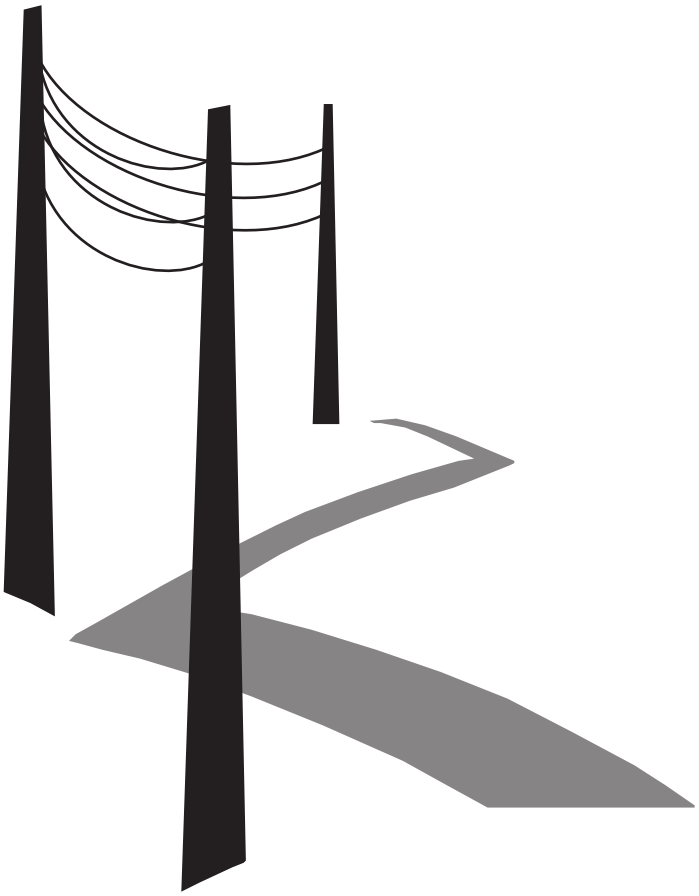
Appendix A

Utility Accommodation Policy

17-229 CMR Chapter 210
July 28, 2009



MaineDOT

17-229	**DEPARTMENT OF TRANSPORTATION**
Chapter 210:	**UTILITY ACCOMMODATION POLICY**

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1. PURPOSE AND APPLICATION

This policy is established to regulate the accommodation of Facilities within the limits of state and state-aid Highways. It provides certain administrative procedures and establishes minimum requirements for the location, method of installation, adjustment and maintenance of Facilities so accommodated.

This policy is developed in the interests of safety, protection, utilization and future development of Highways with due consideration given to the public welfare afforded by adequate and economical Facility installations. This policy is authorized by 23 MRSA §52, 35-A MRSA §2503 (16), and is further required by 23 CFR 645.211.

2. SCOPE

As of the effective date of this policy, the location standards defined herein shall apply to all new Facilities and any additions, alterations, adjustments, relocations or replacements of existing Facilities and Appurtenances within the limits of state and state-aid Highways. Unless specifically stated otherwise, this policy is not intended to require the adjustment of existing Facilities or Appurtenances that do not constitute a safety hazard to the traveling public or do not conflict with the use, construction or maintenance of the Highway. Notwithstanding the foregoing, the duties and responsibilities set forth in Section 6 apply to all Facilities and Appurtenances, whether existing or proposed.

The standards defined herein supersede MaineDOT's *Policy on Above Ground Utility Locations, Policy on Tree Maintenance By Utilities Within the Public Right-of-Way*, and the *Utility Location Permits - Preparation of Application for a Utility Location Permit - Basic Requirements* and amend the *Utility Accommodation Policy – February 19, 2002.*

Throughout this policy, cross-references to MRSA, CFR and other sources have been shown in brackets [ ]. Although the specific wording in this policy may occasionally match that which is used in the source material, the intent of the cross-reference is to provide a history of major contributing sources and not to imply duplication or interpretation of the source material.

3. ABBREVIATIONS

The following abbreviations used in this policy shall be interpreted as follows:

AADT - Average Annual Daily Traffic

AASHTO - American Association of State Highway and Transportation Officials.

APWA - American Public Works Association

ASTM - American Society For Testing and Materials

COA - Control of Access *Syn: Controlled Access*

CFR - Code of Federal Regulations

CL - Centerline

CMR - Code of Maine Regulations

DEP - Department of Environmental Protection

EP - Edge of Pavement

ES - Edge of Shoulder

ETW - Edge of Traveled Way

FAPG - Federal-Aid Policy Guide - United States Department of Transportation.

FHWA - Federal Highway Administration

FOC - Face of Curb

MaineDOT - Maine Department of Transportation

MPUC - Maine Public Utilities Commission

MRSA - Maine Revised Statutes Annotated

MUTCD - Manual on Uniform Traffic Control Devices (published by the FHWA under 23 CFR Part 655, Subpart F)

NESC - National Electrical Safety Code (Published by the Institute of Electrical and Electronics Engineers, Inc.)

NHS - National Highway System

PBR - Permit-By-Rule

R/W - Right-of-Way

TCP - Traffic Control Plan

TW - Traveled Way

USC - United States Code

USDOT - United States Department of Transportation

4. DEFINITIONS

The following terms used in this policy shall be interpreted as follows:

Appurtenance - Any manhole, pull box, junction box, Vent, riser, anchor, guy wire, push brace or other incidental component of a Utility system, whether aboveground or belowground, excluding Facilities.

APWA Uniform Color Code - *Red* = Electric; *Yello*w = Gas-Oil-Steam; *Orange* = Communication-CATV; *Blue* = Potable Water; *Purple* = Reclaimed Water; *Green* = Sewer; *Pink* = Temporary Survey Markings; *White* = Proposed Excavation

Authorized Entity – any entity authorized to have Facilities within highway limits.

Backfill - Replacement of soil around and over a Facility or Appurtenance.

Backslope - The graded slope between the centerline of ditch and the original ground, located on the side of the ditch opposite the Traveled Way. *Ref. Appendix*

Bridge - A structure designed to carry pedestrians, vehicles, trains or other modes of transportation over another transportation corridor, water, or other physical barrier and having a single span of at least 10 feet between supports or a combined open area of 80 square feet for multiple structures (i.e. multiple culverts). For the purpose of this policy, this term shall include both bridges and minor spans as defined in 23 MRSA §562.

Casing - Pipe or other separate structure around and outside an underground Facility that is designed to support the dead loads of the Highway and superimposed loads thereon, including that of construction machinery.

Clear Zone - A Recovery Area established through consideration of traffic volumes, speed, recoverable and non-recoverable slopes, and roadside geometry and as applied through procedures defined in the *Roadside Design Guide* published by AASHTO.

Commissioner - The Commissioner of MaineDOT.

Communication Lines - The conductors and their supporting or containing structures that are used for public or private signal or communications service, and which operate at potentials not exceeding 400 V to ground or 750 V between any two points of the circuit, and the transmitted power of which does not exceed 150 W. When operating at less than a nominal voltage of 90 V, no limit is placed on the transmitted power of the system. Under specified conditions, communication cables may include communication circuits exceeding the preceding limitation where such circuits are also used to supply power solely to communications equipment. *Note: Telephone, telegraph, Railroad signal, data, clock, fire and police alarm, cable television and other systems conforming with the above are included. Lines used for signaling purposes, but not included*

under the above definition, are considered as (electric) supply lines of the same voltage and are to be so installed. [NESC]

Compact Area - An area in which a Municipality has the responsibility for maintenance of state and state-aid roads. Factors that define a Compact area are specified in 23 MRSA §754. A current list of Municipalities having Compact Areas is available through the Utilities Web Site.

Conduit - A structure containing one or more Ducts. [NESC]

Construction Manager - The authorized field representative assigned to oversee and manage a particular MaineDOT Project. This individual may also be referred to as the Resident Engineer or Resident Inspector.

Construction Season – The portion of any calendar year in which most Utility or Highway construction occurs (typically April through November).

Controlled Access - A type of Right-of-Way where all rights of access have been acquired from the abutting property owners. MaineDOT has the full power and authority to lay out, establish, acquire, open, construct, improve, maintain, discontinue and regulate the use of all Highways so designated. [23 MRSA Chapter 7]

Coordination Meeting - A meeting that is held to discuss project specifics and concerns with the representatives of Authorized Entities having known, proposed or existing Facilities in the General Area of a Proposed Installation.

Cover - Depth of material between the top of a Facility or Appurtenance and the finished grade of the Highway.

Curb - A raised strip of bituminous, concrete or granite that is located at the Edge of Shoulder for surface drainage.

Day(s) - Calendar days. Each day shown on the calendar including Saturdays, Sundays and holidays.

MaineDOT - The State of Maine Department of Transportation.

Direct Burial - Installing a Facility underground without Conduit, duct, Sleeve or any type of Encasement.

Duct - A single enclosed raceway for conductors or cable. [NESC]

Edge of Pavement - (EP) - The outside edge of the paved portion of the Highway constructed and surfaced for normal travel, including any surfaced Shoulders but excluding sidewalks. *Ref. Appendix*

Edge of Shoulder - (ES) - The outside edge of the Shoulder not adjacent to the Traveled Way. This term may be used whenever a Shoulder exists, regardless of whether or not the Shoulder is surfaced with hot bituminous pavement. *Ref. Appendix*

Edge of Traveled Way - (ETW) - The outer edge of the outmost lane intended for vehicular traffic and exclusive of shoulders, turning lanes or climbing lanes. The ETW is often indicated by a solid white edge line that exists between the Traveled Way and the Shoulder. In the absence of a painted edge line, the Traveled Way width shall be assumed as 12 feet for all NHS highways or as defined in the tables provided in Section 10(2)(C)(2) for all non-NHS highways, unless otherwise directed by a MaineDOT Region Engineer. *Ref. Appendix*

Electric Supply Lines - Those conductors used to transmit electric energy and their necessary supporting or containing structures. Signal lines of more than 400 V are always supply lines within the meaning of the rules, and those of less than 400 V may be considered supply lines, if so run and operated throughout. *Syn: supply lines* [NESC].

Encasement - Structural element surrounding a Facility (Ref. "Casing").

Facility - "Facilities" means: A) If under the surface of the Public Way, pipes, cables and Conduits; and B) If on or over the surface of the Public Way, poles, hydrants, cables, wires and any plant or equipment located on or over the surface of the Public Way. [35-A MRSA §2502] For the purposes of this policy, "Facility" shall include all components of a system not covered by the definition of Appurtenance.

Flow Area - The strip of land that includes the full width of a ditch line, plus the bottom 2 feet of both the Inslope and Backslope. For example, a flat bottom ditch with a width of 2 feet results in a Flow Area width of 6 feet. Since a standard "V" ditch has no width, the Flow Area has a total width of 4 feet. *Ref. Appendix*

Freeway - The highest type of arterial Highway with full Controlled Access. Essential Freeway elements include: Medians, grade separations at cross streets, ramp connections for entrance to and exit from the Traveled Way, and, in some cases, frontage roads [AASHTO, A policy on Geometric Design of Highways and Streets]. Examples of Freeways in Maine include the Interstate system and the portion of Route 1 between Brunswick and Bath.

General Location - The location along a Highway to be occupied or crossed by a Proposed Installation. Descriptions of a General Location must include a distance from the center of an appropriate Reference Point to the beginning or end of the Proposed Installation, reference to the county and Municipality in which the Proposed Installation will be installed and the relevant Highway name(s) and route number(s) (as applicable). [17-229 CMR Chapter 205]

Hazardous Transmittant - A substance or material which has been determined by the Federal Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated. [49 CFR 121.8].

Highway - A Public Way including all of the Right-of-Way that may have been laid out by the State, county or town. [23 MRSA §2 (2)] *Ref. Appendix*; *Syn: street, road*

Highway Opening Permit - A permit that authorizes making any underground installation as provided in chapter 23 (Title 35-A MRSA) and Title 23, sections 54 and 3351 to 3359. [35-A MRSA §2503 (14)]

Highway Structure - A general term referring to any part of the Highway that has been designed and constructed with structural considerations to serve a specific highway purpose. Included under this term are Bridges, retaining walls, major drainage structures (not including standard catch basins or culverts), and other similar structures.

Inslope - The graded slope between the Edge of Shoulder and the centerline of an adjacent ditch or the bottom of the slope. *Ref. Appendix*

Interstate - A Highway on the National System of Interstate and Defense Highways having Freeway characteristics.

Licensing Authority - "Licensing Authority" means: A) The Department of Transportation, when the Public Way is a state, or state-aid Highway, except for state or state-aid Highways in the Compact Areas of urban compact municipalities as defined in Title 23, section 754; B) The municipal officers or their designees, when the Public Way is a city street or town way or a state or state-aid Highway in the compact areas of urban compact municipalities and as defined in Title 23, section 754; and C) The county commissioners, for all other Public Ways. [35-A MRSA §2502 (1)] MaineDOT is the Licensing Authority for Bridges and Controlled Access Highways, including those within Compact Areas, because of MaineDOT's maintenance responsibility for these assets.

Location Permit - A permit that authorizes the location of an Authorized Entity's Facility within the Right-of-Way limits in accordance with 35-A MRSA Chapter 25.

Median - The portion of a divided Highway separating the traveled ways for traffic in opposite directions.

MaineDOT Project - Any capital improvement of a transportation facility administered by or funded through the Maine Department of Transportation. This does not include maintenance activities.

Multiple Pole Lines - Two or more sets of Utility poles located along a Highway for the conveyance of transmission or distribution wires or cables, not including service lines.

Municipality - A city or town. [30-A MRSA §2001 (8)]

National Highway System - Interconnected urban and rural principal arterials and highways (including toll facilities) which serve major population centers, international border crossings, ports, airports, public

transportation facilities, other intermodal transportation facilities and other major travel destinations; meet national defense requirements; and serve interstate and interregional travel. All routes on the Interstate System are a part of the National Highway System [23 CFR 470]. The NHS Highways in the State of Maine are identified on the Utilities Web Site.

National Standards - Any standards that have been developed and adopted to apply throughout the United States to specifically address Facilities of a defined type. Specific examples include the USDOT Pipeline Safety Regulations and the NESC.

Out-of-Service Facility - A Facility or Appurtenance that is disconnected from the system and not intended to be used in the future by the operating Authorized Entity. Such Facilities may also be considered "abandoned" by the MPUC.

Pavement Overlay - A MaineDOT Project with a scope consisting of placing new pavement over an existing paved highway surface without realignment of any part of the centerline or additional widening.

Pavement Structure - The portion of the Highway specifically designed or designated to support vehicular travel including the full width of Traveled Way, the full width of adjacent Shoulders, and the area beyond the Edge of Shoulder to the limits of Subgrade. *Ref. Appendix*

Preliminary Engineering - The locating, making of surveys, soil and foundation investigations, and the preparation of plans, specifications and estimates in advance of construction operations.

Private Entity – A private organization or individual, other than a Utility, which owns, operates, controls and maintains Facilities that exist for its own use.

Private Facility Exception License - A license from MaineDOT (formerly called a Letter of No Objection) that acknowledges a private Facility within the Highway limits and states that MaineDOT currently has no objection to the Facility being so located. There are no continuous rights conveyed with this license, and MaineDOT may require modification, relocation or complete removal of the private Facility and Appurtenances at any time. The private Facility owner bears all costs and risks relating to the Facility and Appurtenances and is liable for any damage the Facility or Appurtenances may cause.

Proposed Installation - Facilities proposed to be constructed within a Highway, including future replacements, additions and associated services planned within the next five years and to the extent that they are known by the applicant at the time of application. [17-229 CMR Chapter 205]

Public Way - Any road capable of carrying motor vehicles, including, but not limited to, any state Highway, municipal road, county road, unincorporated territory road or other road dedicated to the public. [23 MRSA §1903 (11)]

Railroad - "Railroad" includes every commercial, interurban and other railway and each and every branch and extension thereof by whatsoever power operated, together with all tracks, bridges, trestles, rights-of-way, subways, tunnels, stations, depots, union depots, ferries, yards, grounds, terminals, terminal facilities, structures and equipment and all other real estate, fixtures and personal property of every kind used in connection therewith, owned, controlled, operated or managed for public use in the transportation of persons or property. [23 MRSA §5001 (1)]

Railroad Company - Every corporation or person, their lessees, trustees, receivers or trustees appointed by any court owning, controlling, operating or managing any railroad for compensation within this State. [23 MRSA §5001 (2)]

Recovery Area - The unobstructed portion of the Highway beyond the Edge of Traveled Way that is preserved to provide drivers of errant vehicles a reasonable opportunity to stop safely or otherwise regain control.

Reference Point - A point on the face of the earth that is easily identified on most street maps and on the ground or a point defined from MaineDOT's inventory road, Bridge or node numbers. Acceptable examples of these include town lines, major intersections, major stream crossings, Railroad crossings, or Bridges.

Region Engineer - The engineer with engineering authority for the purposes of region input to this policy for any of the five MaineDOT Maintenance Regions. MaineDOT Region Offices are currently located in Presque Isle, Bangor, Augusta, Scarborough and Dixfield.

Right-of-Way - Real property or interests therein, acquired, dedicated or reserved for the construction, operation and maintenance of a transportation facility and other related facilities.

Scenic Byway - A Highway having special scenic, historic, recreational, cultural, archeological, and/or natural qualities that have been recognized as such through legislation or some other official declaration. The terms State Scenic Byway, National Scenic Byway, or All-American Road are designations included under this general term. [FHWA Docket No. 95-15 & 23 M.R.S.A. §4206 (G)]

Service - A Facility that connects a customer to a Utility distribution system or network.

Shoulder - That portion of the Highway contiguous with the traveled way for lateral support of base and surface courses and support of a vehicle. *Ref. Appendix*

Sleeve - A larger pipe enclosing a Facility. Also see "Casing".

Special Materials - A general term referring to any materials that have been designed with structural considerations to treat special or unique conditions of the Highway. Included under this term are geotextiles,

geofoams, lightweight fills, tire chips and other similar materials. This term is not intended to apply to any structures covered under the terms "Highway Structure" or "Pavement Structure".

Specific Location Plan - A plan that indicates the location of Facilities and significant Appurtenances (such as manholes, vaults, and guys) along a Highway. The plan may or may not be drawn to scale, but must be adequately dimensioned to accurately identify the location of a Proposed Installation. Longitudinal distances are provided between control points, bends, manholes, poles, and other similar features. Horizontal offset distances are provided from the centerline of the Traveled Way, nearest Edge of Traveled Way, nearest Edge of Shoulder, face of Curb, or other well defined, applicable reference. Offsets indicated are to the centerline of underground installations or to the Traveled Way side of aboveground installations. The Edge of Traveled Way, Right-of-Way lines (assumed or otherwise), and other pertinent Highway features shall also be indicated on this plan.

