



A. I am a 1981 Graduate of Winchester High School. I began working for the Town of Winchester in 1983 as a Laborer for the Water and Sewer Department. In 1986 I became a field supervisor. In 1993 I became the Operations Manager for the DPW. In 2012, I became the Director of Public Works.

The Department of Public Works is responsible for maintenance of the Town's infrastructure and public facilities. The Divisions within the Department include Water and Sewer, Cemetery, Parks and Grounds, School and Public Buildings, Highway, Solid Waste and Recycling. The Department is responsible for the care and maintenance of Town trees and street lighting. The Department works with Town Boards, consulting engineers and provides coordination with state and federal agencies, other municipalities and outside utilities relative to public works projects.

**Q: Have you previously testified before the Energy Facilities Siting Board?**

A. No.

**Q: What is the purpose of your testimony?**

A. The purpose of my testimony is to highlight the significant impacts that the preferred route of Eversource's proposed Woburn to Wakefield underground 345-kV line will have on the Town and propose ways those impacts can be mitigated. The preferred route will have major impacts on the Town of Winchester as it is planned to be routed directly through the commercial, industrial and residential districts of the Town and is proposed to be in close proximity to the Town schools, playfields and Winchester Hospital.

**Q: Please describe those impacts.**

A. The impacts include but are not limited to the following:

1.) Construction related utility impacts.

- 2.) Long term loss of corridors for future utility replacement or improvement projects.
- 3.) Construction related traffic impacts including detrimental effects to public safety response times, disruptions to the commuting public and school traffic patterns including children walking patterns.
- 4.) Proportionally larger impact on environmental justice neighborhoods.
- 5.) Significant strain to town resources including impacts to Police, Fire, DPW and Engineering staffing levels.
- 6.) The Town is also bearing the burden of the 115kV Mystic-Woburn project, in addition to the Town of Winchester's already ongoing construction projects.

The 345 kV line is proposed to be constructed within the rights of way for Pickering Street, Border Street, Main Street, Cross Street and Washington Street. Main Street, Cross Street and Washington Street are some of the most heavily travelled and the busiest in the Town. These streets are major regional transportation routes that provide East/West and North/South corridors through the Town including access to Route 93 and ambulance routes to Winchester Hospital a Lahey Facility. The Winchester Hospital Ambulatory/Cancer Care Facility, the Muraco Elementary School and Leonard Field are located on Washington Street. Cross Street provides access to commercial as well as industrial businesses in Winchester and in Woburn, and a private multi-sport field for town athletics. The intersection of Cross Street and Main Street is heavily travelled and is one of the highest accident locations in the area.

#### **1.) Construction Related Utility Impacts**

As DPW Director, I am constantly dealing with the lack of underground space to repair, replace and maintain existing and future water, sewer and drain utilities. There are multiple layers of cost associated with taking the physical underground space. In one way or another this

cost is passed on to the residents of the Town of Winchester rather than all the beneficiaries of this power line. The costs include, excavating further or around the proposed line which takes more time. Aging or abandoned infrastructure may need to be removed to make room for a relocated or future utility. Emergency repairs will take longer because of the congestion to access and repair the problem. This extra time and effort is a cost in construction but also impacts the residents who are without water, sewer or drainage. The Town requests that we would have 3 feet clearance from our town utilities to the proposed 8 pipes that make up this transmission line. The Water Department will have to have two employees on site during this project to mark out services and shut off any mains or services that are damaged during construction. The Water Department currently has two employees and will be understaffed due to this project.

Overall there are a lack of detail information to allow the Town to make good management and financial decisions in the following categories. At this point in time the town has no ability to evaluate the soundness of the route selection or the costs associated with same.

Short term construction impacts

Hours of Operation

Coordination with state agencies

Driveway access to residents

Lay down areas

Notice to abutters

Nightly site clean up

Location of test pits-ledge?

Coordination with MWRA and DOT

HazMat notification

By-pass water service to residents—reliable water supply

Winter Moratorium- Nov. 15 to April 15

On-site the necessary inventory to cover any emergency repairs if breaks in the utilities

Paving-pave curb to curb according to town specs

Traffic —no traffic management plans and therefore not enough information to understand the impacts of the construction on the town for not only this project but the towns own routine and capital maintenance projects

Grant of Location—Based upon the information Eversource provided to us in response to Information Request TOW---- they understand that anything over 2 feet would be a “substantial” change that would require Eversource to return to the town for a change in the Grant of Location. No design changes in the field which would have the impact of changing the grant of location without the necessary approvals.

Street Openings—

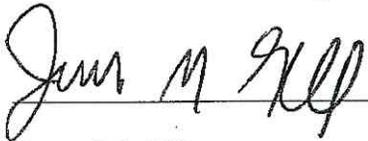
We have made Eversource aware of our expectations that we would receive traffic management plans, construction management plans, hours of operation, financial responsibility, winter moratorium, change order management, protection of our utilities during construction, layout areas, temporary and permanent restoration. It should be noted that the town has cooperated with Eversource to facilitate the siting process for the 115kV HPFF Mystic-Woburn

line with the understanding that the two lines would not be constructed at the same time. We have not received confirmation of this from Eversource as of today.

**Q: Does this conclude your testimony?**

**A. Yes**

Signed under the penalties of perjury, this 22 day of August, 2016.

A handwritten signature in cursive script, appearing to read "James M. Gill", is written over a horizontal line.

James M. Gill  
Director, Department of Public Works

# TOWN OF WINCHESTER, MASSACHUSETTS



## **Rules and Regulations Governing Street Opening Permits and Grants of Location in the Town of Winchester, Massachusetts**

Adopted by the Winchester Board of Selectman April 30, 2007

## 1.0 INTRODUCTION

The purpose of this document is to set forth the Town of Winchester's rules and regulations governing street openings permits, permits for work in the public right-of-way, grants of location and related permitting requirements.

Applications for street opening permits must be filed with the Town of Winchester Department of Public Works. The current form of street opening permit is attached as Appendix A. The back of the street opening permit application explains important state law requirements including the Massachusetts "Dig-Safe" law (Massachusetts General Laws ch. 82, Sections 40 - 40D) and the state's Excavation and Trench Safety Law (MGL ch. 82A, Sections 1 -3). Applicants for street opening permits and/or grants of location must comply with the state's Dig-Safe and Excavation and Trench Safety Law, and other state laws, and compliance with state law shall be a condition of any permit or grant of location. The Town has further simplified the permitting process by incorporating local permit guidelines and street excavation and restoration standards already adopted by the Massachusetts Department of Telecommunications and Energy (DTE), entitled "Standards to be Employed by Public Utilities When Restoring Any of the Streets, Lanes and Highways in Municipalities" (August 26, 1999, DTE Docket 98-22) (attached as Appendix B), subject to certain local Clarifications and Implementing Guidelines (attached as Appendix C).

