities must be compatible with the existing materials so that the highway's integrity is not adversely affected.

The thicknesses of new materials must equal those of the existing materials, as minimums.

- Utility facilities must incorporate materials that are durable and designed for long service life. These materials must require a minimum amount of routine service and maintenance.

#### *Environmental Concerns*

Generally utility installations along or across highway corridors are considered categorical exclusions under the National Environmental Policy Act of 1969 (NEPA). However, there may be instances in which the State has to coordinate with the FHWA in regard to NEPA compliance.

The applicant must be responsible for obtaining all necessary permits from resource agencies—Agency of Natural Resources, Corps of Engineers, etc.

- Applicants must keep to a minimum the removal or alteration of trees and the disturbance of terrain features that would affect the visual quality of the roadway for the traveling public or abutting property owners. This is all the more important in portions of the roadway that are within or adjacent to areas of scenic enhancement or natural beauty. The applicants' attention is directed to Title 30 VSA Section 2506.
- The installation of privately owned lines or conduits that would drain adjacent wetlands onto the highway right-of-way must not be permitted.
- Only the removal of trees, brush, and vegetation necessary for the construction and installation of the utility facility will be allowed. After construction, the disturbed areas will be returned to their original condition, except for trees in the area necessary for use and occupancy.

#### *Construction in Contaminated Areas*

If, during the course of working within limited-access highway right-of-way, contaminated soils are encountered, the area District Transportation Administrator, Hazardous Materials and Waste Coordinator, and the appropriate unit of the State Police shall be immediately notified.

#### *Development and Expansion*

Applicants must take the following items into account during the preliminary steps of their projects.

- Planned or anticipated future improvements or changes in the nature or configuration of the roadway.
- Planned or anticipated future improvements or changes in the nature or configuration of the utility system.
- Planned or anticipated future use of the right-of-way by other utilities or private users whose facilities may qualify to use this area also.

The Agency will notify interested utilities through public notice whenever planning new or changed uses of the roadway regarding utility use of the highway right-of-way. The Agency's intent is efficient use of the highway corridor. Whenever a utility presents plans for

expansion, the Agency will notify other utilities of those plans, through public notice, so that they may also have the opportunity to state their proposed use of the highway corridor and reduce multiple disturbances to the right-of-way.

*Preliminary Site Investigation*

- A permit will be required for any work done within the confines of the limited-access highway. This work includes any preliminary site work such as surveying or subsurface investigation. When applying for a permit, the applicant must submit the following for approval.
  - The traffic control plan in accordance with the MUTCD and 23 CFR 630, subpart J.
  - The type of equipment that will be used.
  - A certification that any damage to the highway by the applicant will be repaired in kind at the applicant's expense.
- The Agency has record plans of most of the limited-access highways. These are available to the applicant to view in Montpelier or at the appropriate district office. Applicants are solely responsible for verifying the accuracy of information contained in record plans.
- Before permits/agreements for the construction and installation of utility facilities are processed, applicants must stake out their proposals in a manner that can be easily found and identified at the site.
- A joint field inspection of the proposed installation will be required before the permit or agreement is issued.

*Facility Characteristics*

Utility permit applications must specify the class or type of transmittant; the maximum working, test, or design pressures or voltage; and the design standards for the carrier. If and when any of the above are changed, the applicant must provide advance notice to the Agency in order to receive approval. The notice should specify the applicable codes to be used.

*Pipe Coatings/Cathodic Protection*

Pipe coatings and/or cathodic protection may be used on metal pipe facilities when additional protection against metal degradation is necessary. Access for maintenance of cathodic protection equipment must be from outside the limited-access highway.

*Blasting*

No blasting is permitted under or adjacent to the highway unless special permission has been received from, and arrangements have been made with, the DTA or other authorized Agency representative.

*Preservation of Bounds, Monuments, Etc.*

The permit holder has the responsibility to carefully protect and preserve any marker, bound, monument, pin, iron pipe, or other object serving as a position reference for a property line,

highway control point, bench mark, etc. Any questions arising from such an object are to be discussed and resolved with the DTA.

#### *Seasonal Prohibition*

All earth-work, including rock excavation, must be suspended within the state highway right-of-way during the period from December 1 to April 15. The permit holder must check with, and receive instruction and approval from, the DTA regarding restoration of bituminous and gravel surfaces and other necessary work needed for the suspension period. All such work must be completed before December 1. The permit holder is responsible for the maintenance of the construction area throughout the construction period, but more particularly during the suspension period.

#### *Laws to Be Observed*

The following statement must be standard in all utility agreements.

*The Permit Holder shall observe and comply with all Federal, State, and Local laws, ordinances and regulations in any manner affecting the conduct of the work and the action or operation of those engaged in the work, and all such orders and decrees as exist at present and those which may be enacted later, by bodies or tribunals having any jurisdiction or authority over the work, and shall indemnify and save harmless the State and Federal Government and all its officers, agents and employees against any claim or liability arising from or based on the violation of any such law, bylaws, ordinances, regulations, order or decree, whether by the Permit Holder or his/her agent.*

#### *Permits*

Any work within the confines of the limited-access right-of-way boundary lines requires a permit and/or agreement from the Agency. This work may include, but not be limited to, routine maintenance and service. A permit is required, regardless of access point—mainline, frontage roads, intersecting grade separations, private roads, or access gates. The only exception is in cases of emergency, which require notification of the DTA and state police, and implementation of the approved emergency traffic control plan.

#### *Records*

After completion of the work and a final inspection, the permit holder must provide the Agency with as-built plans and records that describe usages, sizes, types of materials, locations (horizontal and vertical), and special features. These must be in the form of Mylar, vellums, or other reproducible forms so that information is available to other utilities and the Agency for use as a permanent record.

#### *Markers*

Permanent markers must be placed at the right-of-way boundary line to identify underground utility facility locations both horizontally and vertically. Each above-ground appurtenance must have a breakaway marker post set in front of it to help utility personnel locate the appurtenance and to warn highway maintenance workers of its presence. In addition to identifying location, the marker identifies the transmittant.

## Utility Crossings

### *Standards*

Unless otherwise noted, the Agency must use the AASHTO Guide, where applicable, to address utility crossings in a limited-access facility in conformance with the stated policy.

### *Utilities Along Roads or Streets Crossing Limited-Access Highways*

New facilities require a permit with an approved traffic control plan prior to installation. The system must be designed so that future service, maintenance, and expansion can be accomplished without access from the limited-access roadway or ramps.

Existing facilities that cannot be serviced or maintained without accessing from the limited-access roadway or ramps must be upgraded during the next service or maintenance operation to comply with the policy of no direct access.

Attachment to highway structures must adhere to the requirements stated in the *Attachment to Structures* section earlier in this chapter, except as noted in the next paragraph.

The guidelines in 49 CFR 190-195 must be followed for facilities carrying gases and hazardous liquids. The issue of breakage with respect to safety during catastrophe must be addressed because many of our structures are not designed or retrofitted for earthquake loads. Thus, gases and hazardous liquids must not be attached to highway structures.

### *Aerial Utilities Crossing Limited-Access Highways*

No pole, tower, guy wire, anchor, push-brace, or any other above-ground appurtenance is allowed within the clear zone as stated in the clear zone criteria. Preferably, they will be kept outside the right-of-way lines of limited-access highways.

No pole, tower, guy wire, anchor, push-brace, or any other above-ground appurtenance is to be installed in the median unless the median has adequate width to comply with the clear zone criteria from all directions.

The minimum vertical clearance above the roadway must be 5.5 meters (21 feet), but must not be less than the clearance noted in the National Electrical Safety Code.

Whenever new or expanded installations are contemplated, the Agency must contact the Vermont Department of Public Service (VDPS) to determine if joint usage with another utility under the VDPS's jurisdiction is feasible.

If direct access from the limited-access roadway or ramps is necessary to perform routine service, maintenance, and/or expansion, a permit and/or agreement is required along with an approved traffic control plan.

### *Underground Utilities Crossing – Limited-Access Highways*

No open-cut excavations are allowed across the roadways or ramps of limited-access highways for placement of underground utilities.

All utilities must investigate whether there are existing utility sleeves (casings) that may be usable individually or jointly. A good starting point is to contact the DTA.

All underground utilities that cross under the roadway must be cased, and the casing must go between the two outside limits of the clear zone for the entire facility.