Subgrade - The graded portion of a Highway upon which the Pavement Structure is constructed to support vehicular travel. Subgrade exists as a plane located parallel to and at a specified depth below the surface of the Traveled Way. This plane extends horizontally, at the same cross-slope as the Traveled Way, to the intersection with the Inslope or the centerline of ditch, whichever is closer to the Traveled Way centerline. Where no ditch is present, the horizontal limit of Subgrade is one foot beyond the Edge of Shoulder or face of Curb. The depth to Subgrade from the centerline of the Traveled Way surface is based upon the design of the Pavement Structure. On Highways that lack a defined Subgrade or have a Subgrade of less than 24 inches below the Traveled Way surface, a minimum depth of 24 inches shall be used. *Ref. Appendix*

Traffic Control Plan (TCP) - A plan, prepared in accordance with the MUTCD, which indicates the type and placement of traffic control devices to be used around and within work areas on Public Ways. These plans are designed and stamped by a Professional Engineer registered in the State of Maine or an American Traffic Safety Services Association (ATSSA) Certified Worksite Traffic Supervisor. The plan represents actual site conditions and clearly indicates the type, location and number of signs, the use of message or arrow boards, the use of police officers or flaggers, and any other information relating to maintaining the safe and efficient flow of traffic.

Traveled Way (TW) - That portion of a Highway designated for the use of vehicular traffic excluding any Shoulders, sidewalks or parking spaces. *Ref. Appendix*

Trenchless Installation Methods - Any process through which a pipe, Casing or other Facility is installed underground without using an open cut. This includes: tunneling, pipe jacking, microtunneling, pipe bursting, directional drilling, auger boring, guided boring, and pipe ramming.

Utilities Web Site - The web site maintained by MaineDOT for the purpose of providing current data to Utilities. The address for the Utilities Web Site is: *http://www.maine.gov/mdot/utilities-home.php*

Utility – For purposes of this policy, Utility, consists of:

1. Public utilities that are regulated by the Maine Public Utilities Commission.
2. Such other entities authorized to locate their facilities in, upon, along, over, across or under the public ways of this State by Chapter 23 of Title 35-A of the Maine Revised Statutes, if such entities are providing services to the general public or to regulated Public Utilities.

These entities consist of every public or private entity that operates telephones or transmits television signals; that owns, controls, operates or manages any pipeline within or through this State for the transportation as a common carrier for hire of oil, gas, gasoline, petroleum or any other liquids or gases; that makes, generates, sells, distributes and supplies gas or electricity; every water or sewer company, district or system owned or operated by a public or private entity; every municipally owned or operated fire alarm, police alarm or street lighting circuit or system; every cooperative organized under chapter 35 (Title 35-A MRSA); the University of Maine System, for purposes described in 35-A MRSA § 2301-A; and any other public or private entity engaged in telecommunications or the transmission of heat, or electricity. [35-A MRSA §2501].

Utility Coordinator - The person responsible for coordinating Authorized Entity Facility relocations in conjunction with MaineDOT Projects.

Vent - An Appurtenance to discharge gaseous emissions from a Casing.

5. LOCATION PERMITS

1. Location Permits Required/Not Required

A Utility may not construct new Facilities within the limits of a Highway without applying for and obtaining a Location Permit from the applicable Licensing Authority except as specified herein. [35-A MRSA § 2501, 23 CFR 645 Subpart B]. Private Entities may not apply for and obtain a Location Permit.

A. Location Permit Required:

A Location Permit is required in each of the following circumstances.

(1) All new Facilities except as specifically exempted in Section 5(1)(B), including Facilities proposed within Compact Areas that are also proposed to be installed on or within 25' of Bridges or within the limits of a Controlled Access Highway.

(2) Replacement of more than 5 poles or 150 feet of underground Facilities, regardless of whether those Facilities were previously permitted or deemed legal structures in accordance with 35-A MRSA §2309. For the purposes of this section, Facilities that exceed these limits are hereby considered new Facilities and not "replacements" or "additions" under 35-A MRSA §2503 (9).

(3) Installation of cabinets, transformers or other similar system components that are mounted on pads or multiple poles, not to include standard pedestals or those that are supported on an existing, single pole. Replacement of such Facilities requires permitting only if the existing supporting pad or poles are to be replaced.

(4) Replacement of any aboveground Facility or Appurtenance resulting from damage caused by a vehicle two or more times within the past 12 months.

B. Location Permit Not Required:

A Location Permit is not required in the following circumstances, providing the Facility or Appurtenance being installed meets the standards defined herein unless otherwise specified. Where an exception is required, an application shall be submitted in accordance with Section 5(2).

(1) Attaching additional wires, cables or Appurtenances to existing poles, providing the Utility making such attachment has permitted or legally located Facilities under 35-A MRSA §2309 upon all of the same poles.

(2) Services, as defined in 35-A MRSA §2503 (10)

(3) Replacement of up to 5 poles or 150 feet of underground Facilities within the location tolerance as specified in Section 5(4)

with respect to the original location of the Facilities being replaced. Poles replaced under this section are not required to meet the corridor offsets as specified in Section 10(2)(C). Utilities shall not replace Facilities in greater amounts than authorized herein by dividing projects having one primary engineering purpose into multiple, smaller projects.

(4) New wires or cables in existing conduit that is either permitted or legally located under 35-A MRSA §2309.

(5) Emergency Replacements: Replacement of Facilities that present an immediate hazard or are needed to restore utility service, providing after-the-fact permitting occurs within 60 days when required.

C. Highway Opening Permits:

Applicants are advised that, depending upon the type of installation proposed, a separate Highway Opening Permit might also be required from the applicable Licensing Authority.

2. Application Process [35-A MRSA Chapter 25]

This section outlines the application procedures for Location Permits on all Highways and Bridges for which the Maine Department of Transportation is the Licensing Authority. There are two processes available to obtain a Location Permit: Statutory Application Process and the Permit-By-Rule process. MaineDOT reserves the right to require additional information on any applications as necessary.

A. Statutory Application Process [35-A MRSA §2503]

The Statutory Application Process may be used by all Utilities to apply for a Location Permit.

(1) Submission Requirements

In order to obtain a Location Permit through the statutory application process, a Utility or authorized agent must first submit a completed application to MaineDOT that includes each of the components listed below. A single application may include multiple Facilities of the same type, provided the general and specific location of each Facility is clearly noted on the application.

(a) Completed Application Form(s): A blank application form is available on the Utilities Web Site. Applications shall provide the following information:

(i) Description of the General Location: The description of the General Location shall be as defined in Section 4, Definitions. Alternatively, if the Proposed Installation involves only attachment

to existing poles and a permit is required, the description may simply reference the MaineDOT Location Permit number issued to the owner of the poles.

(ii) Description of the Proposed Installation: The description of the Proposed Installation shall be as defined and shall include, as appropriate, the type of installation, the size of pipes, the number and kind of poles, voltage and number of phases, and the number of cables, anchors and guys. [17-229 CMR Chapter 205] This section is not intended to limit future additions as authorized by Section 5(1)(B)(1).

(iii) Minimum depth below / height above ground: Indicate the minimum Cover for underground Facilities or the minimum height above the Highway surface for aerial wires and cables.

(iv) Maximum operating pressures: The maximum operating pressure must be stated for pressurized pipelines

(v) Statement of intent to publish [35-A MRSA § 2503 (2,3,4)]*:* If a Proposed Installation involves the construction of Electric Supply Lines carrying over 50,000 volts (phase to ground) or the installation of a cabinet, transformer(s) or other similar structure(s) mounted upon a pad or multiple poles, public notice is required. Otherwise, public notice of a Proposed Installation is at the applicant's option. If published, the applicant shall include the text of the application at least one time in a newspaper circulated within the Municipality (or Municipalities) encompassing the limits of the Proposed Installation. The publication shall include a statement informing any person owning property that abuts the applicable Public Way of their right to file a written objection with the Licensing Authority within 14 days after publication. Evidence of publication shall be submitted to MaineDOT before a permit can be issued. If not published, the application will be processed and objections may be filed in accordance with 35A MRSA §2503 (3). Objections received in this manner could result in

the applicant being required to relocate the Facility and all Appurtenances at its expense.

(vi) Owner's signature: The owner or operator of the Proposed Installation must sign the application. Any person signing on behalf of the owner or operator must provide evidence of authorization to sign.

(vii) Construction by Others: If a Proposed Installation is to be constructed by a person or entity other than a Utility, that person or entity shall include a signed letter with the application acknowledging complete responsibility for the Proposed Installation until such time that the Facility is conveyed to the Utility. In no case shall a Proposed Installation constructed by others be connected to a Utility system or network prior to such conveyance unless otherwise permitted.

Applications submitted in this manner shall be signed by the Utility to indicate their agreement with the location of the proposed Facility and their intent to accept the Facility upon completion of construction. If a Location Permit is issued, it will include a special condition acknowledging construction by a non-Utility.

(b) Specific Location Plan(s): The Specific Location Plan shall be as defined in Section 4, Definitions. A separate Specific Location Plan shall be submitted for each proposed Facility. Specific Location Plans shall be submitted on standard letter, legal size or 11-inch by 17-inch sheets (for archive purposes) with no more than two Highways being shown on one sheet.

If the Proposed Installation only involves attachment to existing poles and a permit is required, the plan may simply locate the starting and ending points in relation to any of the major features indicated in the General Location. Offsets to existing poles are not necessary.

(c) General Location Map: For each Proposed Installation, the Utility must submit an accurate area map (examples - MaineDOT Highway Attributes plan available on the MaineDOT Utilities website, MaineDOT Highway plan or U.S.G.S. quadrangle) or a sketch traced from such a

map identifying the General Location of the Proposed Installations.

(d) Supporting Data: All applications must also contain statements that clearly indicate the following:

(i) Whether or not joint use or ownership of the Facility is reasonably anticipated within a year of the date of initial installation.

If the Proposed Installation involves attachment to the poles of another Utility, a copy of the lease or agreement showing evidence of the right to occupy the poles shall be included with the application. Alternatively, the application may also be signed by the Utility that owns the poles.

(ii) Whether or not there are any existing Facilities of others which are located within the minimum clearance offset specified in Section 8(1)(I);

(iii) That a copy of the application has been submitted to the municipal clerk of each Municipality or the clerk of the County Commissioners in the case of unorganized townships; and

(iv) The name, address and telephone number of a person that will be available to answer questions regarding the application or to review the Proposed Installation on-site.

(e) Special Materials & Highway Structures: If any part of the Proposed Installation is to be made on or within 25 feet of a Highway Structure or area involving Special Materials (as measured horizontally), the application must be accompanied by plans showing the location, method of construction, clearances and other data pertinent to how the Proposed Installation may impact those areas. For detailed requirements regarding Bridges and other Highway Structures, please refer to Section 12.

(f) Traffic Control Plan: Any work proposed within the limits of a Freeway shall include a Traffic Control Plan as defined in Section 4, Definitions. Specific requirements are further described within Section 6(6)(B), Maintenance of Traffic, Freeways.

(2) Processing

Three complete copies shall be submitted to MaineDOT at the address provided on the application form. One complete copy shall also be submitted to the municipal clerk of the applicable Municipality or the clerk of the county commissioners in the case of unorganized townships. The application will be reviewed with primary consideration of the standards defined within this rule, however, specific site conditions, proposed work in the same General Location, public comments, or other concerns of MaineDOT may also affect permit conditions. Permits will normally be processed within 30 Days, however, up to 60 Days is permissible. [35-A MRSA § 2503 (19)]

(3) Completion Confirmation

The MaineDOT will send the Utility a Completion Confirmation Form along with an approved Location Permit. Upon completion of installation of a permitted Facility, the Utility shall return the completed form to MaineDOT, stating that all work has been completed in accordance with the specified permit. If field modifications were necessary or the scope of the original project was reduced, amended sketch plans from the original permit shall be submitted to indicate the changes. If field changes beyond the tolerance specified in Section 5(4) were necessary, the name of the MaineDOT representative and the date of all applicable approvals shall be indicated on the form. All amendments submitted as described above shall be deemed accepted by the MaineDOT unless MaineDOT notifies the Utility otherwise within 60 days of receipt.

B. Facility Locations Authorized Through MaineDOT Projects

Locations of Facilities authorized through MaineDOT Projects are permitted through the coordination process that occurs in the Preliminary Engineering phase of a MaineDOT Project. Through this process, the Utility Coordinator and a representative from the Utility work together to generally determine the best location for the proposed or relocated Facilities. The Utility then designs its Facilities and Appurtenances in accordance with the accommodation standards defined within this manual or as otherwise authorized by MaineDOT. Once all available information regarding the new location of the Facilities is submitted to and accepted by MaineDOT, a Location Permit for the relocated facilities, while not required by statute, will be issued to reflect the change and to evidence the legality of the relocation. This paragraph shall only apply to Facilities that must be relocated as a result of the MaineDOT Project. New Facilities (not replacement Facilities) must be permitted as otherwise described herein. [35-A MRSA § 2503 (8)]

C. Permit-By-Rule (PBR) [17-229 CMR Chapter 205]

The Permit-By-Rule for aboveground Facilities was originally adopted in July 1995 to streamline the procedure for permitting aboveground Facilities. PBR is an alternative to the Statutory Application Process. It allows an application, which is submitted in accordance with the requirements of Chapter 205 of MaineDOT's rules, to automatically become a valid permit within 14 or 30 Days, providing MaineDOT raises no objections. As described in Chapter 205, this process is only available to Utilities proposing to install poles, guys, cables, wires and related aboveground equipment in areas that are not within the Right-of-Way of Controlled Access Highways, Scenic Byways or within the limits of a MaineDOT Project. Facilities properly installed pursuant to these rules are legal and permitted structures. [35-A MRSA §2503(16)]

D. Additional Process For Significant Facility Installations

In addition to the applicable application process described in 5(2)(A) and 5(2)(C), Proposed Installations involving underground Facilities of at least 500 feet in length (excluding new or replacement wires or cables within existing Encasement) or the installation of 25 or more utility poles require evidence of coordination with at least one representative for every Utility having existing or Proposed Installations within the General Location. Coordination may occur individually with each Utility or through Coordination Meeting(s). Coordination Meetings shall be setup by the entity proposing a new project at least one week in advance of the actual meeting date. A reasonable effort shall be made to assure the availability of as many attendees as possible. Additional evidence submitted with the Location Permit application shall include:

(1) Identification of all known Utilities having existing or Proposed Installations in the General Location,

(2) The name and telephone number of each individual associated with each of the Utilities identified in subparagraph (1),

(3) Identification of any major concerns identified by the other Utilities and how each concern will be addressed.

The form which should be used to confirm this coordination is located on MaineDOT's Utility Website as part of the Location Permit application.

3. Lapse of Permit

Permits granted pursuant to these rules shall expire if substantial construction of the Proposed Installation is not commenced within 12 months of the permit date or if construction work is suspended for one or more entire Construction Seasons.

4. Installation in Conformance With a Location Permit

As determined by MaineDOT through its application review process, specific permits may include requirements beyond the minimum standards stated within this policy to the extent necessary to protect the traveling public, minimize conflicts or ensure the efficient use of the Highway corridor. Proposed Installations or replacements shall be installed as permitted. If changes beyond the tolerance of the permit become necessary, the Utility shall notify the Region Engineer or authorized representative and request permission to amend the application or, if a permit has already been issued, request that MaineDOT amend the permit.

Unless otherwise specified in the permit, field changes are considered to be within the horizontal tolerance of the permit providing they comply with all of the following:

A. The offset of the modified location of aboveground Facilities is within 10 feet of the permitted location and no closer to the Highway, or, the offset of the modified location of underground Facilities is within 3 feet of the permitted location;

B. The modified location does not conflict with any existing Facilities, Appurtenances, Highway features (i.e. sidewalks, drainage pipes, Curb, entrances, etc), or other Proposed Installations within the Highway; and

C. The modified location otherwise complies with all standards defined in this policy.

5. Unauthorized Facilities

Any Facility installed within the Highway limits and not in compliance with the terms of its Location Permit, 35-A MRSA Chapter 23, 35-A MRSA Chapter 25, or this policy, is considered an Unauthorized Facility. As such, there is no legal right for that Facility to be located or maintained within the Highway limits unless the location is otherwise authorized by deed or easement. Upon notice from MaineDOT, the entity owning or operating the Unauthorized Facility is fully responsible for correcting any Unauthorized Facility and all Appurtenances as directed by MaineDOT, which may include after-the-fact permitting or removal of the Facility and all Appurtenances.

6. Private Facilities

Since private Facilities located within the Highway limits reduce the available Right-of-Way for public use, there are greater restrictions placed thereupon. Upon receipt of a complete application from a Private Entity and with consideration of the standards provided herein, MaineDOT may issue a Private Facility Exception License to permit a private Facility to exist within the limits of the Highway. Said permit shall only be valid until such time that MaineDOT determines that the Facility interferes with the Highway, its maintenance or any of its uses. The Facility owner shall bear all costs relating to the Facility and any Appurtenances including installation, relocation, adjustment and removal.

Owning a private Facility within the Highway limits does not guarantee continued use.

A. Application

Applications for Private Facility Exception Licences may be obtained from the Utilities Web Site and shall include any applicable information as specified in Section 5(2)(A)(1). First-time applicants are encouraged to contact MaineDOT to review the application requirements. In instances where a Private Facility or Appurtenance is proposed in a Highway in front of property not owned by the applicant, a letter from that abutting property owner stating no objection to the proposed installation shall accompany the application. (Note: A Facility is deemed "in front of" a parcel of property whenever it is located between the centerline of the Traveled Way and the Right of Way line adjacent to the parcel in concern).

B. Crossings

Private Facilities, not directly connected to a Utility distribution system or network or having characteristics that may be detrimental to the highway, will normally be authorized to cross Highways, providing all applicable standards are met as well as any special requirements specified by MaineDOT.

C. Longitudinal Installations

Private installations parallel to and within the limits of the Highway will not normally be authorized. However, where a proposed installation is less than 500 feet in length, MaineDOT will consider each application on a case-by-case basis.

6. FACILITY MAINTENANCE OBLIGATIONS

This section outlines the requirements for all Authorized Entities having Facilities that are either permitted, licensed or deemed legal structures within the limits of state or state-aid Highways or attached to Bridge structures. These requirements are applicable to all new and existing Facilities and Appurtenances.

1. Maintenance of Facilities

Every Authorized Entity is responsible for keeping its Facilities and Appurtenances sufficiently maintained so as not to degrade the integrity of the Highway or reduce the overall level of safety. Any deficiencies in a Facility or Appurtenance that create a potential hazard to the Highway users or maintenance crews shall be promptly corrected upon notice from MaineDOT.

2. Records and Locating Facilities

Every Authorized Entity is responsible for maintaining records regarding the following:

A. The Highway and Municipality in which each Facility is located,

B. Evidence of all applicable permits, easements, deeds, or other applicable rights for any Facilities and Appurtenances within the limits of the Highway,

C. The specific installed location of underground Facilities and Appurtenances within the limits of the Highway.

Authorized Entities not having the records specified above shall be responsible for obtaining that information for MaineDOT to the extent requested by MaineDOT and reasonably necessary for MaineDOT activities.

Authorized Entities are responsible for marking the location of underground facilities and Appurtenances at the request of MaineDOT prior to survey or other preliminary engineering or maintenance activities to ensure the location of these Facilities and Appurtenances is properly considered.

3. Services

Each Utility is responsible for assuring proper adjustment, relocation or repair of any portion of a Service that is located within the limits of the Highway and connected to that Utility's distribution system or network.