Applications for street opening permits are to be filed at the Department of Public Works (DPW) with accompanying user fee, insurance certificate, project description and plan, and applicants are subject to other permit application requirements indicated on the attached permit application form. Related details of the Town's street opening and excavation permit process are explained in the following pages. Further information can be obtained by contacting the Town of Winchester DPW.

Electric, cable, telephone, gas and other companies seeking to place lines, conduits or fixtures in new locations, or otherwise expand upon current infrastructure, may be required by state law to notify abutters and obtain Board of Selectmen approvals ("grants of location") in addition to obtaining a DPW street opening permit, to the extent required by Massachusetts General Laws ch. 166, Sections 21 -22 and ch. 164, Section 70, and as further required by the Town. These Rules and Regulations therefore also seek to clarify the local grant of location process, as well as the street opening permit process.

## 2.0 STREET OPENING PERMIT POLICY AND PROCEDURES

A street opening permit must be obtained prior to any excavation, opening or resurfacing work on, in, under or over any Town-owned right-of-way, easement, or land and certain private land. The Town's right-of-way usually includes the sidewalk, pavement, curbing, and other areas such as green strips between the curb or sidewalk and private property. Permits are also required for work on private roads wherein the Town maintains water and/or sewer infrastructure and State law requires a local permit for work on private land subject to the Massachusetts Excavation and Trench Safety law, MGL ch. 82A. The permitting process helps the general public and companies using the right-of-way by ensuring that work follows safety, work, traffic, street restoration and other standards and the process helps coordinate schedules among numerous agencies and users of the right-of-way. Permits are required for any type of excavation in the public right-of-way including but not limited to: installing, repairing or replacing any conduits, pipes, laterals and underground utilities; resurfacing the street; resurfacing, widening or repairing any sidewalk in the public right-of-way; installing, replacing or removing street curbing; and storing materials, dumpsters or equipment in the public right-of-way.

### 2.1 Application Process

Standard application forms for street opening permits can be obtained from the Department of Public Works (DPW) at 15 Lake Street, Winchester. A sample application form is attached to this document as Appendix A. Each application form shall be completely filled out, signed and submitted to the DPW for review. The application shall be accompanied by the appropriate plans, permit fees, certifications, certificates of insurance, or other items specified in the application, in these Rules or as reasonably requested by the Town. All plans shall be at a scale of 1" = 40' or less (i.e. 1"=10', 1"=20', or 1"=30'), and shall, at a minimum, contain the following information:

- Name, address, and telephone number of applicant;
- Name, address, and telephone number of plan preparer (if different) and emergency contact telephone number;
- Location of the proposed street opening, resurfacing or similar work;
- Existing pavement, driveways, and buildings, including street addresses at or adjacent to the work area;
- Existing property lines, mailboxes, signs, trees, fences, walls, guard rails, curbing, berms, and rock outcrops at or adjacent to the work area;
- Existing utility poles and other above-ground utilities at or adjacent to the work area;
- Existing underground utilities within the proposed construction area, including house service connections; and

- Existing wetlands, floodplains, rivers, ponds, and streams at or adjacent to the work area.

The DPW will review application materials and will make an assessment of the acceptability of the application and proposed work. The DPW reserves the right to consult with the Town Engineer, Police Department, Fire Department, Town Manager, Board of Selectmen, and other municipal departments and boards and/or their designees as may be helpful to diligent review of the application. If the application is approved, a Street Opening Permit containing reasonable conditions, as the Town deems appropriate, shall be issued promptly. If the application is denied, the Town shall communicate in writing to the applicant the reason(s) for denial.

All street opening permits are valid for 30 days from the date of their issuance unless a longer or shorter duration is expressly specified in the permit. Applicants requiring a longer duration may apply to renew their permit in 30-day increments. Permittees shall exercise best efforts to complete work in any time frame approved or specified by the Town.

#### *Section 2.1.1 Related Applicable Laws*

All street opening permits are subject to applicable local, state and federal law, including but not limited to Massachusetts "Dig-Safe" requirements (Massachusetts General Laws ch. 82, Sections 40 - 40D) and the state's Excavation and Trench Safety Law (MGL ch. 82A, Sections 1 -3). Compliance with applicable law shall be a condition of any permit or grant of location. Workers subject to licensing requirements applicable to excavation and related work must maintain current and proper licensure, including but not limited to licensure for operation of hoisting equipment as required by MGL ch. 146. Compliance with applicable engineering and other codes shall be a condition of any permit granted hereunder.

With respect to matters that may be respectively under the jurisdiction of the DPW or Board of Selectmen regarding street opening permits and/or grants of location, other Town departments or boards retain any independent and/or concurrent jurisdiction they may have lawfully have. The Town Zoning Enforcement Officer, the Planning Board, Zoning Board of Appeals, Conservation Commission and other municipal departments and boards maintain any and all rights they may have under the Town Zoning By-law and other state and local laws with respect to placement and construction of utility structures, equipment and facilities.

## **2.2 Pre-Construction Meeting**

Unless expressly waived by the DPW, for excavations greater than 20-feet in length, the DPW Director shall require the applicant to attend a pre-construction meeting to discuss the proposed work and review best management practices. Such meeting shall occur prior to the issuance of the street opening permit.

### **2.3 Fee Schedule**

The fee for all street opening permits is \$106.00 as of the issuance of these specifications. This fee covers only the administrative costs associated with reviewing, processing and issuing the permit. Unless otherwise agreed in writing by the Town, a street opening permit will not be issued until the application fee is paid in full.

### **2.4 Bond and Insurance Requirements**

At the time the street opening permit application is filed, the applicant shall present a policy of insurance, or a certificate of insurance, with the Town of Winchester named as an additional insured, issued by a major insurance carrier licensed to do business in Massachusetts. The minimum insurance requirements are as follows, unless other amounts are prescribed by law:

- Bodily Injury Liability for not less than \$500,000.00 for injury or death of any one individual, and not less than \$1 million injury or death in any one accident
- Property Damage Liability not less than \$300,000.00 including damage to property caused by explosives and blasting, or by vehicles or equipment, or on account of trenches or from any other cause. The DPW Director may require increased limits or insurance for property damage.

Prior to the issuance of a Street Opening Permit, the applicant shall also deposit with the Town a Performance Bond of a surety company authorized to do business in Massachusetts in an amount and form required by the DPW Director. The amount of the Performance Bond shall be not less than \$5,000.00 or as determined by the DPW Director, or as otherwise required by law, such that the Town will be protected against loss in the event of the failure of a permit holder to complete the work or make required repairs or restoration of damages involving the work or encroachment authorized by the permit. The instrument must be written so as to allow the Town of Winchester to perform work deemed necessary by the DPW Director to correct any deficiencies. All cost incurred by the Town may be applied against the Performance Bond if such costs are not recovered after billing to the permittee. The bond shall be released to the permit holder upon the expiration of the guarantee period, if applicable. The above insurance and bond requirements shall be in addition to any available remedies the Town may have at law or equity.