If the jacking (boring) and receiving pits are bulk-headed, the bulkheads must be located a minimum of 3.05 meters (10 feet) from the shoulder point; and some type of safety barrier must be addressed in the approved traffic control plan. If steel sheet piling is used, it may be cut off 610 millimeters (24 inches) below sub-grade; and the remainder may be left in place.

The guidelines previously stated under the following subheadings in this chapter are applicable to underground utilities crossing limited-access highways.

- *Pipeline and Other Underground Highway Crossings*
- *Excavation*
- *Preservation of Bounds, Monuments, Etc.*
- *Blasting*
- *Backfill*
- *Grading*
- *Seasonal Prohibition of Permit Work*
- *Scenic Areas*
- *Cover*
- *Manholes and Tops*
- *Appurtenances*
- *Valving*
- *Markers*
- *Drains*
- *Duct System*
- *Utility Gallery*
- *Encased Boring*

All manholes, appurtenances, vaults, and any other miscellaneous above-ground utility items must be installed outside the clear zone limits.

## **Longitudinal Utilities (Non-Telecommunications)**

### *Prioritization*

As stated in our companion document, *Vermont Policy for Accommodation of Utilities Within Interstate/Freeway Corridor Rights-of-Way (Limited Access)*, the Agency consults with other state governmental units that have jurisdiction over the various utilities to prioritize the utilities that meet class approval in regard to providing the most benefit to the residents of Vermont.

### *Class Approval Characteristics*

- Longitudinal utility facilities are installed underground. Aerial installations are not allowed within the limited-access highway right-of-way.
- The facilities must not be a detriment to life, health, or property if they become disabled in any manner.
- Utilities must not transmit unstable liquids or gases.
- Only transmission *lines* are to be installed longitudinally. Transmission *branches* that exit through the right-of-way may be approved.



- Utility facilities must require only minimal maintenance after installation.
- The facilities must not be privately owned or public sewer lines.

*Exceptions*

- Underground natural gas transmission line installations will be considered only within the following limited-access highways; VT 289 (a/k/a The Chittenden County Circumferential Highway)-entire length from VT 127 to Interstate 89, and US 7 in Ferrisburgh-from Ferrisburgh State Highway to VT 22A
- Underground public sewer line installations will be considered only within partial access controlled highway segments

*Utility Strip (“Corridor”)*

- As the policy states, the utility facilities must be located within utility strips.
- Utility strip limits extend from the outside right-of-way boundary line to the clear zone limit of the mainline roadway and ramps.
- Utility strips do not extend through interchanges, rest areas, weigh stations, and welcome centers.
- Utilities must construct, install, service, and maintain their facilities from within the utility strips.
- No service connections are allowed to abutting properties from within utility strips.
- Utilities must submit traffic control plans to the Agency for approval, so as to warn the traveling public any time that utility crews work within the strips.
- If there are insufficient rights-of-way to construct a facility within the utility strip, the utility owner must purchase and/or obtain easements to the adjacent property. No encroachment upon the clear zone is allowed.
- Existing fences must be retained in place. If they are removed or disturbed during facility construction and installation, they must be replaced in kind by the utility owner.
- At points of ingress and egress, the utility owner must install an approved locked gate. Gate locations must be approved and designed according to Agency standards. The locations are to be noted on the plans submitted for approval.

*Neighboring States*

When a proposed facility is to serve a neighboring state and/or Canada, as well as Vermont residents, the utility must conform to the accommodation plans of all the parties involved. The utility must provide an approved plan from each affected highway agency detailing how the utility will transition between the agencies.

### *Interchanges, Rest Areas, Welcome Centers*

Utility facilities must not extend under or through interchanges, rest areas, welcome centers, or other points of controlled access.

### *Standards*

Unless otherwise noted, the Agency will use the AASHTO Guide where applicable, to address the longitudinal utility use of limited-access highways. In addition, the latest versions of the applicable safety codes and specifications will be used.

- Pipelines—49 CFR 190–195.
- Waterlines—American Water Works Association (AWWA) “Standards and Specifications.”
- Electric and communication lines—National Electrical Safety Code, ANSI C2, and National Building Specification (NBS) *Safety Rules for the Installation and Maintenance of Electric Supply and Communication Lines*.

### *Attachment to Structures*

Utility facilities that transmit under pressure gases or liquids that are flammable, corrosive, energized, or expansive must not be attached to highway structures.

### *Appurtenances*

Some appurtenances that are necessary to the operation of the utility facility have to remain above ground. Since the utility strip boundary starts at the clear zone, these above-ground appurtenances do not interfere with traffic safety. They require a marker post for location by highway and utility maintenance workers.

### *Design, Installation, and Maintenance of Utility Facility*

The design and submission of detailed plans and a work schedule (including all labor, equipment, and materials)—and the future maintenance of the utility facility—are the applicant’s responsibility.

Before receiving a highway permit and signing the utility agreement (use and occupancy), the applicant must have Agency-approved plans, including traffic control plans for construction/installation, future maintenance, and emergency situations.

### *Inspection*

The Agency may provide an inspector as stated in Title 19 VSA Section 1111 (e). The inspector will be responsible for review, inspection of work, and liaison between the owner and the Agency. The estimated cost of the inspection will be stated in the utility agreement.

### *Responsibilities of the Agency*

The responsibilities of the Agency of Transportation include the following actions.

- Determining if the applicant’s request is in the public interest.
- Determining if other potential facility locations outside the limited-access have been considered.

- Determining that the applicant’s request does not adversely affect the design, construction, integrity, traffic safety, operation, or maintenance of the limited-access highway.
- Determining if the applicant’s request conforms to the policy and procedures for longitudinal utility use in limited-access highways as developed by the Agency.

The Secretary of Transportation has two major responsibilities.

- Being the final authority in regard to Agency matters concerning longitudinal utility use on limited-access highways.
- Designating a representative to act on behalf of the Secretary in all non-policy aspects of longitudinal utility use on limited-access highways.

The responsibilities of the Secretary’s representative are as follows.

- Determining if there is adequate space within the limited-access highway to safely create a utility strip of adequate width to construct, install, maintain, operate, and repair the utility facility.
- Requesting that the utility facility’s expansion or future use by a similar utility type be addressed.
- Determining—in conjunction with other state governmental units that have jurisdiction over utilities—a priority list to apply when several utilities wish to occupy the same utility strip.
- Advising other utilities, by public notice, of a request by an applicant utility to use and occupy the limited-access highway.
- Determining the exact location of utility strips and access points within the limited-access highway right-of-way.
- Authorizing the utility to access directly from mainline or ramps to install, maintain, and repair the utility facility when the Secretary’s representative determines that alternate means of access are not practical. If this situation occurs, the Secretary’s representative must provide permit conditions to ensure that traffic and highway safety are not compromised.
- Determining that there is no major impairment to the visual quality of the lands traversed or to the environment, if applicable.
- Executing the utility agreement and permit.
- Suspending or terminating the utility agreement and permit, if necessary.

#### *Utility Agreement*

After the Agency decides in favor of the applicant’s request, the applicant must submit to the Agency for approval the final drawings and specifications for the facility (incorporating all requested revisions) and the traffic control plans. Once the plans, drawings, and specifications are approved, a utility agreement is drawn up by the Agency and executed by the parties involved.

The utility agreement must contain provisions that address the following general requirements.

- The Agency retains the rights to and jurisdiction over the utility strip.
- If the Secretary’s representative determines the utility is not conforming to the terms of the agreement, the work may be suspended. The utility must be given a reasonable amount of time to comply.
- The utility agreement must stipulate under what conditions the Agency or the utility may terminate the agreement.
- A preconstruction conference is to be held prior to the beginning of any work in the right-of-way.
- A determination must be made concerning the necessity for installation, use, and occupancy of the access gates.
- Any relocation of utility facilities necessitated by future highway improvements will be solely at the utility’s expense.

### **Telecommunication Accommodation on Limited-Access Rights-of-Way**

#### *Overview*

The Agency will consider and may, in its sole discretion, approve or reject proposals to install certain telecommunication facilities on its limited-access highway rights-of-way. The Agency discretion will be guided and informed by the Agency’s primary mission of managing the rights-of-way in a manner that promotes the operational safety and functional and aesthetic qualities of transportation assets; other factors yielding public benefits may also be considered in the Agency’s exercise of discretion so long as those other factors do not conflict with or compromise that primary mission.