4. Out-of-Service Facilities

All Facilities and Appurtenances taken out of service and located either aboveground or attached to Highway Structures shall be removed within 60 days of their last use. If a Utility is required to obtain MPUC approval, the Facilities and Appurtenances may be removed within 60 days of said approval, providing the process is initiated within 60 days of their last use. Underground Facilities and Appurtenances that are taken out of service may remain in their existing locations providing the Authorized Entity retains full responsibility for the Facility and Appurtenances as provided herein. Should a remaining Out-of-Service Facility or

Appurtenance degrade the Highway or interfere with its use, construction or maintenance, the Authorized Entity is responsible for either correcting the conflict or removal of the Facility or Appurtenance at MaineDOT's option.

5. Utility Pole Replacement and Wire Transfers:

Unless otherwise approved by MaineDOT, all wire transfers and removal of replaced poles shall not extend beyond one year from the installation date of the new pole(s). Poles that remain beyond this one-year, maximum tolerance, or otherwise approved completion date, are not considered maintained in accordance with the terms of their permit as specified in 35-A MRSA §2503(6). All replaced poles are deemed Out of Service upon transfer or removal of all wires and/or cables and shall be removed from the Highway limits in accordance with Section 6(4).

6. Maintenance of Traffic

A. State and State-aid Highways

Any work performed by any party within the limits of a state or state-aid Highway, whether new construction, adjustment, or maintenance operations, shall be conducted in a manner to protect the public. Traffic control methods consistent with the current version of the MUTCD shall be consistently implemented to ensure the safe and expeditious movement of the traveling public [23 CFR 645.209]. MaineDOT may specify additional requirements in locations having high traffic, poor geometry or other special considerations.

B. Freeways

On Freeways, additional requirements beyond those provided within the MUTCD may be required. The MaineDOT must approve all work occurring within the Right-of-Way limits of a Freeway in advance. A Traffic Control Plan shall be submitted as part of the application. Additional requirements are specified as follows:

(1) General

(a) Median crossovers shall not be used at any time.

(b) Personal vehicles owned by any of the work area employees shall not access the work area from the Interstate or be parked within the Right-of-Way.

(c) Traffic shall not be interrupted during inclement weather, weekends or periods of heavy traffic

(d) All sign arrays, cones, and flashing arrow boards shall be in place and operating before the start of any other work.

(e) The Authorized Entity shall have a competent individual on site for the entire duration of the work that is familiar with MUTCD standards and is capable of

diagnosing and correcting any traffic problems that may arise as a result of the work.

(f) 48 hours advance notice shall be given to both the Region Engineer and the Maine State Police prior to the start of any work.

(2) Short-Term Wire Crossings

If an Authorized Entity must pull an aerial wire across a Freeway and there is no alternative to briefly interrupting the through traffic, a "Rolling Roadblock" procedure may be utilized in accordance with the following requirements:

(a) Immediately prior to the start of work, all advance signing shall be positioned in accordance with the Traffic Control Plan.

(b) Only the State Police shall stop Interstate traffic. One police cruiser shall be used for each lane of traffic, in each direction.

(c) Traffic shall only be stopped between the hours of 10:00 p.m. and 5:00 am

(d) Traffic shall not be stopped for more than 10 minutes in any 1-hour period.

(3) Underground Crossings by Trenchless Installation Methods

The following shall apply whenever Trenchless Installation Methods are used to cross a Freeway:

(a) No access to the work site will be permitted from the Controlled Access Highway.

(b) Pits will normally be located outside the Right-of-Way limits. If conditions warrant, MaineDOT may elect to allow pits within the Right-of-Way limits, providing no part of the operation encroaches within the Clear Zone limits.

If all work is to occur outside of the Right-of Way limits, work zone signing on the Interstate will not be necessary. If the work is to occur within the Right-of-Way, but outside of the Clear Zone limits, "Work Area Ahead" signs shall be used.

C. Railroad Crossings

Any work performed within the area defined by the crossing of the Highway and the Railroad limits shall also comply with all reasonable requirements of the Railroad Company to ensure the safety of the workers, the traveling public and the safe operations of the trains.

D. Noncompliance

Should any person fail to comply with the requirements set forth above, MaineDOT may suspend the work until the noted deficiency is corrected. When the work being performed is within the Highway limits and not located within the construction limits of a MaineDOT Project, the Region Engineer or authorized representative shall determine when a suspension is warranted. If the work being done is within the construction limits of a MaineDOT Project, the Construction Manager or authorized representative shall determine when a suspension is warranted.

7. Tree Clearing/Trimming

A. General

Authorized Entities are responsible for all work associated with any tree clearing and/or trimming required to install and maintain their Facilities and Appurtenances.

B. Notification

Authorized Entities must notify MaineDOT, in writing, at least 30 days prior to any trimming, cutting, or removal of trees by the Authorized Entity within the Highway limits. Such notification shall include:

(1) the names of the Municipalities where the operations are to be performed,

(2) a description of the maintenance operations,

(3) the name and work phone number of the person(s) responsible for the maintenance operations, and

(4) whether any of the areas listed are on a Scenic Byway.

All notifications shall be sent to the Region where the tree maintenance operation is to be performed. The addresses and corresponding areas for each Region are provided on the Utilities Web Site. If the tree maintenance operations are to be performed on a designated Scenic Byway, then a copy of the notification must be sent to the MaineDOT Director of the Bureau of Maintenance and Operations.

C. Notification Exceptions

When 30 days notice cannot be provided for "hot spot" work or new construction line clearance work that was not anticipated, the Regions may be contacted by phone and the thirty Days notice will be waived. This does not apply to work on Scenic Byways or typical tree maintenance operations on other Highways. Emergency trimming and removal of trees to restore power or communications do not require notification.

D. Herbicide

With the exception of coniferous (softwood) trees, any stumps over 1 inch in diameter that are to remain within the Highway limits shall be treated with an approved herbicide spray mixture by a Certified

Pesticide Applicator and in accordance with State Board of Pesticides Control Regulations unless otherwise restricted by the DEP.

7. SCENIC AREAS

Certain lands are acquired or set aside for scenic enhancement and natural beauty. Such areas include Scenic Byways, scenic strips, overlooks, rest areas, recreation areas, wildlife and waterfowl refuges, historic sites, public parks, and landscaped areas. The Utilities Web Site indicates the designated state and federal Scenic Byways within the State of Maine.

To protect the aesthetic quality of these areas, new Facility installations are not permitted within scenic areas unless the following criteria are met: [23 CFR 645.209]

A. The installation does not require extensive removal or alteration of trees or other natural features visible to the Highway user, or impair the aesthetic quality of the lands.

B. New aerial installations are permitted only if:

1. Other locations or underground construction are not technically feasible, cost prohibitive or less desirable from a visual quality standpoint.

2. The design provides adequate attention to the protection and preservation of the visual qualities of the area in location, materials and methods of construction.

C. Installations for Highway Purposes - All criteria set forth in Paragraphs A and B shall also apply to Facilities needed solely for Highway purposes, such as continuous lighting or services to a safety area, rest area or recreational area.

8. GENERAL LOCATION REQUIREMENTS

This section outlines the general requirements for all Facilities and Appurtenances within the Highway limits. Additional standards that are specific to the type of Facility or the type of Right-of-Way are discussed in subsequent chapters.

1. Design/Construction

The Authorized Entity is fully responsible for the design of any of its Facilities and Appurtenances to be installed within the Highway limits.

A. National Standards: All Facilities and Appurtenances within the Highway limits must also comply with any applicable National Standards. Where those standards differ from what is stated herein, the higher degree of protection shall prevail.

B. Public Laws/Orders: Nothing in this rule is intended to interfere with the applicability or enforcement of any laws, rules, orders of the MPUC, or ordinances consistent with this policy. This specifically includes the Americans With Disabilities Act of 1990 [PL 101-336].

C. Design Life: All permanent Facility and Appurtenance installations on, over, or under the Highway or attached to any Highway Structures shall be of durable materials designed for long service life expectancy with due consideration given to the overall needs of the Highway corridor. Facilities and Appurtenances shall be designed to be relatively free from routine servicing and maintenance.

D. Uniform Alignment: Longitudinal installations shall be designed and installed on as uniform an alignment as possible to minimize potential conflicts and to aid in locating underground Facilities in the future.

E. Minimize Interference: Wherever possible, Facilities and Appurtenances shall be located to minimize the possibility of interference with other Facilities or Highway work.

F. Crossings: To the extent feasible and practicable, Facility crossings of the Highway shall be generally perpendicular to the Highway alignment.

G. Permits: The Authorized Entity is required to secure all permits necessary for the installation, adjustment or maintenance of its Facilities.

H. Cooperation With Other Authorized Entities: Throughout the design and installation of any Facilities and Appurtenances within the Highway limits, Authorized Entities must address the needs of all other Authorized Entities with regard to their existing or Proposed Installations located in the vicinity of another Proposed Installation. This shall include maintaining sufficient offsets from other Facilities and Appurtenances and assuring that all other Authorized Entities have reasonable access to their own Facilities and Appurtenances during construction. Where Authorized Entities are unable to resolve conflicts in accordance with this policy, MaineDOT shall make the final determination.

I. Clearance Between Facilities: The following defines the minimum clearance standards for Facilities within the Highway limits. Greater clearances are encouraged and may be required whenever possible. Authorized Entities are encouraged to undertake joint construction whenever possible, and MaineDOT will generally issue an exception to these standards when all affected parties agree to a lesser requirement that is consistent with the applicable National Standard(s).

(1) Horizontal Clearance Between Longitudinal Facilities: Unless specifically permitted otherwise, a 3-foot minimum horizontal clearance shall be maintained between all underground Facilities and Appurtenances. Measurement between underground Facilities and Appurtenances shall be taken horizontally from the closest edge of the Facility or Appurtenance. Aboveground pole lines (excepting crossings and services) shall also be included in this standard where those poles occupy a reasonably consistent offset. Measurement to a pole line shall be to the nearest face of pole or to the vertical plane established longitudinally through the center of the pole line between poles.

(2) Vertical Clearance Between Facilities: Where underground Facilities must cross other Facilities or Appurtenances; the angle of such crossing shall be as close to 90 degrees as possible, with a minimum vertical clearance of 1 foot. Facilities of one Authorized Entity shall not be constructed longitudinally over or under another Authorized Entity's underground Facilities.

J. Erosion Control and Restoration of Vegetation: Authorized Entities shall stabilize the soil in all work areas within the Highway limits to minimize erosion. Restoration of loam, grass or other landscaping vegetation is required following the completion of Backfill as soon as weather conditions and/or seasons of the year allow. Temporary mulch shall be used until permanent treatments can be applied.

2. Preferred Corridors

To obtain consistency and maximize the use of the Highway, "preferred corridors" have been specified below for each type of Facility. In the process of establishing plans, Authorized Entities are encouraged to utilize these corridors whenever practical.

Type of Facility	Preferred Corridor
Water & Sewer Lines	Under the Traveled Way
Gas Lines	Under the Shoulder
Telephone/Electric Conduit	Under the Shoulder or Sidewalk
Direct-bury Communications	2 feet from ES
Pole Line	As close to R/W limit as practical

9. UNDERGROUND INSTALLATIONS

1. General

A. Depth of Cover

The minimum depth of Cover for any Facility within the right of way limits is 36 inches. Additional requirements are specified herein for each type of Facility.

Any wires, pipes, conduits or cables that are presently located within the Highway limits at a depth of less than 1 foot and not specifically permitted to be at that depth, shall be relocated in accordance with this policy.

B. Encasement

Casings shall be used under Bridge approach slabs and in close proximity to Highway Structure footings. Due to the wide variety of designs and the differing schedules for construction or maintenance, MaineDOT will need to determine Casing requirements near footings on a case-by-case basis. Where Encasement is to be employed in other areas, such Encasement shall be provided under center Medians and within the Pavement Structure limits to a point beyond the ditch line for cut sections, 5 feet beyond the toe of slope for fill sections, or 5 feet beyond the face of Curb on urban section roadways (including side streets). Exceptions for Encasement within a portion of the Median may be approved when excessive Median width or significant changes in the roadway cross-section make a continuous installation impractical.

C. Markers & Detection Aids

(1) Warning Tape: Upon installation, all underground Facilities installed by open cut shall include warning tape, of a color consistent with the APWA Uniform Color Code, located roughly 18 inches directly above and parallel to the entire installation.

(2) Signs: All underground utilities crossing the entire Right-of-Way (from one boundary to the other) shall have a readily identifiable marker installed at each Right-of-Way line crossed to indicate the type of Facility, the name of the owner and a telephone number to call. Signs shall be maintained with current, legible information.

(3) Pedestals: All pedestals shall have a readily identifiable marker installed on each pedestal to indicate the type of Facility, the name of the owner and a telephone number to call. Markers shall be maintained with current, legible information.

(4) Detection Aids: All nonmetallic underground Facilities shall include some metallic component installed directly above, below,

or as an integral part of the Facility to aid in the future detection and location of the Facility.

D. Appurtenances

Aboveground Appurtenances installed as a part of an underground Facility shall be located in accordance with Section 10 - Aboveground Installations.

E. Methods of Installation

(1) Trenchless Installation Methods: All pits associated with Trenchless Installation Methods shall be located as far from the ETW as possible, preferably outside the Clear Zone. Pits shall be located and constructed so as not to compromise public safety or the integrity of any Highway Structure. The bottom of the roadway edge of all pits shall, at a minimum, be located beyond a line created by a 1:1 slope projected down from the ETW. The Region Engineer may require the use of support structures to achieve the proper degree of protection.

(2) Blasting: 24 hours notice must be given to the appropriate MaineDOT Region Office prior to any blasting within the Highway limits. When blasting is to occur within 100 feet of a Highway Structure, prior approval must specifically be obtained from MaineDOT. MaineDOT may require that detailed plans and procedures prepared by a licensed blaster be submitted by the Authorized Entity. Pre-blast surveys may also be specified as a work condition.

(3) Pavement Cuts: Wherever pavement is to be cut, all edges shall be cut neat and reasonably straight.

(4) Backfill/Compaction: Backfill compaction shall equal that of the surrounding soil outside of the Pavement Structure limits. Within the Pavement Structure limits, Backfill and compaction requirements shall be in accordance with the latest edition of MaineDOT's Standard Specifications for Highways and Bridges.

F. Locations of Installations

(1) Undesirable Locations: Locations in deep cuts, near footings of Bridges or retaining walls, within areas of Special Materials, across intersections at grade, across ramp terminals, or in areas where it will be difficult to attain minimum Cover shall be avoided whenever possible.

(2) Clearance from Highway Structures: Vertical and horizontal clearance between any Facility or Appurtenance and a Highway Structure shall be sufficient to permit maintenance of both without interference. Clearances shall comply with Section 8(1)(I).

(3) Road Side of the Utility Pole Line: Mainline underground Facilities should normally be installed on the Traveled Way side of the pole line.

(4) Additional Requirements: The location of any Facilities or Appurtenances may be further restricted by the Region Engineer to insure that a proposed Facility or Appurtenance will not interfere with existing or currently planned Highway construction and/or maintenance activities.

(5) Highway Drainage Pipes: Highway drainage pipes and structures shall be protected during any Facility and Appurtenance installation and maintenance. Utilization of existing drainage pipes as Sleeves is not permitted.

2. Gas, Liquid Petroleum, and Other Hazardous Transmittant Pipelines

A. Cover

Hazardous Transmittant pipelines shall have a minimum Cover of 36 inches.

B. Multiple Lines

In the event that a Utility proposes to install two active Hazardous Transmittant pipelines along the same corridor, the two lines shall be placed one above the other, as reasonably vertical as practicable, considering safe operation and maintenance of the lines. The lower-pressure line shall be installed above the higher-pressure line and must meet the minimum cover requirements as specified in Section 9(2)(A).

C. Vents

One or more Vents shall be provided for each Casing or series of Casing. For Casing longer than 150 feet, Vents shall be provided at both ends. On shorter Casing a Vent shall be located at the high end with a marker placed at the low end. Vents shall be placed at the Right-of-Way line immediately above the pipeline, situated so as not to interfere with Highway maintenance or be concealed by vegetation. Ownership of the lines and an emergency contact number shall be shown on the Vents.

D. Drains

Drains for Hazardous Transmittant pipelines will not be permitted to outfall into drainage ditches, natural watercourses or onto the Highway.

3. Water Lines

A. Cover

The minimum Cover for waterlines shall be 36 inches. The Authorized Entity is responsible to assure that all waterlines are suitably

protected against freezing. All uninsulated water lines shall have sufficient Cover to exceed the depth of frost penetration.

B. Drains

Waterline Encasement or drains may be permitted to outfall into roadside ditches at locations approved by MaineDOT.

4. Sanitary Sewer Lines

A. Cover

Reference "Water Lines", Section 9(3)(A).

B. Drains

Sanitary sewer line Encasement drains shall not outfall into drainage ditches, natural watercourses, or onto the Highway.

C. Manholes

Manholes serving sewer lines up to 24 inches in diameter shall have a minimum inside diameter of 48 inches. For any increase in line size or number of pipes, the inside diameter of the manhole may be increased a like amount. Manholes for large interceptor sewers should be specially designed, keeping the overall dimensions to a minimum. The outside diameter of the manhole chimney at the ground level shall not exceed 36 inches. Any manholes allowed within the pavement shall be set flush with the pavement and will not be in the vehicular wheel path.

5. Electric Supply Lines

A. Cover

The minimum Cover for underground Electric Supply Lines and Services within the Highway limits shall be 36 inches.

B. Conduit

All underground Electric Supply Lines within the Highway limits shall be in steel or PVC Conduit. PVC Conduit shall be encased, above, below and on both sides, with a minimum of 4 inches of concrete, that shall have a minimum compressive strength of 2900 psi and a maximum aggregate size of 1-inch.

C. Services

In addition to complying with all other applicable standards specified herein, Underground Electric Supply Line Services within the Highway limits, shall be in steel or PVC Conduit. Both steel and PVC Conduit shall be encased, above and on both sides, with a minimum of 4 inches of concrete, that shall have a minimum compressive strength of 2900 psi and a maximum aggregate size of 1-inch.

D. Manholes

Manholes shall be limited to those necessary for installation and maintenance of underground lines. The elevation of manhole rims and covers shall be set at finished grade. New manholes will not be permitted within the Traveled Way or Shoulder of a Highway except within urban areas.

To conserve space within the Right-of-Way for the needs of the Highway corridor, manhole vault dimensions should be no larger than is necessary to hold the equipment involved and for safety standards to be assured for maintenance personnel. Outside width should not exceed 7 feet, with the length held to a reasonable minimum. The outside dimensions of a manhole chimney should not exceed the minimum required to support the manhole frame and cover. Manhole covers (for personnel access) shall be installed flush with finished grade and shall not be in the vehicular wheel path. The top of the roof of the manhole vault shall be set to meet a minimum Cover of 36 inches.

6. Communication Lines (Telephone, CATV, etc...)

A. Cover

The minimum Cover for underground Communication Lines within the Highway limits shall be 36 inches for either encased or unencased installations.

B. Manholes

Section 9(5)(D) applies.