### **2.5 Refundable Deposit**

If specified by the DPW Director, the applicant may be required to provide a deposit, sum to be determined by the Director, to secure proper restoration of the public way. The deposit shall be provided via check made payable to the Town of Winchester.

Following notice by the applicant that the final permanent repairs have been made to the public way, the DPW Director or his/her designee shall make an inspection. If the

Town has concluded that permanent repair work has been satisfactorily concluded and that the applicant has no other uncured defaults under Street Opening Permits in the Town, the Town shall release the unexpended balance of the security deposit.

All refundable deposits shall be held by the Town of Winchester in accounts specifically designated for the applicants. To facilitate return of refundable deposits, the Town reserves the right to have such deposits payable to a separate, restricted third party account not subject to general fund appropriation requirements, consistent with applicable law. Upon request, applicants may receive periodic reports as to the balance standing within this account. Should the applicant default on required repairs, the Town of Winchester, without limitation to other remedies available to it, may deduct the cost of the proper repair from the applicant's account, subject to and in accordance with applicable law.

## **2.6 Indemnification**

The applicant shall, as a condition governing the issuance of a permit, indemnify and hold harmless the Town of Winchester, its departments, including the DPW Director and his/her agents and employees, from any and all claims and actions whatsoever arising from the acts or omissions in connection with work performed pursuant to said permit and with respect to any claims in connection therewith, and shall indemnify the Town for acts or omissions of the applicant's agents, contractors and invitees. The applicant's signature on the permit application shall constitute acknowledgement and agreement with the above condition.

## **2.7 Technical Specifications; Work and Safety Standards**

All street opening, street restoration and related work in the Town of Winchester shall comply with the Massachusetts Department of Telecommunications and Energy's Standards To Be Employed by Public Utility Operators When Restoring Any of the Streets, Lanes, and Highways in Municipalities (adopted August 26, 1999, DTE Docket 98-22) attached as Appendix B, subject to certain clarifications and implementing details attached as Exhibit C. As provided in DTE Standard Section 3.0, the Town has the authority to inspect work in progress and the permittee shall correct any deficiencies identified during said inspections. The DTE standards further incorporate Mass. Highway Standards as pertain to street excavations and repair unless otherwise modified by the DTE standards, so all permittees must be familiar with the DTE work standards; and applicable Mass. Highway Standard technical specifications. See Appendix B, DTE Standards, particularly Section 4., Work Standards; Section 5, Safety Standards; Section 6, Protection of Adjoining Facilities, Section 7, Excavations; Section 8, Backfill and Compaction; and Section 9, Pavement Restoration. The Town may inspect traffic, safety and completed work as necessary to determine the existence of right-of-way problems, if any, and to assess remediation needs, if any.

## **2.8 Moratoriums**

The Town of Winchester maintains a moratorium on street opening activities between November 15 and April 15. Any exceptions may be approved at the reasonable discretion of the DPW Director.

Additionally, roads paved within the past five years shall be subject to a street opening moratorium, except in emergency conditions as determined by the DPW Director. In such circumstances, the DPW reserves the right to require that the permanent patch be treated by a process (*i.e.* infra-red, microwave, or equivalent) that will ensure that the patch is integrated into the existing bituminous surface in a seamless manner. The DPW will consider petitions to waive the five-year moratorium on a case-by-case basis.

## **2.9 Emergency Permits**

Oral permission may be granted by the DPW Director or his/her designee to perform emergency work, such as repair of broken gas lines, telecommunication lines, or electric service conduits. The person receiving such permission must file for a permit in the manner prescribed for non-emergency work on the first working day following oral permission.

## **2.10 Active Subdivisions**

The DPW will not issue a street opening permit for any street within an active subdivision, except if required by applicable law. It is the responsibility of the contractor to obtain permission from the subdivision owner for any such street openings. An "active subdivision" is one that the Planning Board has not yet certified as fully meeting the conditions and requirements of the approved subdivision plans and/or one with respect to which the Town continues to hold any surety for the performance of the developer's obligation under such a plan. Notwithstanding the foregoing, any street opening work relating to any subdivision shall also be in compliance with applicable general laws and local by-laws and/or regulations pertaining to subdivisions, including but not limited to the "Rules and Regulations Governing the Subdivision of Land in the Town of Winchester, Massachusetts" and the "Special Provisions for the Construction of Roadways Including the Installation of Water, Sewer, and Drains in the Town of Winchester, and other requirements of the Planning Board, Engineering Department, DPW, Building Department, Board of Health, and other Town departments and/or municipal boards, and utilities, contractors and developers performing such work shall be subject to same as applicable.

### **2.11 Compliance; Remediation; Penalties**

To the extent permitted by applicable law, and subject to applicable law, the Town reserves the right to impose fines on any person, firm, or corporation who violates these regulations which fines shall be not less than \$50.00 and not more \$500.00. Each day such violation continues shall constitute a separate offense.

If the work, or any part thereof, mentioned in the preceding section shall be unskillfully or improperly done, the Town shall cause the same to be repaired in accordance with Town standards. The costs associated with all such repairs shall be recovered from the applicant's bond or paid by applicant directly, as may be required by the Town to ensure lawful recovery. Permittees shall exercise best efforts to cooperate with the Town to coordinate and implement any and all necessary repairs and steps necessary to compliance with applicable requirements. With respect to any apparent non-compliance, the permittee shall upon request of the Town forthwith provide any remediation, information and technical assistance as needed to ensure appropriate remediation and compliance.

Any entity opening streets or sidewalks without a permit is subject to the cancellation and refusal of existing and future permits and associated fines. Any entity who continues to violate any regulation of this policy shall receive no further permits until such time as the Town is satisfied that the person or utility shall comply with the terms of this policy.

### **2.12 Reporting; Information Requests**

Upon the written request of the DPW, Town Engineer, Town Manager, and/or the Board of Selectmen, each utility or contractor working in the Town shall provide the Town with a copy of any standards and/or procedures used by such utility or contractor for excavating and/or restoring public ways within the Town, as well a written statement of policies on insuring managers and crews are aware of and accountable for following such standards and/or procedures. Permittees shall promptly reply to reasonable Town information and meeting requests in connection with lawful Town right-of-way management responsibilities.

### **2.13 Revisions and Severability**

These procedures may be revised from time to time by vote of the Winchester Board of Selectman, subject to and in accordance with any applicable laws and requirements incidental thereto. The invalidity of any section of these procedures shall not invalidate any other section or provision thereof, nor shall it invalidate any permit that has been previously issued.

#### **2.14 Consistency With State and Federal Law; Waiver Procedure**

In the event any term or condition hereof is deemed by a permittee or applicant to be in conflict with applicable state or federal law, and deemed preempted by such state or federal law, the permittee or applicant may request a waiver of such term or condition, and state reasons therefore, and the DPW shall consider such request and the reasons therefore. If the DPW is in agreement with the permittee's or applicant's claim of inconsistency with applicable law, the DPW may waive such term or condition consistent with applicable law. Further to the foregoing, it is the intent of the Town that these Rules and Regulations be subject to and consistent with any applicable state or federal law, and the DPW shall seek to apply local standards consistent with applicable law.