#### **Wireless Telecommunications Facilities**

Wireless facilities in the rights-of-way shall be limited to those wireless facilities provided for in the “Telecommunications Act of 1996 (TCA),” and shall be known as “wireless TCA facilities.” Wireless TCA facilities are considered to be “longitudinal utility uses” as long as they serve the public in general and not a specific market or customer. Location of and access to serve these facilities within the rights-of-way will be limited, therefore each applicant must provide information concerning efforts to satisfy the co-location needs of at least two (2) other providers of the same or similar type service. Applicants may be required to provide information concerning the locations of existing facilities, owned by others, and their efforts towards co-locating on these sites. The Agency’s preference is that existing facilities (both inside and outside the highway rights-of-way) be used to their maximum capacity prior to approval of additional sites in the public right-of-way. The Agency’s actions in this area will be consistent with the provisions of the TCA and the State’s present and future traffic and transportation management communications requirements, contingent upon the safety and engineering determinations. In addition to discretion recognized and embodied in this plan, the installation of wireless TCA facilities on limited-access rights-of-way will be governed by the provisions of the TCA, Title 23, USC, and its derivative regulations and guidelines, and associated right-of-way provisions of VSA. Placement of wireless TCA facilities will be in accordance with the above and following criteria and subject to a License in compliance with the Agency of Administration’s Policies and Procedures document entitled, “*Siting Use*

*and Management of Electronic Communications Facilities on Properties Owned by the State of Vermont,*” adopted June 22, 1998 with any subsequent amendments. Pursuant to 30 VSA Section 227(b), the Agency may establish and collect charges for the installation and maintenance of the wireless facilities within the rights-of-way.

General Criteria for Wireless Telecommunication Facilities

*General Access for Wireless TCA Facilities*

- Integrity of access points and location of the right-of-way fence will be maintained. Access through the limited-access right-of-way fence for towers located outside the highway rights-of-way will not be allowed. Wireless TCA facilities located along the highway mainline will be enclosed by a fence tied into the existing right-of-way fence for continuity. Access to these areas will be through a locked gate from outside the highway rights-of-way.

*Access for Construction of Wireless TCA Facilities*

- Access for construction of Towers will be the same as that allowed in the Criteria for Placement of Wireless Telecommunications section; no mainline access will be allowed without prior written permission of VTrans and FHWA.
- Access for construction of buildings and other above ground appurtenances will be the same as that allowed in the Criteria for Placement of Wireless Telecommunications section.

*Access for Maintenance of Wireless TCA Facilities*

- Access to completed facilities for routine service visits and maintenance activities will be the same as that allowed in the Criteria for Placement of Wireless Telecommunications section; mainline access will be allowed. However, work will be authorized by permit and temporary traffic control shall be in accordance with the Agency’s *Standard Specifications for Construction* and the MUTCD.

*Construction Work Zone Traffic Control*

- Industry providers, vendors, and their subcontractors will follow the same methods for traffic control as that currently used by the Agency’s construction and maintenance personnel and as indicated in the above-referenced standards.

*Clear Zone Preservation*

- In all cases towers, buildings, and other types of above ground appurtenances will be located a minimum of 15.2 meters (50 feet) from the edge of the traveled way. No above ground appurtenances will be permitted within the clear zone. Above ground appurtenances will not be placed in locations that require new roadside barriers to maintain a safe clear zone.

*Power, Telephone, or Other Utilities to Serve Equipment Buildings or Related Facilities*

- Aerial utility lines will not be allowed inside the highway right-of-way. Service connections from outside the limited-access right-of-way to the wireless TCA facilities shall be run underground across the right-of-way to the equipment building or related facility.

### Criteria for Placement of Wireless Telecommunications

#### *Towers, Buildings, and Other Above Ground Appurtenances*

- Towers, buildings and other above ground appurtenances will be located as far as possible from the edge of traveled way, immediately adjacent to the tower, and immediately adjacent to the right-of-way fence; in no case shall any above ground appurtenance be built within the clear zone. The preferred locations listed below, in descending order of preference, will be considered for placement:
  1. Along the mainline, as close as possible to the right-of-way fence, with access from outside the limited-access highway rights-of-way for construction. Access for maintenance activities may be from either outside the right-of-way or directly from the mainline. If access is from the mainline the Agency's *Standard Specifications for Construction* and the MUTCD will be followed for temporary traffic control.
  2. Within weight stations with access from the parking lot.
  3. Within Interchange areas, with access from outside the limited-access highway rights-of-way and connecting ramps, e.g., access is from frontage roads or crossroad.
  4. Within Interchange areas, with access from the right side of an interchange ramp.
  5. Within rest areas or welcome centers, with access from the parking lot. However, some of these facilities have scenic vistas and are important resources to the Interstate Highway System and the State of Vermont. If the effect of site location in these areas can be mitigated, through the use of aesthetically pleasing facilities, rest area and/or welcome center facilities may not have to be a "least preferred" location. The Agency may require an analysis of alternative locations prior to approval of use at rest area or welcome center sites.

#### **Wireline Telecommunications Facilities**

This section prescribes the policies and procedures for accommodating longitudinal wireline telecommunication utility facilities within the limited-access highway rights-of-way. Public safety is of paramount, but not of sole importance when accommodating wireline telecommunications utility facilities within limited-access right-of-way. Utilities provide an essential public service to the general public. However, due to the nature and volume of highway traffic, the effect of such joint use on the traveling public must be carefully considered by VTrans before approval of wireline telecommunication utility use is given. The Agency recognizes that there are three (3) distinct types of longitudinal wireline telecommunication utility facilities to be evaluated

- Highway purpose
- Public or private
- Highway purpose shared resources

A highway purpose wireline utility facility supports the operation of the highway, such as lighting or ITS. A public or private wireline utility facility is any other use, including state use for non-highway purpose, such as voice communication. A highway purpose shared resource wireline utility facility is a partnership in which VTrans receives the public benefits of ITS. This can take the form of a public/private partnership or a public/public partnership. The effect of joint use of the transportation system to the traveling public must be carefully considered by VTrans before wireline use of the rights-of-way is approved.

General Criteria for Wireline Placement within Limited-Access Right-of-Way

- Highway purpose facilities have no location restrictions.
- Non-highway purpose (public or private) facilities are not allowed within the limited-access highway right-of-way.
- Highway purpose shared resource facilities have no location restrictions provided:
  1. VTrans has planned a communications infrastructure for ITS.
  2. The facility shall be installed in general accordance with FHWA’s *Design Guide for Fiber Optic Installation on Freeway Right-of-Way*
  3. Service connections to adjacent properties to provide services to consumers shall not be permitted from the limited-access highway right-of-way.
  4. Safety is the keystone of the shared resource project concept, for such projects can neither be undertaken nor built unless construction work zone safety—worker safety, workplace safety, and safety of the traveling public—can be assured and maintained. The design, location, and manner in which wireline telecommunication utilities use and occupy the right-of-way must conform to the clear roadside policies for the highway involved and otherwise provide for a safe traveling environment.
  5. A Use and Occupancy Agreement shall be required for a shared resource project. The contractual Agreement establishes the conditions under which the State of Vermont acquires a telecommunications infrastructure and a functional statewide ITS, and the partner acquires access to the limited-access highway right-of-way for a longitudinal wireline telecommunications utility facility.

This Policy applies only to **highway purpose shared resources facilities**.

VTrans Responsibilities

VTrans shall make adequate provisions to:

1. Protect the integrity of the freeway infrastructure and the safety of the traveling public.
2. Preserve the aesthetic quality of the freeway corridor as prescribed by Title 23 of the Code of Federal Regulations (23 CFR § 645.207) and defined therein as “those desirable characteristics in the appearance of the highway and its environment, such as harmony between or blending of natural and manufactured objects in the environment, continuity of visual form without

distracting interruptions, and simplicity of designs which are desirably functional in shape but without clutter.”

3. Recognize and establish accommodation criteria for highway purpose use facilities, public or private use facilities, and highway purpose shared resource use facilities.
4. Comply with applicable Vermont laws, statutes and rules, and the Agency’s approved Utility Accommodation Plan.
5. Institute a systematic Design Submission and Review Process that clearly establishes design requirements and key considerations in review and approval of proposals to install wireline facilities longitudinally along VTrans limited access highway rights-of-way.
6. Integrate work zone traffic control parameters into design approvals and construction methods.
7. Enter into a contractual agreement when regulating the use and occupancy of the freeway right-of-way and allowing access to the right-of-way for installation and maintenance of a longitudinal wireline facility (see VTrans Draft Freeway Right-of-Way Use and Occupancy Agreement).
8. Establish the means and authority for enforcing the control of access restrictions applicable to use and occupancy of freeway right-of-way.