10. ABOVEGROUND INSTALLATIONS

1. General

A. Vertical Clearances

The vertical clearance of new overhead lines above Highways and intersecting Public Ways shall be a minimum of 18 feet. When existing roadway elevations are increased, existing overhead Facilities that meet vertical clearances defined within applicable National Standards may be allowed to remain unless otherwise directed by MaineDOT. New or adjusted overhead lines running parallel to the Highway and not crossing intersecting Public Ways shall have a minimum vertical clearance as defined within applicable National Standards.

B. Utility Poles

(1) Pole Construction: Poles within the Highway limits shall be single-pole construction.

(2) Multiple Pole Lines: Multiple Pole Lines are no longer permitted within the Highway limits. Stub poles or service poles that must be located within the Right-of-Way are not considered a separate pole line, but shall conform to all applicable offset criteria. Existing areas having Multiple Pole Lines shall be reduced to a single, joint use pole line whenever:

(a) MaineDOT undertakes any construction project having a scope beyond a Pavement Overlay and existing poles are required to be relocated, or

(b) MaineDOT determines a particular area to present a significant hazard to the traveling public.

If any Authorized Entity undertakes a project in an area with an existing Multiple Pole Line that is separate from a MaineDOT Project and consists of the replacement of ten or more consecutive poles, one of the following must occur:

(a) the owners of the aboveground Facilities must agree to combine their Facilities onto a single pole line as part of the proposed project, or

(b) the Authorized Entity undertaking the pole replacements must install poles of sufficient height to accommodate the other Facilities when they are upgraded.

Existing Multiple Pole Lines, which involve Electric Supply Lines owned by different Authorized Entities, will not be forced to combine onto a single pole line providing all offset criteria are met.

(3) Service Poles: Unless vertical clearances and the local terrain dictate otherwise, all poles used to exclusively provide service to a customer shall normally be installed at or beyond the Highway limits.

(4) Anchors: Utility pole anchors shall not be installed on the Traveled Way side of a pole unless located behind guardrail and in compliance with Section 10(2)(B)(1). Anchors shall be adequately designed and installed to enable shared-use whenever possible with standard utility equipment.

2. Offsets

Aboveground offsets define the horizontal clearance required to provide a Recovery Area and room for adequate Highway maintenance. Although specific offset values are defined herein, it is important to recognize that these offsets are minimum values. Greater setbacks (preferably in accordance with Clear Zone standards) should be provided whenever possible to provide improved safety and to minimize the potential for conflicts with future Highway construction. Unless otherwise noted, all offsets are to the portion of the aboveground Facility or Appurtenance that is below a vertical height of 13 feet and located closest to the Edge of Traveled Way.

Existing aboveground Facilities and Appurtenances that are located within the limits of MaineDOT Projects with a scope greater than a Pavement Overlay shall be adjusted to meet the standards defined in this policy. Existing aboveground Facilities and Appurtenances in other areas that do not presently meet the minimum offset standards may remain in place until MaineDOT determines that those Facilities or Appurtenances present a safety problem or otherwise conflict with the use, construction or maintenance of the Highway.

A. General

(1) Offset From Edge of Shoulder: Unless site-specific conditions pertaining to guardrail, curb or the “2-foot Rule” apply as described under Section 10(2)(B), no offset shall result in an aboveground Facility or Appurtenance being located within 6 feet from the Edge of Shoulder, regardless of whether the surface of the Shoulder is paved or unpaved.

(2) Fire Hydrants: Hydrants shall be of breakaway construction and generally located in accordance with the offsets defined herein. However, where local fire equipment presents limitations, the maximum offset possible may be used, providing it is in accordance with Section 10(2)(A)(1).

(3) Breakaway Devices: Aboveground Facilities and Appurtenances may be permitted within the minimum offsets specified when authorized by MaineDOT, and when a breakaway system is utilized.

(4) Mid-Span Poles: New poles located between two existing poles may be permitted at lesser offsets than defined herein provided that the new pole is "in-line" with the two existing, adjacent poles and that the offset of the new pole is equal to or greater than the smallest offset of the adjacent poles.

B. Site-Specific Conditions

(1) Guardrail: For steel beam guardrail, aboveground Facilities and Appurtenances shall be set back a minimum distance of 3 feet from the back of post. Where space permits, greater offsets are encouraged to facilitate snowplowing. Aboveground Facilities and Appurtenances located behind cable guardrail shall be set back 12 feet or in accordance with the offset standards without guardrail, whichever is less.

(2) Curb: In urban areas with posted speed limits of 35 MPH or less, aboveground Facilities and Appurtenances may be installed 5 feet behind the face of Curb. In locations where insufficient Right-of-Way or other restrictions are present and no other practical solution exists, MaineDOT may elect to allow aboveground Facilities and Appurtenances as close as 1 foot behind the face of Curb.

(3) Ditches: No aboveground Facilities or Appurtenances shall be set in the Flow Area of a ditch. New Facilities and Appurtenances installed in areas with ditches shall generally be installed behind the ditch and at least 2 feet up the Backslope (as measured horizontally) unless the offset of the ditch exceeds the required aboveground offset by at least 8 feet. Existing Facilities or Appurtenances that meet offset standards in the Inslope of a ditch area may be permitted to remain in their present locations until replaced.

(4) Islands/Traffic Circles: Aboveground Facilities and Appurtenances are not permitted in the center island of a traffic circle, roundabout or in traffic islands.

(5) Culverts: Aboveground Facilities and Appurtenances are not permitted within 8 feet of the end of any culvert.

(6) Restricted Right-of-Way: If a Highway segment has not experienced 3 or more crashes relating to aboveground Facilities and Appurtenances in the past 3 years, and there is insufficient Right-of-Way to attain the minimum offset requirements defined herein, MaineDOT may elect to permit aboveground Facilities as close as practicable to the existing Right-of-Way limits.

(7) Urban Areas With No Curb: Aboveground offsets may be limited to that specified in Section 10(2)(A)(1), *Offset From Edge*

of Shoulder, in urban areas with speed limits of 35 MPH or less when Curb is not present.

(8) MaineDOT Projects

(a) Resurfacing Projects: Offsets for existing aboveground Facilities and Appurtenances may be limited to 10 feet from the Edge of Traveled Way or as stated in 10(2)(A)(1), *Offset From Edge of Shoulder*, whichever is greater, whenever MaineDOT undertakes a Highway project greater than a Pavement Overlay scope.

(b) "2-foot Rule": When aboveground offsets are reviewed for compliance in conjunction with a MaineDOT Project, MaineDOT may elect to allow a Facility or Appurtenance to remain at an offset of up to 2 feet less than the required minimum providing the existing location complies with the following:

(i) The existing Facility or Appurtenance does not conflict with the Highway construction or any of the permanent Highway features*;*

(ii) The existing Facility or Appurtenance does not conflict with any other standard defined in this policy.

(iii) The existing Facility or Appurtenance has not been involved with past run-off-the-road crashes.

C. Corridor Offsets

The following defines the standard offsets that apply to a given corridor whenever the site-specific conditions described in Section 10(2)(B) are not applicable. Maps that identify the classification of all state and state-aid Highways are available on the Utilities Web Site.

(1) National Highway System (NHS)

The aboveground offset standards applicable to all non-breakaway Facilities and Appurtenances along Highways in the National Highway System shall comply with Clear Zone standards as prescribed in Volume One, Maine Highway Design Guide.

(2) State Standards Tables (Non-NHS Highways)

The following tables define the minimum offsets for all aboveground Facilities and Appurtenances located along rural, non-NHS Highways. These standards are based upon the classification of the Highway and the highest AADT anticipated within the life of the Facility.

Minor Collector Highways

Design Year AADT	Paved Width	Typical Section feet	Min Pole Offset from ETW
Under 1000	24 feet.	12 - 12 ETW at: 10	**8 feet**
1000 to 4000	28 feet	14 - 14 ETW at: 11	**9 feet**
Over 4000	*Ref. Major Coll.*	*Ref. Major Coll.*	***Ref. Major Coll.***

Major Collector Highways

Design Year AADT	Paved Width	Typical Section feet	Min Pole Offset from ETW
Under 1000	24 feet	12 - 12 ETW at: 10	**10 feet**
1000 to 4000	28 feet	14 - 14 ETW at: 11	**10 feet**
4000 to 6000	30 feet	15 - 15 ETW at: 11	**10 feet**
Over 6000	36 feet	6 - 24 - 6 ETW at: 12	**15 feet**

Minor Arterial Highways

Design Year AADT	Paved Width	Typical Section feet	Min Pole Offset from ETW
Under 1000	28 feet	14 - 14 ETW at: 11	**(10 feet)**
1000 to 6000	*Ref. Major Coll.*	*Ref. Major Coll.*	***Ref. Major Coll.***
6000 to 8000	36 feet	6 - 24 - 6 ETW at: 12	**20 feet**
Over 8000	40 feet	8 - 24 - 8 ETW at: 12	**20 feet**

11. CONTROLLED ACCESS HIGHWAYS

For the purposes of this policy, Controlled Access Highways are separated into two categories: Freeways and non-Freeways.

1. Freeways

A. New Utility Installations Along Freeways

New Facilities will not normally be permitted longitudinally within Freeway COA. Where special circumstances exist, MaineDOT may elect to permit such installations under strictly controlled conditions.

Where such longitudinal installations are requested, the Authorized Entity must demonstrate to MaineDOT's satisfaction:

(1) That the accommodation will not adversely affect Highway and traffic safety.

(2) That alternate locations are not available or cannot be implemented at reasonable cost, from the standpoint of providing efficient service in a manner conducive to safety, durability, and economy of maintenance and operations; that the accommodation will not adversely affect the design, construction operation, maintenance, or stability of the Freeway; and that it will not interfere with or impair the present use or future expansion of the Freeway.

(3) That the accommodation satisfies the conditions of Section 11(1)(D), *Access for Constructing and/or Servicing Utilities*.

(4) That the accommodation will be shown to be in the substantial public interest of the State of Maine.

All longitudinal accommodations as may be warranted herein shall only be in accordance with a valid Location Permit. Where longitudinal installations must traverse interchange areas, they shall be located and treated in the same manner as Facility crossings within interchange areas, as in Section 11(1)(C).

Service connections to adjacent properties shall not be permitted from longitudinal installations located within the Freeway COA.

B. Existing Facilities Along Proposed Freeways.

Where a Facility or Appurtenance already exists within the proposed Right-of-Way of a Freeway, and it can be serviced, maintained and operated without access from the through traffic roadways or ramps, it may remain as long as it does not adversely affect the safety, design, construction, operation, maintenance or stability of the Freeway.

Otherwise, it must be relocated, except for special cases as covered by Section 11(1)(A).

C. Facilities Crossing Freeways

New Facilities and adjustments or relocations of existing Facilities may be permitted to cross a Freeway. To the extent feasible and practicable they should cross on a line generally normal to the Freeway alignment and preferably under the Freeway.

(1) Facilities Along Roads or Streets Crossing Freeways

Where a Facility follows a crossroad or street that is carried over or under a Freeway, provision should be made for the Facility to cross the Freeway on the locations of the crossroad or street in such manner that the Facility could be constructed and/or serviced without access from the Freeway or ramps. Generally the Facilities and Appurtenances are to be located within the Right-of-Way of the crossroad or street, existing or relocated, and may cross over or under the Freeway or be carried on or through the grade separation structure as may be authorized, provided installation and servicing thereof can be accomplished without access from the through-traffic roadways or ramps. Where distinct advantage and appreciable cost saving is effected by locating the Facilities or Appurtenances outside the Right-of-Way of the crossroad or street they may be so located, in which case they shall be located and treated in the same manner as overhead Facilities crossing the Freeway at points removed from grade separation structures as in subparagraphs (2) and (3) which follow.

(2) Overhead Facility Crossings

Overhead Facilities crossing a Freeway at points removed from grade separation structures, or those crossing near a grade separation but not within the Right-of-Way of a crossroad or street, in general, should be adjusted so that supporting structures are located outside the COA. In any case supporting poles shall:

(a) Not be placed within the appropriate Clear Zone.

(b) Not be located within a Median of 80 feet or less in width.

(c) Not impair sight distance from any point on the through roadway or ramps.

The vertical clearance to overhead Facilities crossing Freeways shall be the greater of 20 feet or as required by the National Electrical Safety Code, ANSI C2, Institute of Electrical and Electronics Engineers, Inc.

(3) Underground Facility Crossings

Facilities crossing underground below the Freeways shall be of durable materials and so installed as to virtually preclude any necessity for disturbing the roadways to perform maintenance or expansion operations. The design and types of materials shall conform to appropriate National Standards. Manholes and other points of access to underground utilities shall be located outside the Right-of-Way limits.

(4) Provisions for Expansion of Facilities

When existing Facilities are relocated or adjusted in conjunction with construction of a Freeway, provisions may be made for known and planned expansion of the Facilities, particularly those underground. They should be planned to avoid interference with traffic at some future date when additional or new overhead or underground Facilities and Appurtenances are installed.

D. Access for Constructing and/or Servicing Facilities

In general, Facilities and Appurtenances are to be located and designed in such a manner that they can be constructed and/or serviced without direct access from the through roadways or connecting ramps. Such direct access shall not be permitted except for special cases where alternate locations and/or means of access are unavailable or impractical due to terrain and/or environmental constraints, and such use will not adversely affect safety or damage any part of the Highway. Where direct access is requested for the Interstate System, a permit must be obtained from MaineDOT and coordinated with the FHWA for approval.

Access for construction and/or servicing a Facility 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, connecting only to an intersecting road, from any one or all of which entry may be made to the outer portion of the Freeway Right-of-Way. Subject to 23 USC 111, a locked gate along with COA fence may be utilized to meet periodic service access needs. Where a gate is allowed, it will be documented by an approved permit that will include adequate provisions against unauthorized use.

In those special cases where supports, manholes, or other Appurtenances are located in Medians, interchange areas, or otherwise inaccessible portions of Freeway Rights-of-Way, access to them from through-traffic roadways or ramps 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 roadways or ramps.

Where Facilities and Appurtenances are located outside the COA line and where such Facilities and Appurtenances may require maintenance from within the Freeway Right-of-Way, a permit must be obtained from MaineDOT.

All permits shall include adequate provisions for COA to the Facility work zone, direction of traffic and protection of workers and the traveling public. Advance arrangements should also be made between the Authorized Entity and MaineDOT for emergency maintenance procedures.

E. Manner of Making Utility Installations and Adjustments

In general, Authorized Entity installations and adjustments are to be made with due consideration to Highway and Authorized Entity costs and in a manner that will provide maximum safety to the Highway users, will cause the least possible interference with the Highway facility and its operation, and will not increase the difficulty of or cost of maintenance of the Highway.

F. Special Case Underground Point-to-point Facilities

Anything herein to the contrary notwithstanding, upon a determination that it is in the best interest of the State to do so, MaineDOT may grant non-exclusive permits allowing the longitudinal underground installation of transmission or backbone Facilities and Appurtenances within the rights-of-way of Freeways.

(1) MaineDOT may negotiate agreements and receive compensation for the use of Freeway rights-of-way to install such Facilities.

(2) Upon a determination that it is in the best interest of the State to do so, MaineDOT may waive the requirements of Section 11 (1) (A) (2) with regard to the availablility of alternate locations.

(3) All other applicable provisions of this Chapter regarding the siting, installation and maintenance of such Facilities shall apply.

2. Non-Freeways

Non-Freeway Controlled Access can vary from small segments along a Highway to entire corridors, such as a bypass. In general, Facilities within these Controlled Access areas will be treated in the same manner as Freeways. However, based upon the specific conditions involved, MaineDOT may consider allowing longitudinal installations.

A list of Non-Freeway Controlled Access areas is available on the Utilities Web Site.

12. BRIDGES AND OTHER HIGHWAY STRUCTURES

1. General

Where other arrangements are not feasible, MaineDOT will consider permitting attachment of Facilities on Highway Structures. Each such attachment will be considered on an individual basis, and permission to attach will not be considered as establishing a precedent for granting subsequent requests for attachment. The following requirements are established for attachment to any Highway Structure:

A. *P.E. License & Certification:* A Maine Licensed Professional Engineer shall design all proposals for attachments to Highway Structures in accordance with the latest AASHTO standards. In the case of Bridges, each design proposal shall be fully evaluated in accordance with the latest edition of AASHTO *LRFD Bridge Design Specifications* or AASHTO *Standard Specifications for Highway Bridges, 16th edition* and the Maine Department of Transportation Bridge Design Manual (as applicable) to assess the effect of the attachment(s). A statement certifying that the additional loading will not exceed allowable limits is required as part of the design submittal.

B. *Out-of-Service Facilities:* All Facilities that are taken out-of-service shall be removed in accordance with Section 6(4). If any such Facilities are not removed, MaineDOT may elect to remove such Facilities at the Authorized Entity's expense.

C. *Other Applicable Permits:* Authorized Entities are responsible for acquiring any and all permits that may be applicable to their proposed work. Some of the applicable permits may include:

(1) *Coast Guard Permits:* A Coast Guard permit or notification may be required whenever the proposed work will occur over a navigable waterway.

(2) *Railroad Permits:* Work permits may be required for any work done over, under or near a Railroad and are obtained directly from the Railroad Company.

(3) *Environmental Permits:* Permits may be required by the Natural Resources Protection Act (NRPA) administered through the Department of Environmental Protection (DEP), Shoreland Zoning, Army Corps and others.

D. *Identification Tag:* A permanent tag shall be affixed to each end of the attached Facility identifying the Authorized Entity, the type of attachment, and a contact telephone number. All tags shall be maintained in a legible condition with current information.**E.** *Electric Supply Lines /Communication Lines:* Communication and Electric Supply Lines shall be suitably insulated, grounded, and carried in protective Conduit or pipe

from the point of attachment to the point of exit per applicable National Standards.

F. *Hazardous Transmittants:* Mutually Hazardous Transmittants shall be isolated by compartmentalizing or by auxiliary Encasement of incompatible carriers. This shall include Electric Supply Lines, gas lines, effluent lines and sanitary sewer lines.

G. *Casing Vents:* Where a pipeline on or in a structure is encased, the Casing shall be effectively opened or Vented at each end to prevent possible buildup of pressure and to detect leakage of gases or fluids.

H. *Unencased Attachments:* Where a Casing is not provided for a pipeline on or in a structure, additional protective measure shall be taken, such as employing a higher factor of safety in the design, construction and testing of the pipeline than would normally be required for encased construction.

I. *Pipeline Shutoffs:* Pipeline shutoffs, preferably automatic, shall be required within close proximity of attachments unless other sectionalizing devices can isolate segments of the lines. Shutoff valves shall be located on both sides of a Highway Structure footing.

J. *Brackets/Bolt Material:* For painted steel structures, all brackets and bolt material in contact with the structure shall be hot-dipped galvanized. For weathering steel (ASTM A588, A709, etc…), all brackets and bolt material shall also meet an applicable ASTM weathering steel designation.

K. *Connection Type:* All attachments shall be bolted. Bolt holes are normally drilled 1/16 inch larger than the bolt diameter. No stainless steel bolts shall be used except on concrete or timber structures.

L. *Welding:* Welding to steel components is not permitted.

2. Bridges

The following standards are specific to Bridges and in addition to the General Standards listed above.

A. General

(1) *First Girder/Beam:* All Facilities attached to a Bridge shall not be located outside the first girder or beam, except for precast box beam and voided slab as long as they were originally designed for Facility installation.