### 3.0 GRANT OF LOCATION POLICY AND PROCEDURES

Electric, cable television, telephone, gas and other companies seeking to place wires, conduits or fixtures in new locations in the right-of-way, or otherwise significantly expand upon current infrastructure in the right-of-way, must comply with state and local grant of location laws, Massachusetts General Laws ch. 166, Sections 21 - 22 and ch. 164, Section 70 and procedures herein.

#### 3.1 Overview of Massachusetts General Laws Governing Grants of Location

The following statutes govern the Grant of Location process in the Commonwealth of Massachusetts:

- Electric, Telecommunication, and Cable Companies - Massachusetts General Law (MGL) Chapter 166, Sections 21 and 22
- Gas Company - MGL Chapter 164, Section 70

MGL Chapter 166, Sections 21 and 22 require that telecommunication, cable, and electric companies petition the local Board of Selectmen for consent prior to the installation of wires or appurtenances in new locations or before substantially modifying the burdens imposed by existing installations in the public way. In cases where new or substantially more burdensome locations/installations are involved, a public hearing is required with a written notification provided to abutters at least seven days prior to the hearing. This statute applies to both aerial and underground installations

Gas companies are subject to a separate statute, MGL Chapter 164 Section 70, regarding obtaining Board of Selectmen consent to locations. As a matter of good public policy, the Town of Winchester has required notification of abutters in connection with public hearings on requests for grants of location for gas companies and all utilities and persons subject to the above statutes.

Note that a company that must obtain a Board of Selectmen grant of location for new locations and expanded installations involving street cuts in the right-of-way, must also seek a DPW street opening permit for street excavation and restoration work and therefore must comply with the above street opening standards as applicable (see Section 2.0 et al above), DTE standards and applicable local, state and federal law. With respect to matters that may be respectively under the jurisdiction of the DPW or Board of Selectmen regarding street opening permits and/or grants of location, other Town departments or boards retain any independent and/or concurrent jurisdiction they may have lawfully have. Compliance with applicable related local, state and federal laws

and engineering and other codes shall be a condition of any grant of location or permit granted hereunder.

### 3.2 Activities Not Requiring Grants of Location

Grants of location are not required when the utility company is merely replacing existing infrastructure with new infrastructure in the same location; however, a DPW street opening permit will be required. As explained in MGL Chapter 166, Section 22, paragraph 2, "No order of the board of aldermen or selectmen shall be required for renewing, repairing, or replacing wires, cables, poles, piers, abutments, conduits, fixtures on erected... or for making house connections or connections between duly located conduits and distributing poles". Likewise, grants of location are typically not required if the public utility is merely overlashing wire or conduit onto an existing wire/conduit. However, if the utility is opening the street, a street opening permit would be required from DPW (see Section 2.0).

Grants of location are not required on private streets. However, a street opening permit is required if the utility company is digging in the street, and the Town maintains an easement for its water and sewer lines in the roadway, or if the utility is otherwise digging a trench in a private way, as trench excavation may be subject to the permitting process under MGL ch. 82A.

### 3.3 Application Process

According to state law, all grant of location petitions must originate with the utility company or party burdening the right-of-way. Therefore, homeowners wishing to move electrical lines underground, for example, must first contact the public utility company. The utility company (party responsible for burdening the right-of-way) will then provide a written petition to the Town of Winchester Board of Selectmen. All petitions must include a plan at a scale not greater than 1" = 40' (i.e. 1"=10', 1"=20', 1"=30'). The petition and plan, as applicable, shall contain the following information:

- Name, address, and telephone number of applicant;
- Name, address, and telephone number of plan preparer (if different) and emergency contact telephone number;
- Location of the proposed grant of location and written description of the route of any proposed wire, conduit or line; project description showing location of proposed infrastructure, including but not limited to conduit, wire, pipelines, laterals, power supplies, vaults, pedestals, manholes, surface connection points and significant facilities and equipment to be located in the public way;
- Existing pavement, driveways, and buildings, including street addresses at or adjacent to the work area;

- Existing property lines, mailboxes, signs, trees, fences, walls, guard rails, curbing, berms, and rock outcrops at or adjacent to the work area;
- Existing utility poles and other above-ground utilities at or adjacent to the work area;
- Existing underground utilities within the proposed construction area, including house service connections;
- Existing wetlands, floodplains, rivers, ponds, and streams; and
- Engineering drawings of the locus should be in American Public Works Association ("AWPA") format or comparable format.

The Grant of Location Petition (and Grant of Location Order, if issued), should contain:

- Language showing petitioner's agreement to indemnify Town, provide insurance, bond and otherwise comply with state law and local requirements (including DTE's Street Restoration Standards; State Dig-Safe and Excavation and Trench Safety Law; other applicable state laws; Winchester's Rules and Regulations Governing Street Opening Petitions and Grants of Location in the Town of Winchester; and the Town's by-laws and other lawful requirements.

#### *Section 3.3.1 Notice and Public Hearing; Related Procedures*

Once a satisfactory petition is received by the Board of Selectmen, the petition will be forwarded to the DPW and Town Engineer for review and comment, and for possible pre-hearing informal meeting to garner necessary technical information. If the petition is complete and in compliance with lawful requirements, a public hearing before the Board of Selectmen is scheduled to review the matter, and owners of property abutting the proposed work site are notified in writing of the hearing not less than seven (7) days in advance of the public hearing. Further notice shall be posted in the Town Hall. Applicant shall reimburse customary and reasonable costs of notification. At the hearing, abutters shall be given an opportunity to speak and comment on the application. DPW and the Town Engineer's comments and recommendations are reviewed by the Selectmen at the public hearing. The Town reserves the right to require the petitioner to implement the mailing of the notifications to abutters. Applicant shall provide the Selectmen with any additional information reasonably requested for review of the grant of location petition. When acting on a grant of location application, the Board of Selectmen shall review the application, any evidence presented at the public hearing, and the recommendations received from the DPW, Town Engineer and other departments. The Selectmen may reasonably consider lawful matters relevant to right-of-way management, including but not limited to the likelihood that the new facility will incommode the public use of the public ways or endanger or interrupt use of the public ways, and may consider reasonable conditions appropriate to protection of the physical use and condition of the public way. If the Board of Selectmen votes favorably on the petition, the utility company (or their agent)

must obtain a DPW street opening permit for work in the streets before the work can commence, and any such street opening permit must be in compliance with Sections 2.1 through 2.14 of these rules. If the grant of location involves aerial construction and therefore does not require a street opening permit, the applicant shall nevertheless be required to provide insurance, performance bond and indemnification in compliance with Sections 2.4 and 2.6 of these Rules and Regulations. The Clerk of the Town shall maintain a permanent file or registry of Town grant of location orders.