#### Governing Laws and Regulations

It is the Agency’s intent that this Plan shall be construed and administered in accordance with the applicable provisions of the Federal Communications Act of 1934, the Telecommunication Act of 1996, AASHTO’s *Policy on the Accommodation of Utilities within Freeway Right-of-Way* and VTrans’ Utility Accommodation Plan (November 2008). This Plan will be reviewed on a periodic basis to ensure ongoing consistency with evolving policy and legislation.

#### Solicitation Process

VTrans will accommodate longitudinal installation of wireline telecommunications facilities on VTrans limited access highway rights-of-way through a formal solicitation process. Specifically, VTrans will:

- Issue Requests for Proposals (RFP) with a defined scope, identifying specific limited access rights-of-way available through the solicitation, defined response period and detailed response requirements. This RFP may be reissued periodically at VTrans’ discretion in order to address unmet/future VTrans needs.
- Evaluate proposals in accordance with the requirements specified in the RFP.

The Solicitation Process will be coordinated by the Vermont Agency of Administration, Department of Information and Innovation, procurement office on behalf of the Vermont Agency of Transportation.



### Compensation Requirements

Compensation shall be required for permitted access to VTrans limited access highway rights-of-way for longitudinal installation of wireline telecommunications facilities. In return for longitudinal access to VTrans rights-of-way for telecommunications installation, VTrans seeks to receive barter compensation in the form of telecommunications infrastructure and facilities, including, for example, conduit(s), access points (hand holes), fiber optic cable, equipment shelters/cabinets, and equipment to light the fiber. Specific compensation requirements will be determined on a project or corridor basis. Minimum compensation requirements will be established based on the Agency's telecommunications needs, with consideration to historical valuations for similar transactions. In addition to minimum compensation requirements, VTrans will also articulate additional needs over and above the minimum requirements that contractors may propose through a competitive solicitation process. Compensation requirements shall be applied to all contractors in a neutral and non-discriminatory manner.

### *Bid Deposit and Surety Bond*

Upon execution of an Agreement, contractors will be required to present a Surety Bond that will cover the entire estimated cost of project construction/installation as well as the cost of decommissioning and removal of facilities installed on VTrans properties (with the exception of underground conduit, which generally is not removed in the event the facilities are left in place – out of service).

### *Compensation Rates and Methods of Computation*

Consistent with Section 253 of the Federal Telecommunications Act of 1996, VTrans will charge fair and reasonable compensation for the use of freeway assets, payable in tangible or intangible property and or services as more fully described herein.

Compensation for longitudinal accommodation of wireline facilities in freeway right-of-way may vary according to the geographic location(s), number of conduits installed, number of conduits occupied, and factors specific to each access agreement. VTrans will receive proposals from interested firms and determine whether the proposal(s) meet/exceed minimum compensation and proposal response requirements.

### Installation Requirements

Telecommunication facilities that are permitted to be installed longitudinally along VTrans limited access highway rights-of-way must comply with the following:

### *Installation Timing*

Installation timing restrictions may be imposed to minimize interference with the safe use, operation and maintenance of the freeway right-of-way, and as reasonably necessary to manage the right-of-way. This may include, for example, coordination with highway construction projects, coordination with local traffic needs (e.g., special events), and seasonal prohibitions on work. VTrans may also limit the timing of access so that, to the extent possible, there is no more than one telecommunications facility installation project underway at any given time on any particular segment of freeway right-of-way. Once a particular segment is accessed, there will generally be no further facility installation for a period of

three years from the conclusion of the previous installation. VTrans also has construction season limitations from December 1<sup>st</sup> of a calendar year through April 15<sup>th</sup> of the following calendar year.

#### *Location and Alignment Requirements*

General location and alignment requirements for the longitudinal installation of wireline facilities along VTrans freeway right-of-way are described herein. These general requirements notwithstanding; VTrans reserves the right to deny requests for the accommodation of wireline facilities where it determines that proposed locations, routes, or route segments are not suitable for accommodation of any facilities due to safety, aesthetic or transportation planning purposes. This restriction/denial will be applied in a neutral and non-discriminatory manner to all contractors.

Telecommunication facilities must be located to avoid or minimize the need for adjustment for future highway improvements, to avoid interference with highway maintenance and operations, and to permit access to the utility lines for their maintenance with minimum interference to highway traffic.

Telecommunications facilities must be installed with a minimum depth of cover of 760 millimeters (30 inches) from the top of the facility. In areas where this depth requirement cannot be met, conduit must be encased in cement. VTrans may impose more stringent requirements at particular locations in a neutral and non-discriminatory manner.

Below ground telecommunications facilities may be installed within the clear zone in accordance with the Clear Zone Considerations described below.

Though not generally allowed, all elements of above ground telecommunication facilities, approved by VTrans, shall be installed between the edge of the right-of-way and the outer edge of the clear zone (clear zone as defined by AASHTO *Roadside Design Guide*).

No longitudinal telecommunication facility will be allowed within the median of VTrans freeway right-of-way unless approved by the Director of Program Development and FHWA Division Office.

In all cases, consideration must be given to measures necessary to preserve and protect the safety, operation, integrity and visual quality of the highway, and its maintenance efficiency. Prior to approving any project, the contractor shall demonstrate that the right-of-way is of ample width to accommodate any proposed communication facilities without adverse effect on the highway's design, construction, future expansion, or safety characteristics.

All longitudinal telecommunications accommodations, as may be warranted herein, shall only be in accordance with an executed Freeway Right-of-Way Use and Occupancy Agreement between VTrans and the contractor.

Where longitudinal telecommunication facility installations must traverse interchange areas, they shall be located and treated in the same manner as a utility crossing of the right-of-way. Such utility crossings shall be designed in accordance with relevant sections of this Utility Accommodation Plan and the latest version of the VTrans' *Standard Specifications for Construction*.

All longitudinal telecommunication facility installations shall be marked with approved underground telecommunication locating devices. Utility sign markers shall be placed as required or at any change in direction by the utility within the right-of-way fence line. Signs shall identify the owner/operator name, "Dig Safe" One Call telephone number and type of facility. Utility signs shall be appropriately located at each side of all public roads, streets, railroad tracks, and trails where freeway right-of-way intersects with these different rights-of-way.

The accommodated facility must not present a hazard to life, health or property if it fails to function properly, is severed, or otherwise damaged.

The contractor must comply with all federal, state and local laws, rules, regulations and ordinances wherever applicable and at the telecommunications service provider's cost. The contractor shall secure all necessary approvals, permits and licenses from governmental agencies as may be required to complete the project.

The contractor must provide location information on all facilities installed in conjunction with this project in accordance with "Dig Safe" requirements.

#### *Attachment to Existing Structures*

Installation of telecommunication facilities on structures within the controlled access areas must be approved by and comply with the requirements of the Agency's Structures Section. The final determination about whether a utility may be attached to a bridge structure shall be made by the Director of Program Development.

For cases where a separate telecommunications structure is infeasible, attachment to the existing freeway bridge, overpass, underpass, or culvert shall be permitted only with the written approval of VTrans. The telecommunication service provider shall provide all required documentation, design drawings and calculations to demonstrate that the integrity of the structure is maintained and that there are no adverse impacts to the structure in terms of maintenance, structural life, aesthetics and safety.

#### *Clear Zone Considerations*

It is preferable that all telecommunications installations be accommodated outside of the clear zone. Underground facilities may, however, be accommodated within the clear zone under restricted conditions and at VTrans' discretion.

In order to minimize interference with the safe use, operations and maintenance of a controlled access area – and as reasonably necessary to manage the freeway right-of-way – VTrans may restrict underground facility installations to one time in those areas of the freeway right-of-way where construction would occur within the clear zone.

VTrans may require the installation of excess capacity and the announcement of co-build opportunities during clear zone installations in an effort to accommodate multiple telecommunications service providers during the same installation process. No further installation of wireline facilities will be allowed on that segment of right-of-way unless and until all existing cable and conduit capacity has been exhausted.