(2) *Precast & Truss Bridges:* Attachments that are not incorporated in the original Bridge design will not be permitted on either precast concrete Bridges or on the main truss members of a truss Bridge.

(3) *Vertical Clearances:* Vertical clearances for any Highway or Railroad overpasses or for Bridges over navigable waters shall not be reduced.

(4) *Conduits in New Bridges:* When a request is made during the design phase of a proposed Bridge, MaineDOT may allow Conduits to be incorporated into the construction of the Bridge. The Authorized Entity will be responsible for the additional costs relating to such accommodation. Facilities shall not be allowed in the bridge sidewalk, bridge rail or hollow bridge members that are not of sufficient size to allow maintenance personnel to maintain the structure while protecting the Facility.

(5) *Connections to the Bottom of Bridge Decks:* No Facility connections shall be allowed to the bottom of the bridge deck.

B. Connection Requirements

(1) *Flanges/Webs:* Drilled holes in the web area, which are located at least 6 inches from the flanges, are permitted. Attachments to the flanges are not permitted.

(2) *Diaphragms:* For any attachments located between two steel beams, replacement of the diaphragms with Facility support brackets may be permitted, provided the replacement is equal in strength to the original and of compatible materials.

(3) *Holes through Abutments:* Any holes through concrete abutments shall be core drilled and sealed with a waterproof seal, such as a link seal, to prevent water leakage and migration of fines.

(4) *Approach Slabs:* Cutting through concrete approach slabs may be permitted providing the slab is repaired to achieve the same strength as the original design. The method of these proposed repairs are to be reviewed and accepted by MaineDOT.

(5) *Electric Supply Lines /Communication Lines:* Buried cable shall be carried to a manhole located beyond the backwall and/or approach slabs of the Bridge. Carrier and Casing pipe should be suitably insulated from Electric Supply Line attachments.

(6) *Clearances:*

(a) A minimum offset of 12 inches from any point on the main carrying members (flanges & webs) and substructure units (foundations) to the edge of the outer face of the pipe or insulation is required. Additional clearance may be required for smaller beams or Facilities over 12 inches to ensure adequate access for future maintenance.

(b) Brackets shall be located a minimum of 6 inches above the bottom flange of the steel beams to allow sufficient clearance for rolled staging.

(c) A minimum 2-foot clearance is required on at least one side of any Facility attachment located between beams to allow access for maintenance.

(d) Any attachments to concrete members (such as abutments, piers, and concrete slab superstructures) require a minimum 12-inch clearance.

3. Buried Highway Structures

1. *Clearance:* For buried Highway Structures, the preferred location for any Facilities is at the edge of the right of way or at least 15 feet upstream or downstream from the end of the structure. If it is not possible to be located in this manner and the Facility must be buried in the roadway, a 12 inch vertical clearance from the structure to the Facility is required.

2. *Additional Design Requirements:* All Facilities and Appurtenances must be located and designed to allow reasonable replacement of Highway Structures. In most cases, excavation slopes will be at least 1.5:1. For example: a 10 foot pipe with 3 feet of fill will necessitate an excavation width at the roadway surface of at least 50 feet in length. Facilities installed within such areas shall be designed and constructed with due consideration given toward providing temporary support of the Facility during replacement or repair of the Highway Structure.

13. EXCEPTIONS & APPEALS

1. Exceptions

MaineDOT may authorize an exception to any provision of this rule whenever it determines that an exception will best serve the purpose of the Highway corridor, or that compliance with the requirement would be unduly burdensome, and granting the exception would not undermine the purpose of this rule. Some considerations that may contribute to such a decision include:

A. Application of the standards presents an exceptional hardship or unreasonable cost under the circumstances;

B. A unique situation exists which could not have been anticipated or considered in the development of this rule;

C. All affected parties, as determined by MaineDOT, jointly agree to a lesser requirement that is supported by applicable National Standards; or

D. The requirements stated herein exceed the limits of the available Highway corridor.

In instances where an applicant initiates a request for an exception, MaineDOT may require supporting documentation that any other location is extremely difficult and unreasonably costly to the consumer, and that the installation will not adversely affect the design, construction, stability, traffic safety or operation of the highway. Requests for exceptions shall be in writing stating the reasons for the deviation from the policy. This written request must accompany the application for a Location Permit and be transmitted to the Region Engineer for action.

2. Appeals

The applicant has the right to appeal a negative finding for an exception. All appeals shall be submitted in writing to the MaineDOT Director of the Bureau of Maintenance and Operations, detailing the reason for the exception and specifically requesting an appeal to the previous finding. MaineDOT will review the request, and a final decision will be issued in writing.

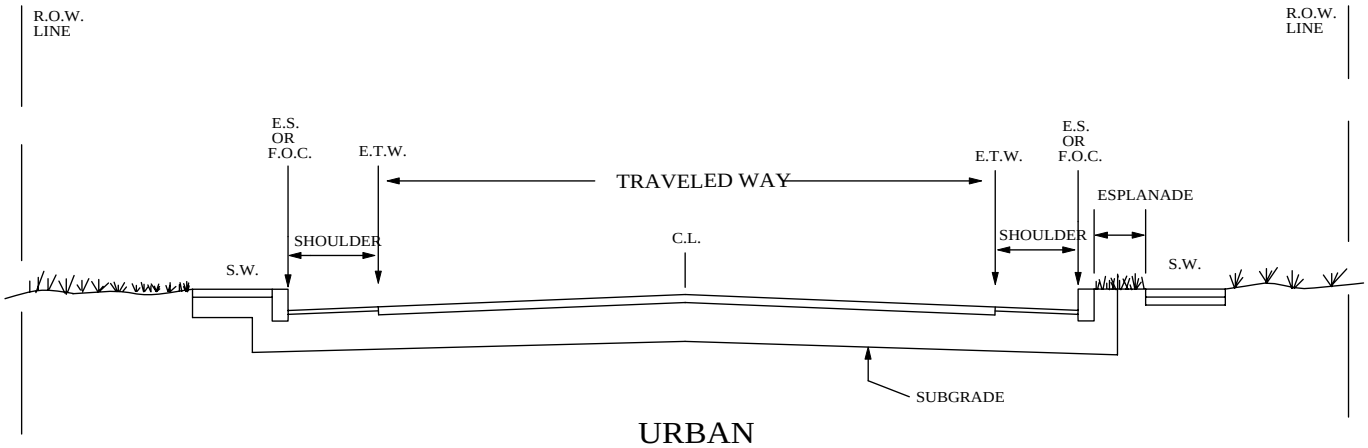
3. FHWA Approval

Requests for exceptions on Scenic Byways, the NHS, the Interstate System, or other areas involving federal aid may be subject to FHWA approval.

APPENDIX

Typical Cross Section Elements

TYPICAL CROSS SECTION ELEMENTS



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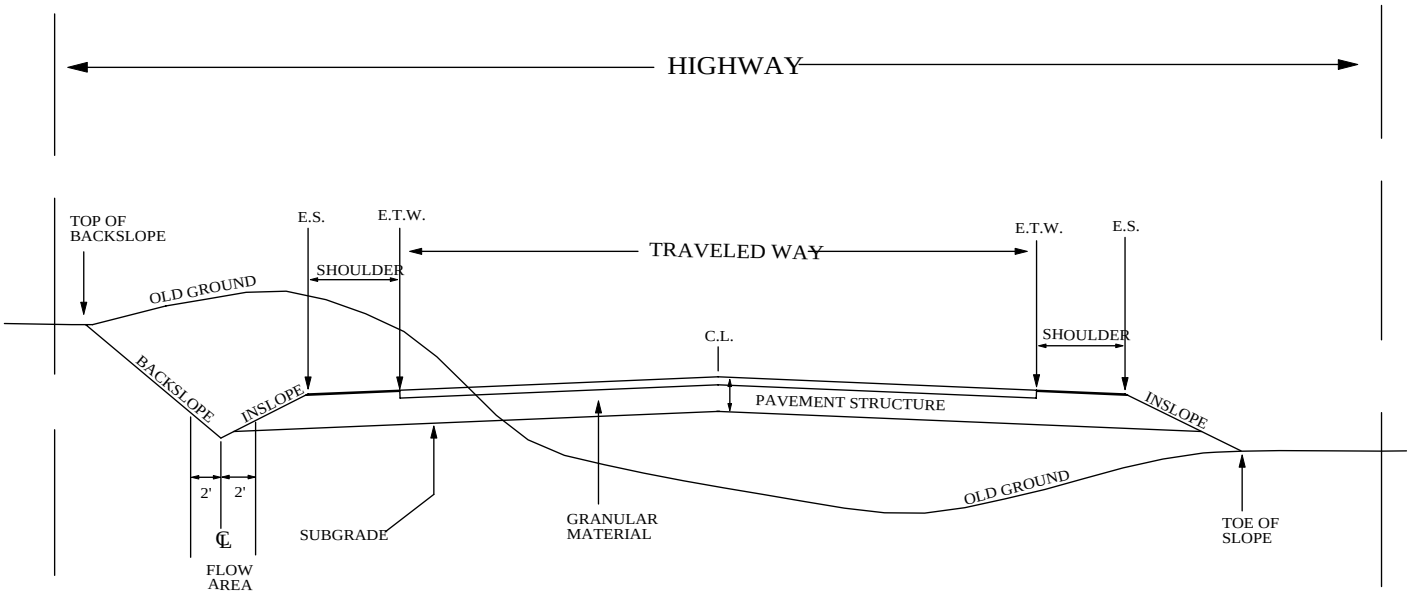
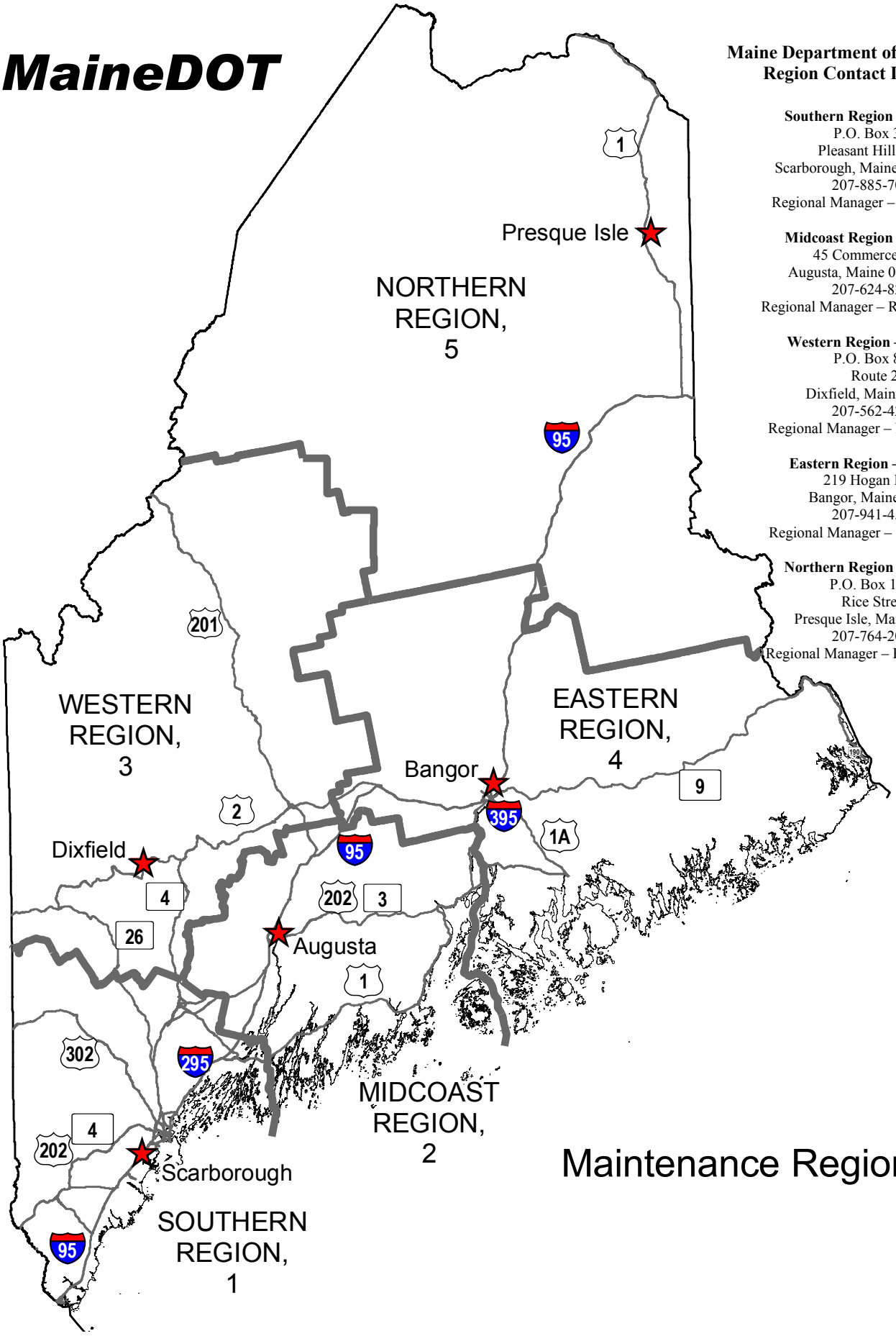


RURAL

MaineDOT



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Edwards AND Kelcey

Maryland Department of Transportation

Strategy for Accommodating Fiber Optics Along Maryland Highway Rights-of-Way

Strategy Principles and Background Information

FINAL REPORT

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Introduction

The Maryland Department of Transportation (MDOT) accommodates fiber optic installations along state highway rights-of-way (ROW) through a resource-sharing program that was established in 1994.[1] Due to the strategic value of the Department's ROW from a regional and national long-haul network perspective, MDOT has received numerous requests for ROW access, often for corridors that have already been developed with fiber optic facilities. In an effort to more efficiently manage the accommodation of fiber optics along highway ROW and to minimize the impacts on highway operations, MDOT has adopted this *Strategy for Accommodating of Fiber Optics along State Highway Rights-of-Way.*

The Strategy does not establish any policy, legislative or legal requirements. Rather it is intended to provide guiding principles that help to ensure that the Department appropriately balances various program objectives in a manner that is consistent with federal and State requirements as well as the State's existing solicitation process.

The overall goal of the Strategy is to effectively respond to requests for ROW access while minimizing the frequency of installations and the associated impacts on the traveling public. Specific objectives include the following:

- Facilitate deployment of telecommunications infrastructure along Maryland limited access highway ROW in exchange for fair and reasonable compensation for ROW access;
- Accommodate multiple vendors within the ROW while minimizing ROW disruptions and the need for multiple installations;
- Address MDOT and State telecom needs; and
- Comply with all federal and State legal requirements.

This document is divided into three sections. The first section presents an overview of the key Strategy Principles that MDOT will consider when negotiating future fiber optics agreements. The second section presents background research that supports these Principles. The third section provides a Checklist of issues and tasks that must be addressed when the State receives a proposal for installation of fiber optics facilities along State highway ROW.

Recognizing the dynamics of the telecommunications industry, it is important that this Strategy be viewed as a "living" document that evolves over time in response to changing dynamics of the industry as well as changing needs and priorities of the Department.

[1] The Maryland Department of Budget & Management entered its first resource-sharing agreement in 1994. The Department issued the "Statewide Communications Resource Sharing Solicitation" on October 29, 1996. This solicitation was revised and reissued on January 25, 2000 and will remain open until January 24, 2005.

Strategy Principles

Legal Requirements

MDOT will continue to comply with all State and federal legal requirements associated with the accommodation of fiber optics along limited access highway ROW, including particularly the Telecommunications Act of 1996 (Telecom Act). Due to the evolving nature of utility accommodation and telecommunications law, MDOT recognizes that it must evaluate its program regularly to ensure that it maintains compliance in this dynamic legal landscape.

Consistency with FHWA Guidance

MDOT will continue to manage its ROW occupancy in a manner that is consistent with the Federal Highway Administration (FHWA) Guidance on Longitudinal Telecommunications Installations on Limited Access Highway Rights-of-Way[2]. It is recognized that each arrangement is unique and certain elements of a particular arrangement may not conform entirely to the Guidance recommendations. This should be acceptable so long as the appropriate balancing of Telecom Act competitiveness requirements and ROW management requirements is achieved.

Right-of-Way Access Restrictions

MDOT will continue to manage access to limited access highway ROW in a manner that maintains the safety of the traveling public. MDOT reserves the right to (a) prohibit access to certain stretches of ROW that it deems unsuitable for telecommunications accommodation due to potential safety impacts and (b) restrict installations to one time – consistent with the FHWA Guidance – in areas where the installation occurs within the clear zone.

Location Requirements

MDOT will consider the location of longitudinal installation of telecommunications facilities following the general criteria summarized in Section F of the State Highway Administration (SHA) Utility Policy.[3] Within these parameters, MDOT provides the following location prioritization. Justification must be provided by the Offeror to move to a lower priority level. Listed below, in descending order of preference, are locations that SHA will consider for longitudinal telecommunications facility installation:

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[2] 66 Fed. Reg. 6753.

[3] Maryland Department of Transportation, State Highway Administration, Utility Policy, Issued July 1989 (Revised 1998), or latest revision.

1. Along the fence line, outside the clear zone, with off-ROW access for ingress and egress.
2. Outside of sound walls, with off-ROW access for ingress and egress.
3. Along the fence line, outside the clear zone, without off-ROW access, following SHA prioritization for wireless sites.
4. Along the fence line, inside the clear zone, with off-ROW access for ingress and egress.
5. Along the fence line, inside the clear zone, without off-ROW access, following SHA prioritization for wireless sites.
6. Inside of sound walls, inside the clear zone, with off-ROW access for ingress and egress.
7. Along the shoulder, inside the clear zone, with off-ROW access for ingress and egress.
8. Inside of sound walls, inside the clear zone, without off-ROW access, following SHA prioritization for wireless sites.
9. Along the shoulder, inside the clear zone, without off-ROW access, following SHA prioritization for wireless sites.
10. Along the median, outside the clear zone, with access from the nearest shoulder of the mainline as geography and topography permits.
11. Along the median, inside the clear zone, with access from the nearest shoulder of the mainline as geography and topography permits.

Any proposed installations that take exception to MDOT's Policy will require additional approval by the Deputy Administrator/Chief Engineer for Operations and FHWA.

Compensation

MDOT will negotiate compensation type, amount, terms and conditions on an individual agreement basis. Compensation will be based on (a) MDOT needs, (b) facility location, size and type, and (c) other factors relevant to each individual agreement. MDOT may receive in-kind and/or cash compensation in exchange for access to MDOT highway ROW. MDOT will continue to charge fair and reasonable compensation for ROW access and manage access in a neutral and non-discriminatory manner, consistent with the requirements of the Telecom Act and all applicable federal and State laws.

Communications Needs

Upon receipt of a proposal, MDOT will evaluate the State and Department's communications needs along the proposed route or routes. These needs will establish the basis for negotiation of barter compensation. MDOT will also identify any existing excess capacity installed along the route(s) proposed by Offeror that may address the Offeror's needs in lieu of installation of new facilities.