### **3.4 Additional Grant of Location Requirements**

#### *3.4.1 Information requests; as-built plans*

If requested in writing by the Town, existing grantees or occupants of the public right-of-way shall provide such engineering and technical information relevant to the Town's right-of-way management responsibilities, and shall file as-built plans of existing infrastructure. Where feasible, existing grantees or occupant of the public right-of-way shall file electronic versions of the foregoing.

#### *3.4.2 Insurance, bond, indemnification*

All owners and builders of underground, aerial and above-ground right-of-way plant shall maintain comprehensive personal and property insurance to protect the general public and the Town in the event of any liability arising from said plant, and said insurance shall name the Town and its Departments as Additional Insureds. Grants of Location shall contain an acknowledgment of the Grantee's responsibility for maintenance of and liability for the conduit, aerial plant and other right-of-way infrastructure, including customary indemnification of the Town. Said Grantee insurance and indemnification shall extend to insurance for and indemnification of the Town and the public for acts of the Grantee's subcontractors or agents, if any. Grantees shall obtain performance bonds ensuring statutory and Grant of Location compliance in connection with such construction. Subcontractors shall provide such insurance and performance bond as may reasonably be required by the Town. Clear and adequate insurance in accordance with the above must be in place prior to any construction and in accordance with Town requirements. Copies of actual insurance and bond certificates (or accurate samples) shall be provided to the Town for review in advance of Town action on a grant of location application. Grants of Location involving street openings shall be deemed in compliance with this paragraph if in compliance with the above street opening standards (Sections 2.4 - 2.6) regarding insurance, bond, deposit and indemnification.

#### *3.4.3 No real estate interest created*

In accordance with existing Massachusetts law, no grant of location shall create a real estate property interest, real estate easement or servitude, but shall create a grant of location only, unless expressly otherwise provided.

#### *3.4.4 Miscellaneous Terms and Conditions*

The Selectmen reserve the right to seek such additional lawful Grant of Location terms and conditions as are reasonable to protect the public safety, manage traffic, assure proper work standards and street restoration, and perform the Town's right-of-way management responsibilities.

#### *3.4.5 Avoidance of Construction Vertically Over Town Water Mains and Sewer Pipes*

The Town has experienced maintenance, access, construction and safety problems resulting from gas company and other pipes/mains occasionally being placed vertically over Town water mains, drain lines, and sewer pipes. In the event of a water main or sewer pipe leak, the Town needs ready access to its own pipes to implement repairs. Access to Town utilities (*i.e.* water, sewer, and drain) is made difficult and dangerous if the Town has to excavate around gas mains and other infrastructure located vertically above its utilities. Vertical placement of gas or other mains/pipes vertically above Town water mains, drain lines, and sewer pipes incommodes the Town's use of the right-of-way for public utility infrastructure, and Massachusetts law establishes that Town grants of location may be used to prevent incommoding of use of the right-of-way. Accordingly, it shall be a condition of Town grant of location policy that any petitioner not locate its mains or pipes vertically above Town water mains, drain, or sewer pipes, absent a showing that such location is the only location reasonably available to the petitioner.

### **3.5 Application Fee**

All petitioners are required to pay a \$100.00 application fee at the time the request is submitted to cover the costs associated with the administrative review and processing of the application, the mailing of notice to abutters, and any other notification and/or direct review costs. The grant of location application will not be processed until the application fee has been received.

### **3.6 Consistency With State and Federal Law; Waiver Procedure**

In the event any term or condition hereof is deemed by a grantee or applicant to be in conflict with applicable state or federal law, and deemed preempted by such state or federal law, the permittee or applicant may request a waiver of such term or condition, and state reasons therefore, and the Board of Selectmen shall consider such request and the reasons therefore. If the Board of Selectmen is in agreement with the grantee's or applicant's claim of inconsistency with applicable law, the Board of Selectmen may waive such term or condition consistent with applicable law. Further to the foregoing, it is the intent of the Town that these Rules and Regulations be subject to and consistent with any applicable state or federal law, and the Board of Selectmen shall seek to apply local standards consistent with applicable law.

### **3.7 Co-location of Facilities, Surplus Capacity and Mitigation**

#### *3.7.1 Co-location*

To minimize disruption of the public rights-of-way, it is the policy of the Town to encourage grantees to make excess capacity available to other co-locators on commercially practical and technically feasible terms and it is the policy of the Town to encourage applicants to consider use of existing excess capacity on commercially practical and technical feasible terms. To promote such co-location, applicants shall, if requested by the Town at a pre-construction meeting, enter good faith discussions with the DPW to consider voluntary and mutually agreeable co-location plans, including notification of other companies of co-location, joint trenching or similar opportunities for shared use or development of facilities. Further to such promotion of co-location, any applicant shall, if requested by the Town, report to the Town on company policies to provide third parties with non-discriminatory access to company infrastructure, and company shall indicate the extent such non-discriminatory access is required by applicable federal or state law.

#### *3.7.2 Construction of Surplus Capacity*

To minimize disruption of the public rights-of-way, it is the policy of the Town to encourage grantees to build surplus conduit, pipes or other capacity for use by co-locators on commercially practical and technically feasible terms. To promote such construction of surplus capacity, applicants shall, if requested by the Town at a pre-construction meeting, enter good faith discussions with the DPW to consider voluntary and mutually agreeable terms concerning construction of surplus capacity for third party use, or Town use. If requested by the Town, applicant shall explain its own projected future needs for conduit or facilities in the public right-of-way, and what plans, if any, applicant has to install surplus capacity to avoid future excavation to meet its own projected needs.

### **3.8 Severability**

The invalidity of any section of these procedures shall not invalidate any other section or provision thereof, nor shall it invalidate any permit that has been previously issued.

## **4.0 MISCELLANEOUS PROVISIONS**

### **4.1 Relocation of Facilities Due to Public Necessity**

Any holder of a street opening permit or grant of location accepts such permit or grant with the understanding that Town public works, public improvements, construction, excavation, grading, filling or work of any kind in the right-of-way may necessitate such permittee or grantee to relocate its facilities at its sole cost and expense to enable such Town work, and Town shall not be liable for any damage to or loss of any overhead or underground facility located in the right-of-way as a result of or in connection with such work. Any necessary relocation work shall be coordinated with the DPW, Town Engineer, and/or Board of Selectmen as applicable to ensure use of authorized and appropriate locations.

### **4.2 No Real Estate or Exclusive Interest**

Any holder of a street opening permit or grant of location shall have no real estate interest or exclusive right, privilege or franchise to occupy or use the right-of-way, and no permit or grant shall be construed as a warranty of title.

### **4.3 Removal of Facilities**

In the event of a lawful termination of a permit or grant of location, or abandonment of facilities, Town reserves the right, to extent allowed by applicable law, to order permit holder or grantee to remove its underground or overhead facilities from the right-of-way and restore the area to its original condition within six months. In the event that the permit holder or grantee fails to so remove its facilities, the awarding authority may treat such as abandoned property and, among other remedies, remove the facilities and restore the area at the owner's sole cost and expense.