### *Access Requirements*

Access to telecommunication facilities within VTrans freeway rights-of-way, where required for construction and/or servicing, will be from state or local highways crossing the VTrans right-of-way, from adjacent frontage roads, or from adjacent property and in accordance with an executed Freeway Right-of-Way Use and Occupancy Agreement. Advance arrangements will be made between the telecommunications service provider and VTrans for emergency maintenance procedures as specified in the Freeway Right-of-Way Use and Occupancy Agreement. Access for constructing or servicing telecommunications facilities placed within VTrans freeway right-of-way will be granted on a controlled and restrictive basis according to this Policy and the agreement between VTrans and the telecommunications service provider, so as to maintain the safety, aesthetics, and functionality of the freeway right-of-way. VTrans reserves the right to establish additional requirements for particular locations.

In general, telecommunications facilities shall be located and designed in such a manner that they can be constructed and/or serviced without direct access from the through traffic or connecting ramp roadways. In rare instances, direct access may be permitted where alternate locations and means of access are unavailable or impractical due to terrain and environmental constraints, and such use will not adversely affect safety and traffic operations, or damage the transportation agency's facility. Where direct access is requested, a permit must be obtained from the transportation agency.

Access for construction and/or servicing a utility along or across a freeway should be limited to access via (a) frontage roads where provided, (b) nearby or adjacent public roads and streets, or (c) trails along or near the highway right-of-way line, connecting only to an intersecting road. A locked gate along the freeway fence may be used to meet periodic service access needs. When a locked gate is allowed, the access will be documented with an approved permit that includes adequate provisions to restrict unauthorized use.

In those special cases where utility supports, utility access holes, or other appurtenances are located in medians, interchange areas, or otherwise inaccessible portions of freeway right-of-way, access to them from through traffic or ramp roadways may be permitted when other alternatives do not exist. Such access shall be by permit setting forth the conditions for policing and other controls to protect highway users.

Entry to the median area should be restricted where possible to nearby grade separation structures, stream channel crossings, or other suitable locations not involving direct access from through traffic lanes or ramps.

Where utilities are located outside the control of access line and access for maintenance purposes is only possible from within the freeway right-of-way, due to terrain and/or environmental constraints, a permit must be obtained from the transportation agency.

### Support Facilities

#### *Wireline Support Facilities*

Wireline support facilities, including without limitation, handholds, pull boxes, and access points; shall be installed underground along the fence line, outside the clear zone and as close to the outer edge of the right-of-way as possible. Any other locations for support facilities

must be reviewed and approved by VTrans. Such requests must be approved or denied at the Agency's discretion.

VTrans will consider accommodation of above-ground support facilities (e.g., multi-tenant points-of-presence) on an individual agreement basis and determine areas that may be suitable for such locations along each right-of-way route. VTrans reserves the right to charge additional compensation for the utilization of VTrans properties for the installation of above-ground support facilities. Contractors are advised that relevant permitting regimes require particularly rigorous review of aesthetics when dealing with above ground installations.

Utility and/or telecommunications support connections to or from adjacent properties shall not be permitted from longitudinal telecommunication installations located within the clear zone unless approved by VTrans.

Initial installation shall include all appurtenances necessary or incidental to the operation of the telecommunications facility, and shall include jacking boxes or other duct/conduit access points at appropriate spacing to permit the pulling of additional cables into the duct system without further excavation.

#### *Service Connections*

Any utility service connection (e.g., electrical service) necessary to operate a telecommunication facility within the limited access highway right-of-way shall be placed underground in ducts or conduits running from crossroads or frontage roads adjacent to the required point of access or from easements obtained by the supplying distribution utility. Longitudinal installations of utility service connections in controlled access areas are prohibited.

#### *Plan Requirements*

The agency has the right to review and approve or reject plans for the location and design of all utility installations and adjustments affecting the highway and issue a 19 VSA Section 1111 permit for the work. Upon completion of construction, the utility shall provide accurate as-built plans, as requested by the agency. The agency expects at a minimum that the plans show the following details regarding the proposed facility:

- Offset to the facility from the right-of-way line, edge of traveled way, or both. If the offset does not remain at a constant distance from the point of measurement, the locations and distance changes at each point of intersection should be shown.
- Depth at various locations should be shown or should be defined on typical sections.
- Depths and locations of other utilities in the immediate area.
- Location of directional bores, plowing, or trench operations
- Treatment of roadside vegetation (bored, cut, pruned, avoidance, etc.) especially if it was planted by the transportation agency for aesthetics or snow control.
- The replacement vegetation to be planted to replace items that are damaged or removed during utility installation.
- Location of sensitive environmental areas such as wetlands, hazardous material sites, historical sites, endangered species habitats, etc.
- Type of location of erosion control measures
- Access points from various side roads, farm fields, etc.

- Locations where permanent locked gates will be installed
- Special orders regarding construction methods should be noted if they are mandated by another regulatory agency such as a Public Service Board, Army Corps of Engineers, etc.
- Traffic Control Plan.

### Compliance with FHWA/Federal Communications Commission (FCC) Guidance and Telecom Act Requirements

#### *General*

Pursuant to an important FCC's ruling regarding interpretation of Section 253 of the 1996 Telecommunications Act that is relevant to projects of this nature, the FHWA and FCC jointly developed guidance on the development of programs that involve longitudinal installation of wireline telecommunications facilities along limited access right-of-way. This document is entitled: *Guidance on Longitudinal Telecommunications Installations on Limited Access Highway Right-of-Way* (December 22, 2000). Accommodation of telecommunications facilities in VTrans freeway right-of-way shall be consistent with this guidance. Specific guidance is summarized as follows:

#### *Guidance on Competitiveness Issues*

1. The contractor should be selected through an open, fair, nondiscriminatory, competitive process.
2. Having selected a contractor, other interested third party telecommunications companies should be allowed the opportunity to have their wireline facilities installed in conjunction with any installation of wireline facilities by the contractor. The state should give potentially interested third parties reasonable notice of the anticipated or planned opening of the right-of-way.
3. The contractor should install spare fiber and empty conduit, adequate to accommodate reasonably anticipated future demand whenever wireline facilities cannot be installed outside the clear zone. Each section of fiber/conduit within the clear zone should have connection points at each end outside the clear zone where third parties can access the conduit or interconnect with facilities in the conduit at their option. All rates, terms and conditions for interconnection and/or use of space in the conduit should be fair, reasonable, and nondiscriminatory and may include a reasonable profit.
4. The contractor should be required to sell fiber on an "Irrevocable Right of Use" (IRU) basis at rates and subject to terms and conditions that are just, reasonable, and nondiscriminatory (and may include a reasonable profit).
5. The contractor should be required to offer facilities and services for resale at rates and subject to terms and conditions that are just, reasonable, and nondiscriminatory and may include a reasonable profit.
6. It is substantially preferable that the contractor be a wholesaler of telecommunication in order to minimize competitive concerns.

*Guidance on Access to Freeway Right-of-Way*

1. State retains the right and responsibility to manage its freeway right-of-way. Reasonable, nondiscriminatory time, place, and manner restrictions may be placed on the design, installation, operation, and maintenance of wireline facilities.
2. All construction should be done in that portion of the right-of-way that is located furthest from the traveled roadway to the degree feasible and should be accomplished in accordance with the MUTCD.
3. The State may use the freeway right-of-way for wireline facilities installation as frequently as reasonably necessary to satisfy the requirements of the State, and the needs of telecommunications providers. A State may limit construction so that there is no more than one installation project underway at any given time on any major segment of the freeway.
4. If construction vehicles, equipment, and personnel cannot be located out of the freeway clear zone, then the State may restrict wireline facilities installation to only one time on that area of the freeway where construction would occur within the clear zone. No further installation needs to be allowed on that segment until such time as required by the end of the useful life of the wireline facilities, or if the existing capacity is exhausted or existing conduit is full.
5. A State may restrict the location of all the above ground equipment to the edge, or off of the right-of-way to allow access to that equipment for maintenance from service roads or other non-freeway access if feasible, as determined by the State. Such restrictions should be non-discriminatory.

Excess Capacity and Co-Build Requirements*Excess Capacity Requirements*

Excess capacity requirements may be established for agreements that involve installation within the clear zone or other installations where VTrans intends to limit installation to one-time as more fully described above. This may include bridge crossings, tunnel installations or other unique locations where VTrans is required to maintain a higher level of access control.