Excess Capacity and Co-Build Requirements[4]

Excess capacity and co-build requirements will be established for agreements where MDOT plans to limit installation to one-time, in accordance with the FHWA Guidance. Specifically, for "one-time" installations MDOT will require installation of excess conduit and/or fiber capacity for lease to 3rd parties on a neutral and non-discriminatory basis. It will be the responsibility of the Offeror to determine excess capacity requirements along its proposed route and provide documentation (e.g., market research) to justify this determination.

In addition to excess capacity requirements, MDOT also requires vendors to advertise the opportunity to co-build during the installation process. Specifically, vendors will be required to advertise for at least three (3) months prior to the commencement of construction that there is an opportunity (on a cost-sharing basis) to install additional facilities along the specified route, in conjunction with the Offeror's trenching and installation.

Support Facilities and Maintenance Requirements

MDOT will consider accommodation of aboveground support facilities (e.g., individual and/or multi-tenant points-of-presence) on an individual agreement basis and determine areas that may be suitable for such locations along each route. MDOT reserves the right to charge additional compensation for the utilization of MDOT properties for the installation of aboveground support facilities.

Relocation

MDOT will maintain the policy articulated in its Utility Policy[5] and Master Permit Agreement[6] that requires telecommunications companies to pay for the relocation of any longitudinal fiber optic installations along highway ROW. The Department reserves the right to make an exception to this policy during individual agreement negotiations as circumstances warrant.

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[4] It is important to reiterate that excess capacity and co-build requirements are only triggered when MDOT plans to restrict future access to any given corridor. In areas where MDOT plans to allow future installations, excess capacity and co-build is not required for Telecom Act purposes.

[5] Maryland Department of Transportation, State Highway Administration, Utility Policy, Issued July 1989 (Revised 1998), or latest revision.

[6] Maryland Department of Transportation, State Highway Administration, "Master Permit Agreement."

Background Research to Support Strategy Principles

This section summarizes issues and options related to the Strategy Principles defined above.

Legal Requirements

Section 253 of the Telecom Act outlines requirements that relate to shared resources projects. How has Section 253 been interpreted by the FCC and the courts?

The Telecommunications Act of 1996 (the "Telecom Act") amended the Telecommunications Act of 1934 (47 U.S.C.), and ushered in a new era of open competition in which, it is hoped, competitive market forces, rather than government agencies, will regulate the telecommunications industry and produce improved technology and service at lower cost. However, in order to permit a competitive telecommunications marketplace to take root and evolve, the Telecom Act, among other things, established certain limitations on state and local actions regarding telecommunications companies.

Section 253 of the Telecom Act[7] sets forth the primary legal principles and limitations which govern how MDOT will structure and administer its program for the use of State highway ROW for the installation, operation and maintenance of telecommunications facilities, including fiber optic conduit and cable systems. Briefly, Section 253 forbids state and local laws or policies that "may prohibit or have the effect of prohibiting the ability of any entity to provide any ... telecommunications service" (Section 253(a)). Exceptions to this general prohibition are provided, including the power of state and local governments "to manage public rights-of-way ... [and] to require fair and reasonable compensation from telecommunications providers ... for use of public rights-of-way" (Section 253(c)).

So far, decisions of the Federal Communications Commission (FCC) and decisions of both federal trial and appellate courts have focused on the balance between, on the one hand, state and local governments' rights to manage public ROW and to receive compensation for their use and, on the other hand, the right of telecommunications carriers to be free from laws which prevent them (or have the effect of preventing them) from providing any telecommunications service. In other words, when does the management of ROW become so obtrusive – or the demanding of compensation become so economically prohibitive – that it crosses the line into preventing (or having the effect of preventing) a telecommunications carrier from providing a telecommunications service? FCC and court decisions regarding Section 253 establish a basic set of principles that help clarify the balance between the rights of governments to manage public ROW and other government property and to charge compensation for their use, and the rights of carriers to be free from prohibitive regulations.

[7] 47 U.S.C. §253. Hereinafter, all references to sections refer to sections are to sections of 47 U.S.C.

Section 253 establishes fundamental federal constraints on actions of state and local governmental entities in dealing with telecommunications providers. Sections 253 (a), (b), (c) and (d) provide in relevant part as follows:

> "(a) In General. No State or local statute or regulation, or other ... requirement, may prohibit or have the effect of prohibiting the ability of any entity to provide any ... telecommunications service.
> "(b) State Regulatory Authority. Nothing in this section shall affect the ability of a State to impose, on a competitively neutral basis ..., requirements necessary to ... protect the public safety and welfare, ensure the continued quality of telecommunications services, and safeguard the rights of consumers.
> "(c) State and Local Government Authority. Nothing in this section affects the authority of a State or local government to manage the public rights-of-way or to require fair and reasonable compensation from telecommunications providers, on a competitively neutral and nondiscriminatory basis, for use of public rights-of-way on a nondiscriminatory basis, if the compensation required is publicly disclosed by such government.
> "(d) If, after notice and an opportunity for public comment, the Commission determines that a State or local government has permitted or imposed any statute, regulation, or legal requirement that violates subsection (a) or (b) of this section, the Commission shall preempt the enforcement of such statute, regulation, or legal requirement to the extent necessary to correct such violation or inconsistency."[8]

Section 253 forbids any governmental requirement which prohibits or has the effect of prohibiting competition in providing telecommunications services (Section 253(a)). The section grants an exception, which preserves the exercise of traditional police powers by states, provided the state action is necessary and competitively neutral (Section 253(b)). The section also grants an exception which preserves the traditional right of governmental entities to manage public ROW and to charge compensation for use of the ROW, provided the use by competitors is non-discriminatory and the compensation charged is fair, reasonable, competitively neutral, non-discriminatory and publicly disclosed (Section 253(c)).

To date, there have been no challenges to shared resources projects with <u>state</u> transportation agencies that have made it to court. However, there are a number of court decisions that indirectly impact these programs. Specific cases that lend to interpretation of critical elements of Section 253 – those that relate to "fair and reasonable" compensation and "neutral and non-discriminatory access" – are discussed later in this document.

[8] 47 U.S.C. §§253(a) - (d).

Minnesota Petition

The most relevant guidance on shared resources projects to date is provided by the FCC in a Memorandum of Opinion and Order in response to the "Petition of the State of Minnesota for a Declaratory Ruling Regarding the Effect of Section 253 on an Agreement to Install Fiber Optic Wholesale Transport Capacity in State Freeway Rights-of-Way."[9] Specifically, the State of Minnesota's petition sought a declaratory ruling that its agreement with a single telecommunications company for exclusive access to highway ROW for the installation of a fiber optic system constituted permissible "management of public rights-of-way" under Section 253(c), despite any prohibitory effect the exclusive deal might have in violation of Section 253(a). The FCC ruled that Section 253(a) did apply to this agreement, and that Minnesota failed to establish that its agreement complied with the "safe harbor" requirements of Sections 253(b) and (c), although it stopped short of preempting the agreement. The FCC's decision is briefly summarized below.

First, the FCC refused to declare that the "exclusivity" elements of the agreement passed muster under Section 253(a), because of evidence on the record that relegating other competitors to using other types of ROW to install fiber optic facilities "is substantially more expensive than using the freeway rights-of-way."

> "We are very concerned that giving Developer exclusive physical access to rights-of-way that are inherently less costly to use has the potential to prevent facilities-based entry by certain other carriers that cannot use these rights-of-way. This would be inconsistent with section 253(a) . . ."[10]

The FCC went on to address the "safe harbour" component of Section 253(b), which can save a *state* action (not a local action) which violates Section 253(a) if its three essential conditions are satisfied:

(a) The state action must be *necessary* to achieve one of the recognized state interests;
(b) The state action must be *competitively neutral*; and
(c) The state interests sought to be achieved are the *protection of public safety and welfare, the preservation and advancement of universal service, the continued quality of telecommunications services, and the safeguarding of the rights of consumers.*

The FCC also addressed the "safe harbour" component of Section 253(c), which can save state *and* local actions that violate Section 253(a) if the following conditions are satisfied:

(a) The action must be concerned with *public right of way management*;

[9] FCC 99-402.

[10] FCC 99-402, at ¶ 22.

(b) Use of the public right of way for telecommunications services must be on a non-discriminatory basis; and

(c) Any compensation charged must be (i) fair and reasonable, (ii) competitively neutral and non-discriminatory and (iii) publicly disclosed.

The FCC rejected Minnesota's argument that the arrangement was neutral and non-discriminatory. The FCC believed there was a lack of competitive neutrality because the exclusivity "forces a specific class of carriers to use alternative rights-of-way that appear to be more costly than the freeway rights-of-way."[11] On its face, the decision relied on the very same set of facts to find an effect of prohibiting competition under Section 253(a) as well as finding a failure to be neutral and non-discriminatory as required by Section 253 (b) and (c). Moreover, despite strong evidence from Minnesota and the USDOT that risk to public safety on freeways is increased due to entries for telecommunications construction, maintenance and operations, the FCC relied on industry claims that the public safety concern was overstated to support its conclusion that the exclusivity was not proven to be "necessary," another essential condition of Section 253(b).

In the aftermath of the decision, the USDOT advised the FCC that unless the FCC reconsidered, the USDOT would have to assert its exclusive federal jurisdiction over safety on the nation's freeways to halt all further shared resource opportunities. Ultimately, the FCC was persuaded that its proper role was to defer to the authority and expertise of its sister agency and to work with it to develop guidelines that more appropriately balance the need to protect public safety with the pro-competitive policies of Section 253. What emerged was a Guidance document jointly developed by FHWA and FCC that endorses a limitation on competition to a one-time installation of fiber optic facilities where located inside the clear zone of a freeway (where public safety risks are highest).[12]

Given the subsequent recognition in the FHWA/FCC Guidance that one-time installations may be acceptable due to public safety needs, there is reason to believe that in the proper context "competitive neutrality" may require, and be satisfied by, fair and neutral competitive procedures and qualification requirements. This context may exist where Section 253(b)'s element of necessity permits – *in the interest of public safety and welfare* – limitations on the number or location of competitors' facilities or competitors' access to ROW. Where all potential competitors cannot be accommodated due to public safety concerns, Section 253(b) likely demands procedural fairness in the method by which competitors are chosen or eliminated. Those competing to be the player or players selected should all be accorded neutral and nondiscriminatory opportunities for notice, presentation, communication and evaluation. In other words, the same rules for selection should apply to all, and the rules themselves should not arbitrarily disqualify firms from eligibility. Of course, these are the very same precepts built into typical competitive procurement regulations.

[11] FCC 99-402, at ¶ 53.

[12] 66 Fed. Reg. 6753-6756 (January 22, 2001). Key elements of this Guidance are discussed later in this document.

What should the State do to help ensure compliance with the Telecom Act?

Because this is an evolving area of law, it is difficult, if not impossible, to implement a policy that is 100% risk free, in terms of compliance with the Telecom Act. Nor is MDOT advised to petition the FCC for a declaratory ruling that its policy is compliant with the Telecom Act (the approach that backfired in Minnesota). Therefore it is important to remain abreast of legal developments in the ever-evolving area of case law and FCC decisions. It is also important for the State to understand the FHWA Guidance and to strive for consistency with the guidelines established therein to help reduce the probability of preemption due to Telecom Act violations.

What are common pitfalls to avoid that are likely to result in Telecom Act violations?

Common pitfalls that may result in violations of the Telecom Act include the following:

- Selecting vendors through an arbitrary process without any formal accommodation policy, solicitation process, or standard license/permit agreement form.
- Charging compensation or negotiating agreement terms and conditions that clearly favor one party or group over another.
- Allowing access to one vendor then restricting access to a subsequent vendor that is willing to negotiate agreement terms and conditions that are similar to that of the first vendor, unless the construction occurs within the clear zone, in which case the access restriction should be justifiable (so long as excess capacity is still available along the restricted route).
- Establishing an agreement that provides "exclusive" right to a specific route for any length of time that exceeds a normal construction timeframe, unless the construction occurs within the clear zone, in which case a one-time installation (with excess capacity) should be justifiable.

Are there other State requirements that need to be addressed?

In addition to Telecom Act requirements, MDOT's approach will be consistent with State telecommunications law and Public Service registration requirements.

Consistency with FHWA Guidance

What are the critical elements of the FHWA Guidance and how should they be addressed?

On December 22, 2000 the Federal Highway Administration released "Guidance on Longitudinal Telecommunications Installations on Limited Access Highway Rights-of-Way."[13] This Guidance stems from the 1999 FCC opinion regarding the State of Minnesota's petition for declaratory ruling regarding compliance of its "shared resources" project with the Telecommunications Act of 1996. Of particular concern are the potential implications of the Minnesota decision for other transportation agencies and other shared resources projects.

As a result of this decision and in response to concerns expressed by the transportation community, the FHWA engaged in discussions with the FCC to determine how these projects should be conducted to appropriately balance Telecom Act and transportation management requirements. The Guidance – a product of these discussions – recommends general guidelines to apply to shared resources projects. The Guidance is presented in two parts:

- Guidance on Access to Freeway Right-of-Way – project implementation guidelines developed by FHWA; and
- Guidance on Competitive Issues – principles developed by FCC's Common Carrier Bureau.

Guidance on Access to Freeway Right-of-Way is summarized as follows:

1. The State retains the right and responsibility to manage its freeway ROW and may place reasonable, nondiscriminatory restrictions on design, installation, operation and maintenance of fiber optic facilities along freeway ROW.
2. Construction should be done as far from the traveled roadway as feasible.
3. If all construction vehicles, equipment and personnel can be located outside the clear zone, then the State should allow access to freeway ROW as frequently as reasonably necessary to satisfy the needs of telecom providers, though the state may limit installations to one project at a time on any major segment of freeway ROW.
4. If all construction vehicles, equipment and personnel cannot be located outside the clear zone, then the State may restrict access to freeway ROW to a one-time installation with excess capacity to address subsequent vendor needs. Once excess capacity has been exhausted, then the state should allow additional installations as necessary to satisfy telecom vendor requirements.
5. Above ground equipment may be restricted to the edge of ROW or off ROW with service access from service roads or other non-freeway access where feasible.

[13] The Guidance, which was developed through consultation with the FCC, was formally released in the Federal Register on January 22, 2001 (66 Fed. Reg. 6753).

The third and fourth guidelines are particularly important because they establish general parameters within which transportation agencies are advised to manage ROW access. The third guideline suggests that in areas where construction can occur entirely outside the clear zone, the transportation agency should allow installations "as frequently as reasonably necessary to satisfy the requirements of the state and the needs of the telecommunications providers."[14] The fourth guideline, however, asserts the transportation agency's ability to limit installations to one time in areas where construction occurs entirely within the clear zone. This is an important clarification that reduces some of the sting of the Minnesota decision.

Guidance on Competitive Issues is summarized as follows:

1. The contractor should be selected through an, open, fair, nondiscriminatory, competitive process.[15]
2. The selected contractor should provide co-build opportunity for third parties. Potential third parties should be given sufficient notice to reflect a reasonable timeframe to develop business plans and obtain financing.
3. The selected contractor should install spare fiber and empty duct adequate to accommodate "reasonably anticipated future demand" whenever fiber is installed inside the clear zone, and include adequate access points for third party access and interconnection.
4. The selected contractor should be required to lease fiber on an indefeasible right-of-use (IRU) basis at rates and subject to terms and conditions that are just, reasonable, and nondiscriminatory.
5. The selected 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.
6. An independent third party such as the state's public utility or utility regulatory commission should evaluate any challenges.
7. It is preferable that the contractor is a carrier's carrier or wholesaler of telecommunications services rather than a retail service provider in order to minimize competitiveness concerns.

It is important to note that these guidelines are relevant "whenever a state decides to limit further installations of fiber optic facilities on its ROW, whether in or out of the clear zone."[16] When a state plans to allow future installations, then these requirements may not be necessary. It is also important to note the advice provided by FHWA at the end of the document:

> "These Guidelines shall not be used as evidence of any alleged or asserted legal rights with regard to access to freeway ROW, but are being provided to assist States in developing their agreements for telecommunications installations on freeway

[14] 66 Fed. Reg. 6755.

[15] At the time of this writing, MDOT is implementing its program through an open RFP process.

[16] 66 Fed. Reg. 6755.

ROW, particularly dealing with non-discriminatory, pro-competitiveness requirements of the Telecom Act."[17]

Right-of-Way Access Restrictions

How, where, and when can MDOT restrict access to State highway rights-of-way without running afoul of Telecom Act requirements of equal access?

The FHWA Guidance establishes criteria that justify access restrictions in certain circumstances. One of the critical elements of the Guidance from a ROW management perspective is the ability to restrict access to "one-time" along segments of ROW where the installation would occur within the clear zone. The Guidance also indicates that States are justified in restricting installations such that no more than one project is underway at any given time along any major segments of ROW. There may be other circumstances that warrant access restrictions that should be dealt with on a case-by-case basis. It is also worth noting that MDOT may prohibit telecommunications installations along certain ROW as necessary for safety, national security, and other purposes so long as all vendors are treated in a neutral and non-discriminatory manner.

Compensation

When is it appropriate to charge compensation for right-of-way access?

Compensation (over and above administrative fees) for access to highway ROW is typically restricted to limited access highways and other locations that have not historically been occupied by telecommunications facilities (e.g., major bridge or tunnel crossings). Compensation may also be charged for access to primary and secondary roads that are part and parcel of an agreement for telecommunications installation primarily along limited access highway ROW, upon mutual agreement of both parties.

Historically, most states have allowed utilities to install lines along non-limited access highways and secondary roads, and most charge nominal permitting fees associated with the cost of program administration. There is, however, no federal prohibition against charging more than a nominal permitting fee for access to these routes. In fact, "It has been FHWA's policy for many years to allow States to charge fees for utility use of state highway ROW if they desire, and to allow them to use the proceeds as they see fit. In the past, fees charged for utility use were generally just enough to cover the cost of processing permits. Now, with the advent of fiber optics and wireless telecommunications, opportunities exist for the States to make substantial profits. In such cases, FHWA has encouraged the States to use such revenues for transportation purposes."[18]

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[17] 66 Fed. Reg. 6756.

[18] Program Guide, Utility Adjustments and Accommodation on Federal-Aid Highway Projects, USDOT Federal Highway Administration, 5th Edition, January 2001.

While there is no federal prohibition, state law and/or agency policy may impact a state's ability to charge compensation for utility installations along non-limited access highways and secondary roads, especially those that have historically been occupied by utilities free of charge. In such instances, the transportation agency would likely be required to revise its policy and/or rewrite the laws that govern the use of these ROW by all utilities. A word of caution is in order here. Due to the lobbying power of the telecommunications industry, there will be significant resistance to any proposal to change a longstanding policy or law regarding compensation for utility installation along non-limited access highways and secondary roads. While research for this report has unearthed no specific case law to date that addresses this issue, a legal or policy change of this nature is likely to draw challenge under the Telecomm Act and/or state telecommunications or utility law.

How do you determine appropriate compensation for right-of-way access?