### **4.4 Co-location and Surplus Capacity**

In the event of a finding that state and federal law authorize Town to impose reasonable, commercially practical and technically feasible permit or grant of location conditions to ensure provision and/or construction of surplus capacity for co-location of third party or Town facilities, or Town interconnection, Town reserves the right to mandate such provision and/or construction of surplus capacity for co-location of third party or Town facilities.

### **4.5 Mitigation**

To ensure the physical integrity of the public rights-of-way, it is the policy of the Town to encourage applicants for street opening permits and grants of location to reasonably mitigate the impacts of multiple street openings and resulting traffic and public safety

problems, hazards, nuisances, costs, disturbances, possible damage to water and gas mains, discharge of contaminants into sewer systems and/or conservation areas; degradation of the Town's aesthetic character; and to generally minimize disruption to and deterioration of the public ways. Consequently, upon request of the Town applicant for a street opening permit or grant of location shall participate in a process of voluntary consultation and mitigation directed to consideration of: lawful User Fee or other lawful reimbursements that may be payable to the Town; in kind provision of technical assistance and dedicated Networks and Telecommunications Services to the Town; environmental and environmental health and safety monitoring and mitigation programs; and engineering monitoring and mitigation programs. In the event of voluntary and mutual agreement on mitigation terms beyond those within the power of the Town to unilaterally require, if any, the Town reserves the right to codify such terms in a grant of location.

**APPENDIX A**

**Sample Street Opening Permit Application**

**APPENDIX B**

**The Department of Telecommunications and Energy's (DTE's) "Standards To Be Employed by Public Utility Operators When Restoring any of the Streets, Lanes and Highways in Municipalities"**

## **APPENDIX C**

### **Clarifications and Implementing Guidelines for the DTE Standards**

## APPENDIX C

The following sections clarify or further implement the Massachusetts DTE Standards ("Standards To Be Employed by Public Utility Operators When Restoring any of the Streets, Lanes and Highways in Municipalities") provided in Appendix B. The section numbers below refer to the section numbers in the DTE Standards.

### Section 3.0 - Permit Requirements

Section 3.2 - All notification regarding the start of work shall be made in writing to the Winchester DPW, Engineering Department, Fire Department, and Police Department. Where required by the DPW, notifications shall be accompanied by a construction schedule.

Section 3.3 - Following issuance of the street opening permit, the Town of Winchester will exercise reasonable efforts to mark out the location of the water, sewer, and drain lines in the vicinity of the work area.

Section 3.6 - All work in the public way, except activities deemed by the DPW Director as "emergency repairs", shall be limited to the hours of 7am to 4pm. Additional work hour restrictions may apply on arterial roadways or in the vicinity of public schools.

*Arterial roadways* are defined as follows:

Bacon Street	Johnson Road
Cambridge Street	Lockland Road
Church Street	Main Street
Cross Street	Mt. Vernon Street
Fletcher Street	Ridge Street
Forest Street	Skillings Road
Grove Street	Swanton Street
High Street	Washington Street
Highland Avenue	Wildwood Street

Except in emergencies, no work shall be allowed on Saturdays, Sundays, and legal holidays. In addition, no new work shall commence on Fridays.

### Implementation Procedure

- The DPW shall be immediately notified of any disruption, displacement, or breakage of any water sewer, drain, fire alarm, or other Town-owned conduit or utility.

### Section 4.0 - Work Standards

Section 4.4 - The DPW Director may require faster response than 48-hours if the defect poses a threat to public safety.

## **Section 5.0 - Safety**

Section 5.1 - The Utility shall, where possible, maintain safe crossing for two lanes of vehicular traffic at all public intersections, as well as safe crossing for pedestrians at intervals of not more than 300-feet. Any excavation made across a public way shall be made in sections to insure maximum safe crossing for vehicles and pedestrians.

### Implementation Procedure

- Where passage and flow of pedestrian or vehicular traffic will be impeded or rerouted, the Utility shall provide at his/her own expense sufficient police details to direct and supervise vehicular and pedestrian traffic. All traffic management plans must be approved by the DPW and the Police Department prior to the start of construction and shall be in compliance with lawful Town of Winchester requirements.
- If work is not completed by the end of the day (4 pm), the travel lane must be reopened to traffic for overnight use either by placement of a temporary patch or a road plate of sufficient size to completely cover the street opening, and in accordance with other applicable Codes and standards. The Utility shall, at his/her own expense, provide suitable and safe means for completely covering all open excavations and for accommodating travel when work is not in progress.

## **Section 6.0 - Protection of Adjoining Facilities**

Section 6.2 - The Winchester DPW shall be immediately notified of any interference with water, sewer, or drain lines. All such systems shall be immediately restored to their original condition at the direction of the DPW and at the Utility's expense.

Section 6.7 - The Utility shall not be allowed to remove, even temporarily, any trees or shrubs that exist in the right-of-way without the express written consent of the DPW Director or his designee. The Utility shall provide adequate protection of all plantings in the right-of-way throughout the construction and restoration process.

### Implementation Procedure

- The Utility shall be responsible for protecting or restoring to original conditions all public and private property impacted by the proposed work. The Utility shall at all times, and at his/her own expense, preserve and protect from injury any adjoining property by providing proper foundations and lateral support, and by taking such other precautions as may be necessary for that purpose. The Utility shall, at his/her expense, shore up and protect buildings, trees, walks, fences, walls, or other property likely to be damaged during the process of excavation work and shall be responsible for all damage to public or private property or

roadways resulting from his/her failure to properly protect and carry out said work.

- All existing drainage facilities, including brooks, streams, canals, channels, ditches, culverts, catchbasins, and piping shall be adequately safeguarded so as not to impede drainage or to cause siltation of downstream areas. If the Utility damages or impairs through circumstances beyond their control any of the aforesaid drainage facilities, repairs shall be made within the same day, at the Utility's expense.

## **Section 7.0 - Excavations**

Section 7.1- All final pavement cuts shall be straight lines with ninety-degree angles at all corners. When the opening occurs within three-feet of the curb and/or edge of the hardened surface, the paved area between the excavation and the curb and/or edge must be removed.

### Implementation Procedure

- No opening or excavation in any street shall extend beyond the centerline of the street before being backfilled and the surface of the street temporarily restored.
- The length of all open trenches shall not exceed 20-feet.
- All surplus and/or unacceptable excavated material shall be removed from the job site immediately. The excavation site shall be maintained in a clean and safe condition at all times. The removal and disposal of materials, including pavement, is the sole responsibility of the Utility.

## **Section 8.0 - Backfilling and Compaction**

### Implementation Procedure

- The use of CDF shall be required on all arterial streets; on all trenches over 10-feet in length, or as conditions warrant. In all cases where CDF is used, the Utility shall backfill with sand and compact to a level of six-inches above the pipe before adding CDF to the trench. The final compacted sand layer shall be 12-inches deep.