Excess capacity requirements shall be determined by the telecommunications service provider based on a market research study to be conducted in conjunction with the proposed project.

*Co-Build Requirements*

Co-build requirements may be established by VTrans for agreements that involve installation within the clear zone or other installations where VTrans intends to limit installation to one-time as more fully described above. This may include bridge crossings, tunnel installations

or other unique locations where VTrans is required to maintain a higher level of access control.

Specifically, the telecommunications service provider may be required to provide other telecommunications companies with reasonable notice of a co-build opportunity associated with the anticipated or planned opening of the right-of-way within the clear zone or other area where installation will be limited to one-time.

The notice should be open for a period not less than 90 calendar days. This shall be accomplished through the publication of a notice of the proposed project in at least two newspapers of general circulation and by posting a notice with the Vermont Public Service Board.

#### Traffic Control

All traffic control signs and devices, which the telecommunication service provider may use in the course of any installation, servicing or maintenance of a telecommunication facility, shall comply with the provisions of the MUTCD.

In addition, the telecommunications service provider may be required to arrange for law enforcement officers, having appropriate enforcement authority, to be present to ensure the safe flow of traffic, whenever installations, servicing or maintenance of a facility occurs within the freeway right-of-way. Arrangements for law enforcement personnel shall also be addressed as required in the installation and maintenance plan approved by VTrans, where access to the work zone has been permitted from the traveled way, shoulders or access ramps. The telecommunications service provider may not conduct any such work within the freeway right-of-way without giving specific advance notice thereof to VTrans.

All permits (construction, routine maintenance and emergency repairs) shall include a traffic control plan and adequate provisions for access to the utility work zone, and provide for protection of workers and the traveling public. Advance arrangements will be made between the utility company and the transportation agency for routine maintenance and emergency maintenance procedures.

#### Environmental Considerations

Proposed installations must comply with National Environmental Policy Act (NEPA) and Army Corps of Engineers permitting requirements

#### General Criteria for Use and Occupancy Agreement

Overall, the shared resource project represents a fair exchange of value. VTrans shall retain all rights to utilize, control and possess the limited-access highway corridor; and the Agency will use the network for highway purpose use only. The Agency's partner in the shared resource project will receive permission to use the corridor to install, operate, maintain, and manage the wireline telecommunication utility facility. The partner use of the network is for wholesale provision of fiber, conduit, and telecommunications transport capacity to a broad range of customers. The Partner agrees to VTrans safety standards, existing corridor



conditions, methods to investigate conditions, and compliance with the Use and Occupancy Agreement.

The Use and Occupancy Agreement should include or incorporate by reference the following

- Parties entering into the Agreement.
- a. Applicable State laws, regulations, and policies incorporated by reference
  1. Utility Accommodation Plan
  2. State Statutes and regulations
  3. Government and/or industry codes required by law or regulation
  4. Telecommunication partner acknowledgment of referenced documents and policies
- Statement of public notification and legal requirements met
- Identification of limited-access highway corridor specified in the Agreement
- Address relocation and abandonment of facilities

A Draft Right-of-Way Use and Occupancy Agreement will be developed and included in any Request for Proposals that is issued under this Utility Accommodation Plan. This Agreement will be developed in accordance with the Vermont Agency of Administration *Bulletin 3.5, Contracting Procedures* (July 15, 2008).

### **Locked Gate Request (Utility, Fire, Medical and Other Emergency Vehicles)**

#### *Overview*

It is in the State's interest to maintain the limited-access highway system to provide the highest level of service in terms of safety and mobility. Adequate control of access is crucial to providing such service. Therefore, new locked gate access point requests, on limited access facilities, need to justify that all other reasonable alternatives have been fully considered and that a new locked gate access is the only practical solution.

#### *Utility Access to Limited-Access Highways (Except Longitudinal Facilities)*

Access may be considered in three possible situations.

- Access from the roadway to facilities located within the right-of-way.
- Access from the roadway to facilities located outside the right-of-way.
- Access from outside the right-of-way to facilities located within the right-of-way.

The need for a locked access gate can be generated in two ways.

- The construction of a limited-access highway may require provision of access to existing or relocated utility facilities.
- The construction of new utility facilities may require construction, installation, and maintenance access to them.

The utility company submits a request for a locked access gate in the limited-access right-of-way fence for access to existing or relocated facilities. The letter must be supported by a map or drawing that shows the following

- Locations of existing and proposed utility facilities.
- Locations of existing and proposed public highways in the area along with any private rights-of-way.
- Most economical alternative utility relocation which would not require one or more access gates.
- Proposed location(s) of the locked access gate(s).

The locked access gate request letter must be supported by a cost estimate for the utility relocation described in the third bullet item just above. The request also must be accompanied by a narrative that includes the life expectancy for the facility, the nature of the proposed locked gates, and the anticipated frequency of use of the proposed locked gates.

*Emergency Access to Limited-Access Highways*

The Agency will consider requests, for an emergency locked gate, that indicate a significant decrease in response time. The Agency will only allow emergency access for fire, medical and other emergency vehicles to occur if there is no degradation in safety caused by the entering vehicles. Returning vehicles will not be allowed to utilize the locked gate access. VTrans requires an agreement with the Town for the operation and maintenance of the locked gate access point.

The Town must submit a request for a locked access gate in the limited-access right-of-way fence for access. The request must include a written report which will assess the need for the access and the benefits to the general public which will accrue if the access is authorized. The request must also provide a 5-year history of responses on the limited-access facility by location between two interchanges and be supported by a map or drawing that shows the following

- Location of Fire and/or Emergency Response Station.
- Location of the nearest Limited-Access interchange.
- Location of proposed locked gate access point on the limited-access highway.
- Location of access road (if necessary) from Fire and/or Emergency Response Station to the locked gate access point.

**GENERAL ACCESS TO LIMITED-ACCESS HIGHWAYS**

**Authority**

Under Vermont law, the establishment of limited-access facilities is governed by 19 VSA Chapter 17. Once a limited-access facility is established 19 VSA Sections 1704 and 1711 prohibit any person from accessing the limited-access facility except at designated access points; moreover, 19 VSA Section 1708(b) prohibits any highway that is not part of the limited-access facility from intersecting the limited-access facility without prior written consent and approval of the Transportation Board. The Board cannot give its approval unless the applicant can show that the public interest will be served.

### Procedure for Requesting Access

19 VSA Section 1708(b) does not prescribe a particular procedure for requesting breaks in limited-access highways. However, because the statute requires the Transportation Board to “give due consideration to the technical recommendations of the agency [of transportation],” the Board’s practice is to defer the actual hearing until VTrans first has had a reasonable opportunity to review the applicant’s plans, traffic study, etc.

The following procedures are to be followed by all VTrans personnel regarding any request for access involving a limited-access highway in Vermont. All previous instructions have been rescinded.

All applications for a “break” in limited-access should be made to the Transportation Board, through its Executive Secretary. In view of the 1998 amendment to 19 VSA § 1708(b), it would be prudent for an applicant to have pre-filing consultations with the other bodies entitled to notice of the hearing (the Agency of Transportation, the municipal planning commission, the regional planning commission and the Agency of Natural Resources). Any application directly received within the Agency will be immediately forwarded to the Executive Secretary. In accordance with 19 VSA Section 1708, only applications from municipalities with the authority to establish a highway or public way will be accepted. Concurrent with the “break” request, the applicant can submit for the necessary 19 VSA Section 1111 permit.

To enable the Transportation Board to make the "public interest" findings that would be necessary to support approval, the application should include the following:

- Plans showing layout of proposed access;
- Traffic study, prepared in accordance with technical guidance from the Agency of Transportation;
- Complete list of other permits that the proposed project will require (Act 250, etc.) and the status of each;
- Information on the proposed project's conformance to town and regional plans; and
- Summary of how the applicant intends to demonstrate that the proposed project will serve the "public interest."

Because Vermont’s limited access facilities were constructed or improved with federal-aid highway funds, any proposed change in access control must be approved not only under the Vermont statutes but also under the applicable rules of FHWA. Specifically, FHWA rules (23 CFR § 620.203(h)) state that any change in access control is subject to the joint determination and approval of the state highway agency and the FHWA. Under some circumstances, changes in access control may be treated as a disposal of surplus right-of-way (see 23 CFR §§ 713.301-713.308), in which event the value of the released access control rights must be appraised and federal funds credited at the same prorate share as federal funds participated in the cost of originally acquiring the right-of-way (see 23 CFR § 713.307). If the change in access control involves relinquishment of part of the limited access facility to another governmental entity for

continued public use, then FHWA will not require any credit to federal funds (see 23 CFR § 713.307).