Valuation Techniques

A number of different approaches have been applied to the valuation (or pricing) of utility easements along public ROW, utility corridors, and other public and private properties. Options include, for example:

- *Across-the-fence (ATF) valuation* – value of adjacent properties utilized to establish easement value using one of several formal appraisal techniques;
- *Historical experience (Comps)* – data reported from other market transactions synthesized and utilized as a proxy for fair market value and/or to establish a range of expected values;
- *Income-based valuation* – percentage of revenues derived from installed facility charged as compensation for easement rights;
- *Competitive bidding* – bids received in response to competitive solicitation utilized to establish appropriate compensation level; and
- *Cost recovery methods* – fees established to recover program administration costs only.

Selection among available approaches depends on consideration of valuation objectives (e.g., cost recovery versus revenue maximization), legal requirements, data availability and data reliability. Understanding that one of the Department's objectives is to enhance the revenue potential of the properties under its jurisdiction, the valuation approaches that are most likely to support this objective – ATF, historical experience, and income-based valuation – are described in further detail below.

Valuation of Adjacent Land (ATF)

Highway ROW, utility corridors, and other public properties derive part of their value from the same factors that determine the value of adjacent property, so it is only logical to use proximate real estate values as a guide to estimate easement values for longitudinal installation of wireline telecommunications facilities. It is important to recognize, however, that the real estate cost of an easement alone does not equate directly to ROW easement value because it ignores important factors that may affect easement values. As such, valuation adjustments are required to translate underlying property values into easement values that represent fair and reasonable compensation for the specified use.

Historical Experience (Comps)

Prices established through prior market transactions provide useful data for valuation purposes. If easement transactions were fully reported in the marketplace, comparables would likely be the primary tool for valuation of easements for telecommunications installation. However, due to the limited availability of data from comparables, it is necessary to simplify and generalize in order to make comparisons among various transactions. Appraisers will often attempt to compare corridors in the same geographic area and/or that run through similar types of land (urban, suburban, and rural) to obtain a rough estimate of easement value by land use. However, it is more difficult to incorporate other factors that may affect easement value in comparable transactions, such as: exclusivity of the transaction; proximity of high-value telecommunications markets; installation requirements; agreement term; terms and conditions that affect costs and/or risk allocation; presence, quality and cost of alternative routes; objectives of property owner/manager; skills of negotiators; and market timing. These and other factors can significantly affect transaction prices. Because these factors cannot be held constant for all transactions, and because availability of comparable data is limited and information incomplete, comparables are most useful for suggesting an appropriate range of values, establishing industry trends, and providing valuation benchmarks to support agreement negotiations.

Income-Based Valuation

Given the difficulties and complexities associated with estimating the value of ROW easements for telecommunications installation, there has been a trend toward establishing fees based on the revenue generated from installed facilities. Some property owners have taken the approach that the easement right they are providing is an income-generating asset and that its value should be based, at least in part, on the income generated by the asset (or a proxy such as fiber count and/or conduit occupancy). This approach can be advantageous to both the grantee and the property owner. If the grantee is successful in executing its business plan, then the share of revenues generated from the installed facility that is directed to the property owner may significantly exceed the payments that would be received through easement fees based on ATF values and comps.[19] The grantee benefits through reduced financial outlay during network build-out. By deferring payments until the network (or segment) is a revenue-producing asset, the grantee reduces financial risk as well.

[19] Given the recent downturn in the telecommunications market, the potential disadvantages (from the property owner's perspective) of tying compensation to vendor revenues should also be considered.

Factors that Affect Right-of-Way Values

Factors that affect the value of ROW for telecommunications installation generally fall into three categories: (1) market dynamics, i.e., supply and demand, (2) corridor characteristics, and (3) agreement terms and conditions. On the market side, industry growth and competition among telecommunications providers generates demand for deployment of new infrastructure, including access to ROW and other land for infrastructure installation. At any given level of demand, the supply, availability and cost of alternative ROW will help establish value. From this baseline, corridor characteristics and agreement terms that will impact valuation in both positive and negative directions include the following:

- Location (urban, suburban, rural);
- Infrastructure security;
- Constructability;
- Availability of alternative routes;
- Allocation of financial responsibility for unplanned events;
- Agreement term;
- Exclusivity;
- Length of corridor;
- Connectivity to major population centers and/or existing long-haul fiber routes; and
- Number of conduits installed.

It is important to consider the impacts of the agreement characteristics and conditions during negotiations to ensue that MDOT receives fair and reasonable compensation for ROW access.

Examples of Applied Valuation Techniques

Utah DOT Valuation Rule

On May 1, 2000, the Utah Department of Transportation (UDOT) established two Administrative Rules related to the accommodation of telecommunications facilities along limited access highway ROW.[20] The first rule defined program parameters for the accommodation of both wireline and wireless facilities along Interstate highway ROW. The second rule provided a compensation schedule for longitudinal (wireline) installations along these routes. UDOT's compensation schedule categorizes UDOT Interstate ROW into five different zones for valuation purposes based on route location, proximate land use, and population density. Property values within each zone were then utilized to establish average land values by zone. Based on this analysis, a rate of return on land value was estimated as a proxy for ROW easement value. UDOT's compensation schedule provides published rates for ROW access on a corridor-by corridor basis and values are adjusted annually based on changes in the consumer price index.

[20] UAC R907-64 and UAC R907-65 (R907-64 – *Longitudinal and Wireless Access to Interstate Highway Rights-of-Way for Installation of Telecommunications Facilities*; R907-65 – *Compensation Schedule for Longitudinal Access to Interstate Highway Rights-of-Way for Installation of Telecommunications Facilities*).

Indiana Toll Road Comparable Valuation

The Indiana Toll Road relied on a competitive solicitation to provide access to its highway ROW. To evaluate whether bids received in response to the solicitation represented "fair and reasonable" compensation, the Toll Road relied on "comparables" to establish a range of expected values. Specifically, comparables from other highway and rail ROW transactions were identified, selected data were categorized as urban or rural, and minimum, mean, and maximum expected values were calculated. These data were then applied to the Toll Road ROW based on the number of urban ROW miles and number of rural ROW miles to estimate the total expected value of a fiber optics easement along the Indiana Toll Road corridor. This comparable valuation approach helped the Toll Road gauge the quality of competitive proposals and negotiate a final contract from an informed position.

What does "fair and reasonable" compensation mean?

The notion that government fees and charges for use of the ROW must be fair and reasonable sparks tremendous controversy between ROW owners and the telecommunications industry. Some courts have held that "fair and reasonable" can only mean fees which recover out-of-pocket or administrative costs, because traditional ROW management has required nothing more.[21] A number of federal courts, however, have taken a more charitable view of "fair and reasonable" compensation. These courts have interpreted compensation to mean not just the mere recoupment of the costs of administering use of public ROW for telecommunications purposes, but a charge for rental of property that also may include an element of profit.[22] Only time will tell whether the courts can reach a consensus on the interpretation of "fair and reasonable" compensation. Unless and until the courts unambiguously declare otherwise, we see no reason to revise the Department's current interpretation that fair and reasonable compensation represents more than just the recoupment of administrative costs.

In TCG of Detroit, the district court identified four relevant factors that should be considered when determining whether charges for use of public ROW are fair and reasonable including (1) the extent of use of the public ROW, (2) whether other carriers have agreed to comparable compensation (or comparable uses of public ROW), (3) the course of dealings among the parties, and (4) whether the compensation sought is 'so excessive that it is likely to render doing business unprofitable.'[23]

Each of these factors represents logical considerations in the process of establishing value for the use of public property. As such, these factors are important in determining whether charges are fair and reasonable. For example, the extent of the use of public ROW could justify a much

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[21] *See,* Bell Atlantic-Maryland, Inc. v. Prince George's County, Maryland, 49 F. Supp. 2d 805, 814 (D.Md. 1999), *vacated and remanded on other grounds*, 212 F.3d 863 (4th Cir. 2000); AT&T of the Southwest v. City of Dallas, 52 F.Supp.2d 763 (N.D. Texas 1999).

[22] TCG of Detroit v. City of Dearborn, 16 F.Supp.2d, 785 (E.D. Mich. 1998), *affirmed*, 206 F.3d 618 (6th Cir. 2000); Omnipoint Communications, Inc. v. Port Authority of New York, 1999 WL 494120 (S.D.N.Y).

[23] TCG of Detroit v. City of Dearborn, 16 F.Supp.2d, 790-791.

higher price for a party seeking extensive use than the price paid by a party seeking a much more limited use.

The fair and reasonable standard also has significance where the ROW agency possesses monopolistic power over locations for installing telecommunications lines. If ROW under MDOT's control represents the only real means to provide long-haul, telecommunications service between any particular population centers, then the Department needs to scrutinize carefully the value it receives to make sure it meets the fair and reasonable requirement. Valuation should not include or reflect an element of additional charge for the market dominance inherent in any such route.

Premium pricing may, however, be justified at choke points to the extent that there are alternative uses that may demand a higher, non-monopolistic value. Some facilities, such as major bridge or tunnel crossings, may also demand a higher value than surrounding assets due to the difficulties (and costs) associated with installing telecommunications facilities on these structures, and the limited structural capacity for telecommunications facilities.

In the FCC's decision and order on the Minnesota shared resources agreement, the FCC criticized the freeway exclusivity as potentially violating the fair and reasonable requirement because the "developer could use its exclusive physical access to the freeway rights-of-way to extract monopoly profits . . ."[24] Thus, while choke points may carry special value, the state must not price their use so high such that the cost becomes prohibitive or grossly disproportionate to what the value would be if viable alternative routes were present. Such a result probably would amount to an unlawful barrier to entry in violation of Telecommunications Act Section 253(a).

The following examples illustrate premium pricing for bridge and tunnel installations (none of which have been challenged under the Telecommunications Act):

- The New York/New Jersey Port Authority seeks $10.00/foot/year ($52,800/mi/yr) for access to Hudson River crossings (Holland and Lincoln tunnels) to Manhattan.
- The Washington Metropolitan Area Transit Authority (WMATA) seeks $10.00/foot/year ($52,800/mi/yr) for access to conduits within its Washington, DC subway system.
- The Delaware River Port Authority (DRPA) seeks $8.00/foot/year ($42,240/mi/yr) for access to existing conduits installed along the Ben Franklin Bridge that crosses the Delaware River between Philadelphia, PA and Camden, NJ.
- The Massachusetts Bay Transit Authority (MBTA) charges $6.70/foot/year ($35,376/mi/yr) for access to existing conduits in its tunnel system in downtown Boston, MA.

It is important to note that while MBTA has reportedly been successful leasing assets within its system, DRPA has reported limited interest in its Delaware River crossing, which may be attributable to availability of lower cost alternate routes across or under the Delaware River. Also, one vendor that was in negotiations with the Port Authority of NY/NJ reported that they

[24] Minnesota Petition, at ¶ 47.

decided to bore under the Hudson River rather than pay the fee that the Port Authority was attempting to extract from its river crossings.

How is barter compensation valued?

MDOT is able to receive cash and/or barter compensation in exchange for ROW access. To ensure that compensation is fair, reasonable, neutral and non-discriminatory, it may be necessary to estimate the cash-equivalent value of barter compensation for comparative purposes.

There are several different approaches available to estimate this value. One approach is to estimate the *avoided cost* to the Department for the facilities received as barter compensation. Avoided cost would include infrastructure and equipment costs as well as all trenching, installation and maintenance costs. This would be akin to the costs the Department would incur if it were to "procure" a telecom system and hire a contractor to install it. Another approach is to estimate the *marginal cost* to the provider of the facilities provided as barter compensation. Marginal cost would include the infrastructure and equipment costs only, with no credit for valuation attributed to trenching and installation (except portions of the installation that are for Department purposes only). The third option, and recommended approach, is to estimate the *incremental cost*, which is somewhat of a compromise between the extremes of avoided cost and marginal cost accounting. This approach, which includes the marginal cost of the facilities provided to the Department, as well as a pro-rata share of construction and installation costs based on the percentage of the infrastructure that is being installed for Department purposes, is described below.

Incremental cost can be estimated as follows:

1. The value of MDOT physical plant (e.g., conduit, fiber, and electronics) is applied in full toward compensation requirements.
2. The value of trenching allocable to MDOT facilities is computed on a pro-rata basis according to the conduit and/or innerduct space allocated to MDOT as a proportion of total conduit and/or innerduct space installed in the trench.[25]

   For example, assume that a private vendor or consortium of vendors lays two conduits with four innerducts each (eight innerducts total) and, of these, one innerduct is dedicated to MDOT. In this case, the imputed value of the in-kind compensation offered to MDOT is $1/8^{th}$ of the cost of trenching.
3. The sum of physical plant costs and incremental trenching costs represents the value of barter compensation on an incremental cost basis.

The value of barter compensation estimated on an incremental cost basis can then be compared to the cash-equivalent value of ROW access (based on previous MDOT transactions and/or comparables). This comparison will assist MDOT in determining whether in-kind compensation

[25] This approach is a reasonable and rational standard for allocating trenching costs among private vendors acting as co-venturers and having relatively equal bargaining power.

represents fair and reasonable compensation or whether more (or less) in-kind or cash compensation is required to satisfy neutral and non-discriminatory compensation requirements.

How does compensation received through one transaction affect future transactions?

The Telecom Act does not require compensation received through one transaction to be exactly the same as compensation received through previous transactions. However, the neutral and non-discriminatory requirement specified in Section 253 means that MDOT should use compensation methodologies and apply compensation amounts consistently across transactions with similarly situated providers. Rational distinctions among providers should be permissible, provided the distinctions have to do with location of use, character and extent of use, time of entry, duration of use and similar factors, but not differences in the qualifications, business operations or profitability of telecommunications companies. In other words, in judging what are rational, defensible distinctions in compensation levels, MDOT should look to variables that are commonly accepted in the marketplace when determining valuation of land use. Competitive neutrality and non-discriminatory access requirements of the Telecom Act are described in further detail below.

How do you determine whether compensation is competitively neutral and non-discriminatory?

Even if state or local regulations are found to be legitimate acts of "managing the public rights-of-way," the fees required by a state or local government must not only be "fair and reasonable," but also must be "competitively neutral and non-discriminatory."

> "[B]eing competitively neutral does not require [state or local governments] to treat all providers identically and to ignore the significant distinctions among them. The most important and relevant distinction ... is the different amounts of... rights-of-way that each company uses to provide its services."[26]

As discussed above in the section on "fair and reasonable" compensation, for purposes of the competitively neutral and non-discriminatory requirements, it is not necessary that all carriers be treated identically in order to comply with Section 253(c). In Cablevision of Boston, the court held that "[a]s long as the [local government] makes distinctions based on valid considerations, it cannot be said to have discriminated ..."[27]

Thus, the same distinctions that justify differences in price as "fair and reasonable" as discussed above, also justify differences in prices that do not violate the competitively neutral and non-

[26] AT&T Communications of the Southwest v. City of Dallas, 52 F. Supp.2d 769, 770 (N.D. Tex. 1999), *vacated and remanded on other grounds*, 2001 WL 197926 (5th Cir. Mar. 15, 2001).

[27] Cablevision of Boston, Inc. v. Public Improvement Commission, 184 F.3d, at 103.

discriminatory requirements of Section 253(c). Competitive neutrality should be able to take into account different burdens on public ROW and other public lands. As the FCC stated in Classic Telephone, "at the very least competitive neutrality requires state and local governments to treat similarly situated entities in the same manner."[28]

Communications Needs

What are minimum requirements for the State along each corridor?

The State should have a detailed understanding of its telecommunications needs on a route-by-route basis in order to negotiate barter compensation that best addresses these requirements. Specific telecommunications requirements for the State and Department will be determined and negotiated on an individual agreement basis.

Communications requirements should include both internal and external needs. Internal capacity (bandwidth) is used directly by the Department while external capacity is for resale or use by other agencies. Considerations include, for example:

- MDOT/MdTA Enterprise Network bandwidth and redundant path requirements.
- Public safety communications.
- Voice services including local distribution, interoffice trunking, toll bypass, and redundant service to improve fault tolerance.
- Video surveillance and optical recognition. These applications are becoming increasingly popular and require substantial network bandwidth.
- Emergency Operations Center requirements.
- Fare and toll collection, intelligent transportation systems.

Excess Capacity and Co-Build Requirements

How are excess capacity requirements determined?

Excess capacity requirements may be established by MDOT for the development of all future ROW agreements, or excess capacity requirements may be limited to instances where MDOT plans to restrict future access to a particular route. There are a number of different approaches that can be utilized to gauge excess capacity requirements. They may be determined by MDOT, by the vendor developing the route, or by a third party at the discretion of MDOT. Options include the following:

[28] In the Matter of Classic Telephone, Inc. CCB Pol. 96-10, Memorandum of Opinion and Order, FCC 96-397 at ¶ 37 (released Oct. 1, 1996).

- Require vendor or third party to estimate excess capacity requirements and provide documentation that supports their recommendation;
- Develop a "rule-of-thumb" that relate excess capacity requirements to installation size, route location, interconnectivity between major population centers, or some other reasonable proxy for potential demand; and/or
- Require vendor to issue announcement for co-build opportunity.

While shifting the burden to the vendor sounds like a reasonable approach at face value, experience suggests that vendors typically collect and interpret information in a manner that supports their preferred installation configuration. An alternative may be to have a neutral third party conduct this analysis.

As an alternative, excess capacity could be based on a "rule-of-thumb" such as requiring all vendors to install two conduits in addition to their planned installation or requiring vendors to install, say 25% more capacity than planned. For example, if a vendor plans to install four (4) conduits, they would be required to install 25% more capacity, which equates to one additional conduit or five (5) conduits total. If a "rule of thumb" approach is adopted, it should be established on a pre-determined basis and applied equally across all subsequent vendors to maintain a level playing field and comply with the neutral and non-discriminatory requirements of the Telecom Act.

How are excess capacity requirements funded?

There are two important scenarios to consider when developing a funding strategy for planned excess capacity:

1. If the excess capacity is being installed in conjunction with a roadway construction or reconstruction process then the costs could be incorporated as an infrastructure component of the total project construction cost, with funding provided through the highway trust fund with state/local matching funds.
2. If the multi-duct system is being installed as part of the State's resource sharing program, then the funding responsibility is shifted to the private partner. If the state is going to be an anchor tenant for the project, then the state will need to negotiate a reasonable cost share and determine the appropriate funding source for the public-private partnership. One logical funding source is the revenues from previous shared resources transactions. This could be established similar to a revolving fund, where the agency's positive revenue stream from previous transactions is used to support the development of additional infrastructure.

It is important to recognize that while in recent years transportation agencies found many vendors to be receptive to funding and building excess capacity (primarily because this approach was consistent with vendors' network deployment plans that relied on the leasing of excess ducts and fibers to fund build-outs), there may be more resistance to this approach as the realities of the current telecommunications marketplace come to bear. To this end, MDOT must ensure that excess capacity requirements are reasonable and do not unduly burden vendors with construction

costs that would make the project infeasible and/or drive vendors to seek alternate routes off MDOT ROW.

To support installation of excess capacity, MDOT may also consider providing some form of relief to vendors in conjunction with excess capacity requirements. For example, MDOT may agree to (a) reduced compensation for a specified period of time to "pay back" a portion of the excess capacity construction cost, (b) tiered compensation tied to conduit occupancy, and/or (c) relief in other areas of the agreement. Specific forms of relief should be determined on a case-by-case basis and will be influenced by MDOT needs along a particular corridor, i.e., the greater the MDOT need along a corridor, the more likely MDOT will be willing to provide some form of relief to address excess capacity requirements.