## **Section 9.0 - Pavement Restoration**

Section 9.6- All final pavement cuts must be straight lines with ninety-degree angles at all corners. When the patch is complete, the joints shall be sealed with a penetrating asphalt emulsion.

Section 9.9- In line two, "two-feet" shall be replaced with "three-feet".

Implementation Procedure

- Any curbing or berm that is damaged or removed as part of the street opening work shall be replaced in kind. All excess, salvageable granite curbing that is removed from the public way is the property of the Town of Winchester and shall be delivered to the DPW by the Utility.
- All permanent pavement markings, such as crosswalks and traffic centerlines, shall be repainted or replaced by or under the direction of the DPW Director at the Utility's expense.

**Section 10.0 - Sidewalks and Driveways**

Implementation Procedure

- Disturbed grass strips shall be restored with a minimum of six-inches of sifted loam, which shall be fertilized and seeded.

COMMONWEALTH OF MASSACHUSETTS  
ENERGY FACILITIES SITING BOARD

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Petition of NSTAR Electric Company d/b/a Eversource )  
Energy and New England Power Company d/b/a )  
National Grid for Approval to Construct and Maintain a ) EFSB 15-04  
New 345 kV Underground Transmission Line in )  
Woburn, Winchester, Stoneham and Wakefield Pursuant )  
to G.L. c. 164 § 69J )  
)

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Petition of NSTAR Electric Company d/b/a Eversource ) D.P.U. 15-140  
Energy and New England Power Company d/b/a )  
National Grid for Approval to Construct and Operate a )  
New 345 kV Underground Transmission Line in )  
Woburn, Winchester, Stoneham and Wakefield Pursuant )  
to G.L. c. 164 §72 )  
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Petition of NSTAR Electric Company d/b/a Eversource ) D.P.U. 15-141  
Energy and New England Power Company d/b/a )  
National Grid for Individual and Comprehensive Zoning )  
Exemptions from the Zoning Ordinance of the City of )  
Woburn and the Zoning By-law of the Town of )  
Wakefield Pursuant to G.L. c. 40A § 3 )  
)

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**TESTIMONY OF GAYE OHANESIAN  
ON BEHALF OF THE  
TOWN OF WINCHESTER**

August 22, 2016

**Q: Please state your name, position and business address.**

**A.** My name is Gaye Angela Ohanesian. I am the Director of gopower inc. My business address is 239 High Street, Medford, MA and I have offices at 1167 Massachusetts Avenue, Arlington MA.

**Q: On whose behalf are you testifying?**

A. I am testifying on behalf of the Towns of Winchester and Stoneham

**Q: Please summarize your professional and educational background.**

A. I received a B.S. in Civil Engineering from Tufts University in 1981. From 1978-1981, I worked for the City of Medford, Department of Engineering as a Junior Civil Engineer. From 1981-1984 I worked for Charles T. Main Engineers as a Transmission Engineer. From 1984-1994 I worked for Stone & Webster Engineers as a Senior Engineer and as a GIS Consultant. From 1994-2003 I worked as President of Universal Palmer Technologies, Inc. manufacturing plastic tubing including XLPE. From 2003-2011, I worked as Senior Transmission Engineer and Project Manager for Vanderweil Engineers. From 2011-2015 I worked for Nstar, now d/b/a Eversource as a Manager-Transmission Engineering and Transmission Emergency Response Director responsible for both overhead and underground high voltage transmission lines. In 2015 as a result of the merger of Northeast Utilities and NSTAR, there was a reduction of personnel so I began working as Director of gopower inc. Currently, I am providing consulting services for technical support to the Town of Winchester and the Town of Stoneham to address the technical issues associated with the proposed underground transmission line which is the subject of this hearing.

**Q: Have you previously testified before the Energy Facilities Siting Board?**

A. No. But I have provided technical support for the hearings of the 345 kV Marcy South transmission line between Utica and Poughkeepie, NY. Also, as Manager of Transmission Engineering my staff or I provided technical and financial information in support of numerous projects during my tenure at NSTAR.

**Q: What is the purpose of your testimony?**

A. The purpose of my testimony is to provide technical support relating to the following issues: routing, costs and benefits comparisons of XLPE vs. HPFF. I have provided guidance and assistance with selection and management of the various consultants

retained by the Towns to provide technical, cost, routing and constructability information of Eversource's proposed Woburn to Wakefield underground 345-kV line.

**Q: Have you reviewed Eversource's Woburn-Wakefield Line Project EFSB Analysis (the "Project")?**

A. Yes

**Q: What materials have you reviewed in relation to the route selection for the Project?**

A. I have reviewed the Weston & Sampson constructability report, the Environmental Justice Maps and Draft Policy, the Prefiled Testimony and supporting exhibits of the following:

1. Town Engineers
  2. The Chiefs of Police
  3. The Fire Chiefs
  4. DPW Directors
  5. The Traffic report prepared by Ken Cram of Bayside Engineering
  6. The Traffic report prepared by Jeff Dirk of Vanasse Engineering
  7. The testimony and the report and exhibits prepared by Donald Haes relating to EMF.
  8. The Prefiled testimony of Peter Tirinzoni of Power Delivery Consultants
  9. The Prefiled testimony of Richard Howard, Town Manager, Town of Winchester.
- I have also reviewed the Information Requests and Responses of the Town of Winchester and the Town of Stoneham. The Information Requests and Responses of Michael Curley and relevant Information Requests and Responses of Eversource relating to the Town of Winchester relating to the proposed route selection through the Town.

**Q. Based upon your review, do you have an opinion as to whether or not the route selected proposed by Eversource is the best route in terms siting criteria which weighs environmental impacts and constructability for the Town of Winchester?**

A. Yes, I have an opinion.

**Q. What is that opinion?**

- A. I do not think it is the best route in route selection and siting with respect to environmental impact and constructability for the Town of Winchester.

**Q. What is the basis for your opinion?**

- A. I reviewed Section 5 and 6 of the Petition to objectively determine for the Town of Winchester whether the Green St Variation was a better siting solution or is the segment along Cross St and Washington St. With only the results and summaries shown in Section 5 of the Petition it was difficult to discern from these summary results and Table 5-5. the nuance differences between the two segments. The only way to determine which is less impactful is to perform a direct one to one, binary comparison of the raw data. Once the raw data was available in TOW-RS-15(1) a comparison using the same methodology used by Epsilon Associates, could be applied. By using the data points of the entire route, it diminishes the clarity of the difference between the binary choice of the Preferred Route and the Noticed Alternative segments. When the optics are just on the Green Street Variation versus the Winchester segment, the numbers clearly show that the Green Street Variation segment is a better route alternative.

The result of the analysis comparing the Green Street Variation to the Cross St and Washington St segment of the Preferred Route is that the scoring calculations show that the Green Street Variation is clearly less impactful and it would be better to site the 345kV transmission line along this segment.