FHWA approval of a request for a change in access control is a federal "action" within the meaning of NEPA and therefore requires NEPA documentation (see 23 CFR § 771.107(b)). Under many circumstances, NEPA documentation at the lowest or "categorical exclusion" (CE) level will be sufficient (see 23 CFR § 771.117(d)(7)); however, it is possible that NEPA documentation at the intermediate level of an "environmental assessment" (EA) (see 23 CFR § 771.119) or even the highest "environmental impact statement" (EIS) level (see 23 CFR § 771.123) could be required.

Upon notification from the Transportation Board the Utilities and Permits Unit will coordinate the review of the submitted material and will distribute necessary materials to appropriate sections of the VTrans and the Federal Highway Administration for review and comment. The Chief of Utilities and Permits will gather the Agency's recommendations and forward them together with a recommended Agency position (concerning the pending Transportation Board application) through the Director of Program Development to the Secretary, who, in turn, will submit the Agency's position to the Transportation Board.

The Executive Secretary of the Transportation Board will advertise in the appropriate local newspaper(s) notice of a public hearing. The Transportation Board, or a hearing officer appointed by the Board, shall conduct the public hearing, of which a record shall be made, and the Transportation Board will issue Findings of Fact and a decision considering whether the public interest would be served by the proposed access. No construction work can occur without required approval from the Federal Highway Administration. If the Transportation Board finds that the proposed access would serve the public interest, then the applicant, prior to any actual construction work, must receive an Agency of Transportation 19 VSA Section 1111 access permit. Normal VTrans procedures will be followed to issuance of the Section 1111 permit, containing a list of conditions, for the access of a public way into a limited access facility.

## **RENEWABLE ENERGY GENERATION/TRANSMISSION ON NON-LIMITED AND LIMITED-ACCESS HIGHWAYS**

This section is applicable to all projects involving accommodation of renewable energy facilities and transmission installed on VTrans non-limited and limited-access property including all property acquired with Federal aid.

### Safety Criteria and Design Standards

1. Renewable energy facilities shall be deployed and maintained so as not to impede the safety and security of VTrans transportation infrastructure. The renewable energy facility shall not interfere with the existing use of the property of which it is a part or preclude any future use of the property as determined by VTrans.
2. The most stringent of the following criteria shall apply to all proposed installations:
  - a. This *Utility Accommodation Plan* or superseding edition
  - b. *AASHTO Roadside Design Guide*, 2011 or superseding edition

3. Renewable energy facilities shall not obstruct required motorist sight distances.
4. Utility service to the facility and vehicular access will be carefully designed and controlled by the renewable energy service provider, on a case-by-case basis, based on the site location. Site access management for each individual site plan will be submitted by the renewable energy service provider and reviewed and approved by VTrans.
5. Renewable energy facilities shall be designed to be as unobtrusive as possible.
6. All renewable energy facilities must be designed and built of durable material for a long service life with minimal routine service and maintenance. All structure designs and equipment must be planned as to minimize hazards and interference with highway traffic when additional overhead and underground lines or energy generation or transmission infrastructure are installed at a future date. Installation of new hardware requires strict adherence to the temporary traffic control plans and the allowable lane closures schedule as approved in the individual site plans.
7. Renewable energy service providers shall be solely responsible for obtaining all required permits and approvals before commencing any construction, installation, reconstruction, maintenance, repair, operation or removal work and for making all necessary submissions to appropriate environmental regulatory agencies.
8. All operations of renewable energy facilities located thereon shall comply at all times with all applicable Federal, state and local laws, rules, regulations, ordinances, statutes and decisions.

Under many circumstances, NEPA documentation at the lowest or "categorical exclusion" (CE) level will be sufficient (see 23 CFR § 771.117(d)(7)). However, it is possible that NEPA documentation at the intermediate level of an "environmental assessment" (EA) (see 23 CFR § 771.119) or even the highest "environmental impact statement" (EIS) level (see 23 CFR § 771.123) could be required. Visual analyses, evidence of public involvement, stormwater and wetlands evaluations and other environmental studies may be required as part of the NEPA review process

9. Whenever the provisions of this *Utility Accommodation Policy* may conflict with the provisions of the most current *AASHTO Guide for Accommodating Utilities within Highway (Freeway) Right of Way*, federal or State laws or regulations, the Federal Aviation Administration (FAA), standards, or codes, the higher degree of protection for the Highway and/or public, as determined by VTrans Chief Engineer, shall prevail. Notification of all sites subject to the

requirements of Title 23 USC and 23 CFR, will be provided to the FHWA.

Project Review Process

Prior to entering a License or Lease Agreement, the Applicant shall submit a Section 1111 Permit request to the following address:

VTrans Development Review & Permitting Services Section  
 One National Life Drive  
 Montpelier, VT 05633

Proposals for new renewable energy generation or transmission projects, shall include the following exhibits (as applicable):

- a. A plan of the property of which the premises is a part
- b. A preliminary design of the proposed renewable energy facility
- c. The proposed vehicle access route to the facility
- d. The proposed access route for the electric and communications conduit to service the facility
- e. Proof of insurance coverage prior to installation renewable infrastructure
- f. Notification of acceptance of the renewable energy project to the proposer
- g. Executed lease agreement and pertinent supporting documents
- h. Verification of compliance with all state applicable Federal, state and local laws, rules, regulations, ordinances, statutes and decisions including any necessary studies or analyses such as visual analyses.

Renewable Energy Accommodation Guidelines

1. Installation Timing:

- a. To minimize interference with the safe use, operation and maintenance of the limited access highway and as reasonably necessary to manage the right of way, VTrans may limit the timing of access so that, to the extent possible, there is no more than one renewable energy facility installation project underway at any given time on any particular segment of limited access highway.
- b. Once a particular right of way segment is accessed, there will generally be no further facility installation for a period of two years from the conclusion of the previous installation.

2. Location and Alignment Requirements:

- a. Renewable energy facilities shall be located as close to the right of

way line as practical to avoid or minimize the need for adjustment for future highway improvements, to avoid interference with highway maintenance and operations, and to permit access to the utility lines or renewable energy infrastructure for their maintenance with minimum interference to highway traffic.

- b. All elements of above ground renewable energy facilities approved by VTrans shall be installed between the edge of the right of way and the outer edge of the clear zone, unless appropriate roadside safety hardware is present..
- c. In all cases, consideration must be given to measures necessary to preserve and protect the safety, operation, integrity and visual quality of the highway, and its maintenance efficiency. Prior to approving any project, the renewable energy service provider shall demonstrate that the real property or right of way is suitable to accommodate any proposed facilities without adverse effect on the highway's design, construction, future utility or stormwater expansions or projects, or safety characteristics.
- d. All renewable energy accommodations, as may be warranted herein, shall only be in accordance with an approved Lease or License Agreement between VTrans and the renewable energy service provider.
- e. The renewable energy service provider shall comply with all federal, State and local laws, rules, regulations and ordinances wherever applicable and at the service provider's cost. The renewable energy service provider shall secure all necessary approvals, permits and licenses from governmental agencies as may be required to complete the project.

### 3. Access Requirements

- a. Access to renewable energy facilities within VTrans right of way, where required for construction and/or servicing, will be from State or local highways crossing VTrans right of way, from adjacent frontage roads, or from adjacent property and in accordance with an approved renewable energy agreement as issued by VTrans or local governing body.
- b. Direct access to a renewable energy facility from the controlled access right of way is generally prohibited. However, in extenuating circumstances, requests may be made to access renewable energy facilities from a controlled access right of way. These requests will be evaluated on a case-by-case basis.

- c. In the event that access from State highways crossing VTrans controlled access right of way, or from adjacent service roads is not feasible for support of construction and/or servicing – as may be the case in interchange areas, service plazas and maintenance areas – the preferred vehicle access can be obtained from the right side of the ramps. In extreme cases, access may be permitted from the main lanes of the highway with prior approval of VTrans.
- d. Advance arrangements will be made between the renewable energy service provider and VTrans District Office for emergency maintenance procedures.
- f. Access for construction and/or servicing of renewable energy facilities placed within VTrans freeway areas will be granted on a controlled and restrictive basis according to this *Plan* and the agreement between VTrans and the service provider, so as to maintain the safety, aesthetics, and functionality of the controlled access right of way. Access to the facility shall be arranged through the appropriate VTrans District Maintenance Office in accordance with the permit requirements.