What kinds of facilities are required in conjunction with excess capacity?

To effectively utilize excess capacity and promote collocation along a particular route, it is important to consider requirements in three areas: (1) conduit, (2) access, and (3) facilities to house equipment. Naturally, excess capacity will require additional conduits and/or fibers to lease to third parties so that they can be collocated in the same trench. It is important to provide access to the conduits and fibers at frequent locations along the installation route to address the access and interconnection requirements of the various classes of customers that may be accommodated along any particular route. Access through handholes or manholes (typically 4' x 6' x 6') is generally provided at ½-mile to 1-mile intervals, at intersections and other logical interconnection points along the route. Carriers will also require larger sites along the route (multi-tenant points-of-presence) for collocation of electronic equipment. The various facilities that support collocation are detailed in the Section on "Support Facilities and Maintenance Requirements" below.

Is co-build required as part of initial installation? What are specific co-build requirements (if any), and how are they enforced?

As discussed above, one approach to address excess capacity requirements (and to conform with the FHWA Guidance) is to require a vendor that wishes to develop facilities along MDOT limited access highway ROW to announce in advance of installation the opportunity for a joint build along the corridor that the vendor plans to develop. The co-build announcement should be published in a similar manner to other agency solicitations and offerings, and provide sufficient lead-time to allow potentially interested parties a reasonable time frame to evaluate and act upon the opportunity. MDOT may wish to identify additional publications beyond Maryland Contract Weekly to ensure that the opportunity reaches the targeted, national audience.

Again, it is important to reiterate that co-build requirements and other elements of the Guidance relate to projects where there will be restrictions on future installations along a particular corridor. In areas where MDOT will allow future installations, excess capacity may not be required.

What are the different forms of agreement used for conduit and fiber transactions?

Joint trenching agreements are typically established through one of the following forms of agreement: co-build, conduit purchase, or collocation agreement. Once the trench is closed, facilities are typically leased through an indefeasible right-of-use agreement (IRU). Each of these agreement forms is described below.

In a **co-build agreement**, two or more telecommunications companies undertake to share the costs of designing and constructing a common trench into which each company installs or has installed its own separate and independent network lines and facilities. Typically, one of the participants takes the lead for performing the design and construction work or the participants jointly retain a construction contractor. All participants infuse their share of the capital costs. The cost of improvements utilized in common (e.g. trenching costs) is allocated on the basis of benefit derived (e.g., number of conduits), absent disproportionate bargaining power of one or more parties. The cost of improvements owned by or of benefit to a particular company is borne by that company. Typically, the contractual arrangements do not extend beyond the construction stage (other than provisions on coordination and non-interference), and the participants independently take title and ownership responsibility for operation and maintenance of their respective improvements, unless otherwise required by restrictions on use and access imposed by the owner of the land.

Conduit purchase agreements are a variation of joint trenching or co-build agreements. Here, a company agrees to purchase in fee simple specified conduit(s) and related facilities at a negotiated price *after* completion of installation and satisfaction of other specified conditions. Either the specifications for the facilities to be purchased are spelled out in the agreement, or a process and standards for review and approval of plans and specifications are set forth. These agreements often include provisions on the purchaser's participation in the lead company's costs of permits and of obtaining easements, leases or licenses. For example, there is at least one such agreement (identity of parties confidential) where the purchaser pays nothing above the negotiated purchase price for any access fees and charges that are based on the trenching or initial installation of conduits, but must pay any access fees and charges that are based on pulling fiber optic cable into the empty conduits it is purchasing.

Collocation agreements are distinguished from joint trench and co-build agreements chiefly by the inclusion of contractual provisions governing continuing facilities management, operations and maintenance. They spell out a longer term, more comprehensive relationship between the parties with respect to the location and facilities in question. Each contracting party separately owns its respective conduits, fiber optic cable and equipment, as with a joint trench or co-build relationship. However, one participant often takes lead responsibility for joint maintenance and operating responsibilities, with the other participants protected by standards of performance and obligated to share costs. The lead participant is almost always the sole holder of, and responsible under, the easements, leases and licenses for the network. The other participants generally take a passive role respecting entry onto the easement property, with important exceptions giving direct rights of access to install and splice their own fiber and to install, service, maintain, replace and remove operating equipment owned by the participant.

A good example of this relationship can be found in the license agreement recently entered into between the Utah Department of Transportation and Adesta Communications. There, Adesta is the sole licensee and solely responsible to UDOT for performance of license covenants, insurance, indemnification against acts of Adesta and its collocators and customers. The license agreement required Adesta to seek out collocation partners. Adesta negotiated a number of collocation agreements under which it built facilities to be owned by others in one common trench. Adesta is responsible for all activities relative to license performance, and receives from the other participants an equitable share of the costs to design, permit, build and maintain the facilities.

Indefeasible right-of-use agreements (IRUs) are generally conceived between the contracting parties as a right to exclusively use and possess particularly identified facilities for a long-term period, in exchange for payments that may be over and above the cost of constructing, delivering and maintaining the subject facilities. The recently issued *Guidance on Longitudinal Telecommunications Installations on Limited Access Highway Right-of-Way* endorses the use of IRUs as a close substitute for full facilities-based competition and allows granting companies to include "a reasonable profit" in its charges.

An IRU agreement is distinguished from a collocation agreement by the fact that one party, the grantor, owns all of the facilities while the other party receives an exclusive right to use a designated portion of the facilities for a term of years. The exclusive right is secured typically with a one-time, lump sum "purchase price" payment or stream of payments. In most other respects, the IRU agreement has attributes similar to a collocation agreement, such as placement of primary maintenance responsibility in the lead company, and the obligation to pay the lead company negotiated rates for maintenance and service work.

IRU agreements are transacted for spare conduit as well as for dark fiber, and sometimes both in the same agreement. They do not entail provision of lit capacity or service; the IRU recipient uses the conduit space and/or dark fiber to produce and deliver lit capacity and service to its respective customers without involvement of the IRU grantor.

Support Facilities and Maintenance Requirements

What kinds of support facilities are required for a typical fiber optic installation?

Support facilities are required for practically all fiber optic cable installations and they play a vital role in the configuration, operation and distribution of a system's circuit capacity. These facilities can be divided into four general categories based on the service they provide or the function they perform:

- Interconnect facilities provide for the flexible distribution (interconnection) of fiber backbone capacity to other networks.
- Regeneration facilities allow for transmission over long distances by recreating (regenerating) the fiber optic signal.

- Collocation/Resale facilities provide space for the equipment of multiple customers and or service providers and allow for the resale of circuit capacity.
- Wireless Link facilities are towers or satellite earth stations used to extend (link) the fiber optic network to other remote networks or provide local wireless services.

Typically a monthly recurring fee per facility is charged, based on the location, type, and total square footage of the facility. Lease prices for unimproved land typically range from three to seven dollars per square foot (more in urban areas). Prices per square foot on improved land or in existing facilities are substantially higher, vary widely, and are based primarily on location and ease of access to other networks. Typically, all costs associated with the construction and maintenance of a support facility is borne solely by the vendor, as are the costs for permits, licenses and utilities. It is the sole responsibility of the vendor to acquire all required insurance, permits and licenses.

Access to support facilities is often required by multiple customers or vendors. Specific procedures for access to each site should be developed and implemented to allow for safe access with minimal impact on highway operations. These procedures often include site-specific instructions governing advanced notification requirements, parking restrictions, and emergency contact numbers. Specific facility characteristics are described below.

Interconnect Facilities

Interconnect facilities give the vendor the ability to connect their backbone network to other fiber optic cables, networks, and local service distribution points at various locations along the ROW. These facilities are typically located at the intersections of major roads or other fiber routes. Interconnect support facilities fall into three basic categories:

1. Manholes – Typically a separate 4'x 6'x 6' reinforced concrete, traffic rated, manhole is located in proximity to a manhole on the backbone fiber route usually containing fiber optic cable splices only.
2. Underground Vaults – Environmentally controlled, self-contained vaults housing the electronic equipment to support various network functions. The sizes of vaults vary widely, however, they are typically 8'x 8'x16'. Vaults are used as regeneration sites as well as interconnect and local service distribution sites.
3. Communication Huts – Above ground, pre-manufactured, environmentally controlled buildings that house the electronic equipment required to support various network functions.

Regeneration Facilities

Regeneration sites are typically above ground, pre-manufactured, environmentally controlled huts constructed on concrete slabs and enclosed by a gated fence. A generator for backup power is usually included in the compound. Generally, monthly access to regeneration sites is required to perform routine preventive maintenance. Technological advances have dramatically improved the performance of communication grade lasers, allowing for increased distances between regeneration sites, therefore reducing the number of sites required.

Collocation / Resale Facilities

A collocation facility (carrier hotel) provides environmentally controlled space for the installation of equipment from multiple customers, carriers, and service providers, allowing shared access to the networks and services of multiple vendors. Agreements for these facilities often include an allocation of space for the ROW manager's use or resale. These facilities are usually located at key interconnect locations where multiple fiber optic routes converge. Collocation space within these facilities is a valuable resource and rents at a premium. Security and site management are required because of the frequent access by many different customers' employees and contractors. Generally, collocation facilities fall into two categories:

1. Stand-alone compounds – A series of interconnected, pre-manufactured, and environmentally controlled huts sharing a common fenced-in compound. A typical compound is 50' x 150' and includes a backup generator, off street parking, and a double gated security fence.
2. Office Building Collocation – In major metropolitan areas it is common to lease space within a building that is located proximate to a major fiber route for use as a collocation / resale facility. The lease price for space in the building is based on either square footage or the number of rack spaces required. The cost per square foot in on of these facilities can be substantially higher than in stand-alone compounds and is driven by location and the ease of access to local service providers.

Wireless Link Facilities

Wireless link facilities enable a carrier to extend their network to remote areas, connect (link) their network to satellite transmission systems, or provide local wireless access to services carried on the network. A wireless facility can be an antenna, microwave dish, satellite dish, or a tower serving as a wireless hotel for cellular services. As in carrier hotels, it is common for the agreement covering the tower facility to include a space provision for the transportation agency's exclusive use or resale.

Should the State charge additional compensation for installation of support facilities on State lands?

Support facilities can represent a substantial source of recurring revenue for the ROW manager. There are many key factors that should be clearly addressed and included in a shared resources agreement to maximize the income potential and minimize the impact on highway operations. It is important to specify the following information when negotiating an agreement to place support facilities on Department ROW:

- The number of support facilities <u>initially</u> required (allotted) for support of a particular system.
- The <u>maximum</u> number of support facilities allowed under the agreement.
- The procedure for requesting additional facilities and an extended rate structure.

- The dollar amount of the initial (one time) payment for each site.
- The recurring monthly lease price, based on the location and square footage of each site.
- The exact location, size, type, physical nature, and appearance of each required facility.
- Explicit language defining the requirements for relocation of facilities and who is responsible for the associated costs must be included in the contract. Typically, all relocation costs are the responsibility of the vendor if the relocation is required by the transportation agency to improve highway facilities and traveler services.

How are fiber optic and support facilities maintained and by whom?

States/agencies typically negotiate for maintenance of installed fiber optics and conduit as part of the compensation for ROW access. If the agency is receiving lit service as part of its compensation, then the vendor that owns and operates the network typically provides all maintenance services to the service demarcation point. If an agency receives telecommunications infrastructure as compensation, then the agency is typically responsible for operating and maintaining this equipment. Agencies usually require some form of equipment training, but beyond that vendors do not typically maintain equipment that is operated by others.

MDOT is advised to incorporate maintenance requirements into its agreements. Listed below are five major categories of maintenance requirements and their related sub-categories. Most of these services should be performed periodically, such as monthly, quarterly, or annually. These maintenance requirements include, but are not limited to:

Fiber Optic cable and conduit maintenance

- Route integrity inspection
- Cable locating and "One-Call" mark outs (call before you dig)
- Construction protection and representation
- Fiber optic cable marker inspection/replacement
- Tree and brush control
- Manhole/Pull-box repair
- Temporary cable relocation
- Emergency fault location and splicing/repair

Shelter / Site maintenance

- General landscaping and weed control
- Exterior shelter maintenance
- Insect and rodent control
- Trash removal
- HVAC service
- Gate, fence and lock repair
- Access road maintenance
- Generator and Universal Power Supply (UPS) maintenance

- Floor and interior cleaning
- Housekeeping and environmental alarm monitoring and response (see details below)
- Exterior and interior light replacement
- Periodic testing/maintenance of site grounding

Preventive Maintenance (PM)

- Air filter service for fiber optic equipment
- Generator and UPS load testing
- Housekeeping and network alarm exercise and testing
- Battery cleaning, load test, equalizing and electrolyte service
- Fiber optic cable OTDR testing
- Fiber optic transmit and receive level testing
- Fiber optic jumper inspection and cleaning

Fiber Optic Equipment maintenance

- Fiber optic and multiplex equipment card replacement
- Card and equipment cage vacuuming
- Surge protection replacement
- Battery and UPS replacement
- Service level trouble response and repair
- Spare and replacement equipment inventory
- Card return and repair service

Network Maintenance and configuration management

- Configuration of adds, moves and changes
- Equipment provisioning
- 24/7 alarm monitoring, notification and response
- Circuit record management
- Cable record management
- Trouble ticket/work order management
- Event and activity log reports
- Network performance reports

Housekeeping and Environmental Alarms

The number and type of housekeeping alarms is driven by (a) the nature of the network support facility, and (b) the level of service or services being carried on the network. In other words, the more critical the service, the more important the housekeeping alarms and environmental alarms become.

Many agencies use housekeeping alarms to <u>proactively</u> head off potentially serious, service affecting environmental and equipment failures. Others use these alarms to simply notify the

network manager of an existing condition or failure. These alarms can be used as maintenance tools, network management tools and security and access tools.

Certain alarms are generic in nature and can be implemented in virtually all network facilities. Other alarms are dependent on the type of equipment installed and the outputs provided. The most commonly used alarms include, but are not limited to, the following:

- Door open/closed – multi-state alarm
- Technician on-site
- Intrusion alarm
- Hi/Low temperature – multi-state alarm
- Actual (current) temperature
- AC power fail
- Generator running/fail – multi-state alarm
- UPS/DC rectifier fail
- DC Hi/Low battery voltage – multi-state alarm
- Actual (current) battery voltage
- Fuse buss alarm
- Water detection alarm
- Smoke/Fire detection
- Major/Minor alarms for non-monitored equipment (multiplexers for example)

Relocation

Who is responsible for facility relocation costs under different circumstances?

Relocation of all facilities and supporting infrastructure is typically the responsibility of the fiber optic carrier. This is consistent with MDOT's existing Utility Policy and it is recommended that MDOT continue to pursue this policy for all shared resources agreements. The Department is advised, however, that shifting these risks and costs entirely to the private sector may, in some instances, reduce willingness-to-pay for ROW access or force carriers to consider alternate routes if they find the relocation risks to be too high.[29]

Who is responsible for relocating MDOT facilities and associated costs?

Typically the vendor will relocate all facilities located in the trench along the ROW and charge each party located in the trench a proportional share of the relocation costs. ROW managers that receive barter compensation in the form of fiber and/or conduit typically require the vendor to move their facilities at no cost to the ROW manager. However, in some instances, when relocation is required due to an unforeseen action of the ROW manager, relocation costs may be

[29] See CDOT and Pennsylvania Turnpike agreements for examples of approaches to address cost-sharing of relocation costs.

shared on a pro-rata basis. This option may be considered by the Department on an individual agreement basis, as conditions warrant.

If, on the other hand, there is a lateral spur to an MDOT facility that requires relocation and there are no other facilities along the spur, then MDOT will likely be required to pay the entire relocation cost for this facility because there are no vendor facilities that need to be moved.

Who is responsible for relocation costs to move facilities installed as excess capacity for future entrants?

In the event that MDOT requires the installation of excess capacity in conjunction with a shared resources project, the Department *may* consider some approach to shared relocation cost for those facilities installed to meet the excess capacity requirements. For example, if the Department requires a vendor to install additional conduits along a route for which it plans to restrict future access, then the Department may agree to pay a pro-rata portion of the relocation costs associated with any excess conduits that remain unoccupied at the time relocation is required. Once the conduits are occupied, MDOT would not be responsible for any future relocation costs.

One approach to plan for relocation costs may be to develop a reserve fund whereby a pre-established percentage (e.g., 10%) of all revenues received as compensation for ROW access will be directed to a "relocation fund" that will be available to fund these relocations on an as-needed basis. Examples of other options for shared relocation costs are presented above.

Resource Sharing Project Checklist

The Maryland Department of Budget & Management (DBM), acting on behalf of the State of Maryland, issued a **Statewide Communications Resource Sharing Solicitation** (DBM-2017-RESOURCE) on January 25, 2000. This solicitation will remain open until January 24, 2005. The following Checklist summarizes the tasks to be executed upon receipt of a proposal in response to this solicitation.

- ❑ Upon receipt of a Resource Sharing Proposal, the State will determine whether the proposal (1) meets the minimum response requirements, (2) has value to the State, and (3) is in the public's interest.

- ❑ Minimum response requirements:

  - ❑ Bid/Proposal Affidavit
  - ❑ Certified MBE Utilization and Fair Solicitation Affidavit
  - ❑ Addenda Acknowledgement Form
  - ❑ Business Enterprise Information Form

- ❑ Does Offeror demonstrate sufficient bonding capacity to meet all State bonding requirements?

- ❑ Does Offeror demonstrate sufficient insurance to meet State insurance requirements?

- ❑ Does Offeror meet MDOT's minimum requirements for utility permit applications?

- ❑ If it is determined that the proposal DOES NOT meet the minimum response requirements and/or offer sufficient value to the State, the proposal will not be accepted and the Offeror will be notified.

- ❑ If it is determined that the proposal DOES meet the minimum response requirements and offers value to the State, notice will be published in the Maryland Contract Weekly notifying the public that the State has received an offer and that other interested parties may submit their proposal within twenty (20) days of the notice date identified in the Maryland Contract Weekly.

- ❑ MDOT reviews existing agreements to determine whether existing capacity is installed along the route that may address the Offeror's needs.

- ❑ MDOT will work with DBM to identify State and Department communications needs and incorporate these needs in contract/agreement negotiations.

- ❑ MDOT prepares sample permit package and submits to Offeror for review and acceptance.

- ❑ MDOT/MdTA must approve the use of the ROW or the designated communications site or other conveyance and proposed contract/agreement.

- ❑ MDOT must determine if any portion of the proposed installation will be located in the Clear Zone. If (1) facility is installed within the clear zone and (2) MDOT seeks to restrict future access to this segment of ROW for safety reasons, Offeror will be required to announce co-build opportunity and/or install excess capacity to accommodate future needs along the route.

- ❑ Offeror or 3rd party may be required to determine excess capacity requirements along proposed route and provide documentation to support this determination.

- ❑ Offeror must meet MDOT's minimum requirements for applying for a permit to access MDOT ROW.

- ❑ Offeror must be a telecommunications service provider approved by the Maryland Public Service Commission. Certification of this approval must be provided by the Offeror prior to contract/agreement execution.

- ❑ Offeror shall sign and return to the State the Resource Sharing Agreement prior to Board of Public Works approval.