#### 4. Support Facilities

- a. All above ground renewable energy facilities shall be located outside of the clear zone and as close to the outer edge of the right of way as possible.
- b. Below ground renewable energy facilities will only be allowed in the median on an exception basis if a service provider can demonstrate to VTrans, in its sole and absolute discretion, that other options are technically infeasible or cost-prohibitive.
- c. Renewable energy service connections to or from adjacent properties shall not be permitted from renewable energy installations located within the clear zone unless approved by VTrans.
- d. Any utility service connection necessary to operate a renewable energy facility within the freeway right of way shall be placed underground in ducts or conduits running from crossroads or frontage roads adjacent to the required point of access or from easements obtained by the supplying distribution utility. Longitudinal installations of utility service connections in controlled access areas are prohibited.

#### 5. Traffic Control Requirements



The renewable energy service provider shall provide VTrans with a temporary traffic control plan, for review and approval by VTrans District staff, prior to the commencement of any construction activity. The temporary traffic control plan shall specify the maintenance and protection of traffic plans for all aspects of the construction process. The temporary traffic control plan shall also specify typical maintenance and protection of traffic plans for anticipated maintenance activities, including but not limited to, restoration and repair of damaged facilities within the controlled access right of way, including repairs within the clear zone, maintenance activities associated with below and above ground facilities, and maintenance of facilities attached to highway structures.

### Compensation Requirements

VTrans will charge compensation for the installation of renewable energy facilities based on Chapter 8, Property Management, of the Right of Way Manual. VTrans may also receive in-kind energy supplies or other services, subject to negotiation.

### License and Lease Agreements

Prior to occupying property acquired in whole or in part with Federal aid the renewable energy services provider must obtain a lease or a license from VTrans pursuant to 19 V.S.A. § 26a(b) as well as Chapter 8, Property Management, of the Right of Way Manual. The lease or license shall not obviate the need for an access permit under 19 V.S.A. § 1111.

## **RENEWABLE ENERGY FACILITIES LOCATED ON LIMITED ACCESS HIGHWAYS**

Renewable energy facilities shall be located outside of the clear zone as far from the roadway as possible and in locations where they are unlikely to be hit by errant vehicles. The preferred location of renewable energy infrastructure such as wind turbines or solar structures is outside the roadway, clear zone and immediate environs.

The safety impacts of access to construct and install the facility shall be considered in the evaluation of potential locations for renewable energy facilities.

- a. Adequate sight distance must be provided for safe ingress to and egress from the sites.
- b. The facilities must be located outside the clear zone unless sufficient appropriate shielding already exists.

The following describes a descending order of preference for the siting of renewable energy facilities:

- a. Priority 1: Vehicle access to the site can be obtained from outside the through-roadway and connecting ramps (e.g., access from frontage roads or crossroads).
- b. Priority 2: Within the interchange, vehicles access can be obtained from the right hand side of the diagonal ramps.
- c. Priority 3: Within the interchange, vehicle access can be obtained from the left hand side of the diagonal ramps.
- d. Priority 4: Vehicle access from the outside shoulder (right hand side) of the mainline.
- e. Priority 5: Vehicle access from the inside shoulder (left hand side of the mainline).

Justification must be provided for descending to any level below Priority 1. FHWA concurrence is required for any installation within a loop ramp, or within any freeway weave area less than three quarters (3/4) of a mile in length.

## STATE STATUTES

The following is a list of the statutes included in the Vermont Statutes Annotated that apply to situations of interest to the Utilities and Permits Unit. A brief description of the content and purpose of each statute is included. Please review the statutes themselves to note their specific provisions.

**10 VSA 6086 (a) (9) (K) (Act 250)** sets our state land use permit criteria related to interference with or endangerment of public investment in transportation facilities.

**19 VSA 2-5** describes the Agency of Transportation and the Transportation Board, and their powers and duties.

**19 VSA 21** authorized regulations for parking in the right-of-way. Signs must be posted.

**19 VSA 32** provides for an assumed right-of-way width of 3 rods (15.09 meters or 49.50 feet)—1½ rods (7.54 meters or 24.75 feet) on either side of the centerline—when other documentation cannot be ascertained.

**19 VSA 35** provides for survey parties employed by the Agency or municipality to enter lands to perform surveys.

**19 VSA 901** relates to the planting of grasses, shrubs, vines, trees, and flowers within highway limits.

**19 VSA 905** addresses the construction of sidewalks on state highways.

- 19 VSA 1101** grants the Agency concurrent authority with towns over class 1 town highways and bridges.
- 19 VSA 1104** gives the traffic committee authority to order the removal of hazardous lighting.
- 19 VSA 1106** prohibits camping in public highway rights-of-way.
- 19 VSA 1107** establishes that VTrans will furnish cattle crossing signs.
- 19 VSA 1111 (a)** establishes that a permit is required for any use of any highway right-of-way.
- 19 VSA 1111 (a)** establishes that the legislative bodies of towns have the same authority with respect to a town highway as the State with respect to a state highway.
- 19 VSA 1111 (c)** determines that a permit is required to install pipes or wires in the highway right-of-way.
- 19 VSA 1111 (c)** allows emergency work on pipes and wires to start without a permit.
- 19 VSA 1111 (c–e)** covers inspection of permit work within state highway rights-of-way and restoration of highway facilities due to permit holder negligence.
- 19 VSA 1111 (f–g)** addresses the revoking or suspension of permits.
- 19 VSA 1512 and 1605** addresses utility relocations (underground) eligibility.
- 19 VSA 1703** covers the creation and regulation of limited-access highways, and reimbursement for utility relocations in limited-access highways.
- 19 VSA 1704** establishes that permission is required to pass to, from, or across limited-access highways from or to abutting lands.
- 19 VSA 1708 (b)** states that no highway that is not part of a limited-access highway can intersect at grade.
- 19 VSA 1710** prohibits commercial enterprises in limited-access highway rights-of-way.
- 20 VSA 2601** authorizes fire districts to use highway rights-of-way.
- 23 VSA 1025** establishes the MUTCD as the state standard.
- 23 VSA 1431** establishes the height and width limits of motor vehicles and their loads.
- 24 VSA 3342 (c)** allows the use of public highways by consolidated water districts.
- 24 VSA 3603** allows the use of public highways by municipal sewer corporations.
- 24 VSA 3673** allows the use of public highways by consolidated sewer districts.
- 24 VSA 4302 (3) (f)** covers municipal and regional planning and development for transportation systems and public utilities.
- 30 VSA 2502** allows the construction/installation of aerial and buried wires within public highway rights-of-way.
- 30 VSA 2504** states that the Transportation Board may order wires raised or placed under ground at utility crossings.

**30 VSA 2506** requires property owner consent before trees are trimmed or removed.

**30 VSA 2507** requires that utility poles in cities or villages be painted.

**30 VSA 2515** allows for the requiring of joint use of poles in public highway rights-of-way.

**30 VSA 2530** allows for authorization of public telephones in public highway rights-of-way.

**30 VSA 2902** establishes that municipal utilities are to have the same privileges and responsibilities as set forth in 30 VSA Chapters 71, 73, and 75.

**30 VSA 3002 (10)** establishes that electric cooperatives are to have the same privileges and responsibilities as set forth in 30 VSA Chapters 71, 73, and 75.

## STANDARD DRAWINGS

One or more of the following standard drawings will be used by utility companies, developers, contractors, and others performing work within highway rights-of-way. These are normally made a part of the permit, when issued.

**A-76** Standards for Town and Development Roads

**B-71** Standards for Residential and Commercial Drives

**C-2A** Portland Cement Concrete Sidewalk

- Drive Entrances with Sidewalk Adjacent to Curb

**C-2B** Portland Cement Concrete Sidewalk

- Drive Entrances with Sidewalk and Green Strip

**D-20** Highway Crossing Sleeves for Underground Utilities

**D-22** Sanitary Sewer Systems

**E-110** Major Maintenance Operation Lane Closure

**E-111** Minor Maintenance Operation

**E-112** Traffic Control for Typical Moving Maintenance Operations

**E-119** Utility Work Zone

. . . and others as may be appropriate in special situations.