The Green Street Variation segment which is a noticed variation of the Preferred Route and the Preferred Route segment between the same begin and end points. The Green Street Variation segment consists of a railroad Right of Way that begins at Cross Street and runs north – south to Green Street, Green Street and Montvale Ave between Green St and Washington St. The Preferred Route segment also referred to as the Winchester segment consists of Cross Street from the RR ROW intersection and runs east – west to Washington St and Washington St which runs north-south to Montvale Ave in Woburn. The analysis used the Eversource provided data from TOW-RS-15(1) and used the same type of

methodology for scoring and weighting as Eversource. When compared, one to one, the Green Street Variation scores lower which is superior because it is less impactful.

The analysis can be referenced as Exhibit A and attached to this testimony.

The methodology, weighting and number of categories used in the analysis was the same as that of Epsilon, but there are numerous issues that are not scored or explicitly in the methodology to compare important differences in the choice between the two route segments. In the Supplemental Information of the analysis a number of criteria is discussed.

**Q. Please describe why you believe the environmental impact of the Green Street, Woburn, Noticed Alternative is superior to the Preferred Route of Cross Street to Washington Street, Winchester?**

**A.** When reviewing the Winchester input from Town Management, Engineering, DPW, Public Safety and the residents of the Town at public meeting, public hearings and small working groups, there are numerous criteria that was not included in the weighting and the route scoring criteria to apply Winchester's unique characteristics to the scoring.

1. Residential is more important than Industrial to Winchester, therefore Residential Category was weighted as 3 and Industrial was weighted as 2.
2. Although the route for the Green St Variation Segment is 11440 feet and the Preferred Route Winchester Segment is 10840 feet long, the length of roadway route length is 2800 feet less. There is 2800 feet less of roadway impact including disturbance to water, sewer and drain utilities, traffic congestion and location of the transmission line near residents. The use of the abandoned railroad right of way (RR ROW) which parallels Main St and is about 3400 feet long, is an excellent opportunity to reduce the environmental impact to both Winchester and Woburn. This is an important factor that is not scored in the routing decision. Using the RR ROW for 3400 feet reduces traffic congestion, delays, improves access for public safety agencies and their emergency apparatus, and reduces

utility conflicts reducing cutting and reconnecting utility services and reduces future obstacles in the roadway subsurface.

3. Another category that is not address in the scoring of routes is Environmental Justice. In Section 7 of the Petition it states that Environmental Justice tenants will be addressed in this process. In comparing the Green Street Variation segment to the Winchester Segment, the entire Winchester Segment along Cross St and Washington St abut identified Environmental Justice (EJ) areas in Winchester and Woburn. The Winchester EJ length is 10840 feet. The Green St Variation Segment EJ length is 3260 feet. Clearly, the routing of this proposed transmission line in comparing affected EJ areas is impacting EJ residents 3.3 times more along the Preferred Route Segment than the Green Street Variation. The map showing these EJ areas has been submitted in Information Requests and is listed as Figure 3 in the analysis comparing the segments.
4. Trenchless crossings are compared in the scoring methodology. The Winchester Segment has two jack and bore operations each with an Aberjona River crossin and the Green Street Variation Segment has none. However, the magnitude of the Double jack and bore is not captured in the scoring when comparing the two segments. It is not included as a High Impact Crossing with a higher weight because the critera is based on time length (more than 3 months). As proposed along the Preferred Route there are two jack and bores, one on Washington St and a double jack and bore on Cross St. The Washington St jack and bore is to cross the Aberjona at a location that is adjacent to the entrance of Winchester Hospital's Ambulatory Care and Cancer Center. Washington St in Winchester is 30 feet wide or slightly less and this is a main north-south thorofare. The traffic report and testimony addresses the challenges of this in more detail. The Cross Street double jack and bore is at least 350 feet long and includes an entrance pit and two exit pits. This is an area of great concern because of the time length and the pinch point where this crosses under the Cross St railroad bridge and the Aberjona River. In meetings with Eversource, alternatives to accomplish this crossing are being considered. HDD was mentioned as an alternative. If it is HDD, by the scoring criteria it will be a High Impact Crossing. Another alternative is to

relocate the crossing to adjacent private parcels. Eversource stated they were investigating. There is not enough information provided at this time to the Town to understand the business, logistical, and financial impacts in addressing this crossing. The Constructibility Report and the traffic report and testimonies of the other experts including public safety and emergency response in addressing the challenges associated with this Cross St jack and bore and River Crossing. Note the data in the TOW-RS-15(1) incorrectly shows Cross St with street widths of greater than 30 feet. This is where some adjustments were made to more accurately reflect the street widths.

5. In performing the analysis to gather data, MA DEP sites were checked on line by the consultants and the data in the Petition and TOW-RS-15(1) did not match exactly. Along the Green Street Variation segment all the sites are closed and the one open site was in the vicinity of Cross St of the Winchester segment. As a result the data for scoring was adjusted to score the Green Street Variation as less impactful with respect to MA DEP sites. In the analysis, Figure 2 provides the MA DEP mapped sites in Woburn. Figure 1 provides the MA DEP site in Winchester.

**Q. Do you have an opinion as to whether or not HPFF cable system is more appropriate for the proposed 345 kV transmission line Woburn to Wakefield for this project?**

**A. Yes**

**Q. What is that opinion?**

**A. For this Project, 345kV HPFF-PTC is more appropriate given the following reasons:**

- 1) Similar costs as HVED-XLPE
- 2) Allays concerns of EMF
- 3) Footprint is 1.9 times smaller (4 pipes compared to 8 pipes) resulting in:
  - a. Less utility conflicts

- b. Better ability to thread through the utility congestion
  - c. Making it less likely to install deeper possibly saving in excavation and backfill costs and time
  - d. Less of a future obstacle when Town DPU needs to repair, maintain, relocate or replace water, sewer and drainage and the same applies to telephone, gas, cable and MWRA utilities.
  - e. Long term loss of space within corridors for future utility replacement or improvement projects.
  - f. If it is less of an obstacle in the future, it will be less of a cost to the individual towns in the future
- 4) The installation of this type of technology would be less impactful during construction
- a. Less excavation depth
  - b. Resulting in saving time
  - c. Resulting in reduced construction related traffic impacts including detrimental effects to public safety response times, disruptions to the commuting public and school traffic patterns including children walking patterns.
  - d. Resulting in reducing the significant strain to town resources including impacts to Police, Fire, DPW and Engineering staffing levels.
  - e. Resulting in controlling costs of this project.

Q. Please summarize the benefits of PTC technology and why it can be applied to this Project.

A. Benefits of PTC technology are as follows:

PTC technology has been used for 345kV throughout the NSTAR system and existing circuits run through Winchester and Woburn. It is a known.

NSTAR has the infrastructure to support over 200 miles of PTC and the addition of this one line does not significantly add to the maintenance of the system. In the Response to the Information Requests, Eversource states that there are spare positions available to connect the hydraulic piping to the existing pumping plant located at the Woburn Substation.

PTC technology limits the footprint to 4 pipes instead of the 8 pipes for HVED-XLPE being proposed. This cross-sectional area for the PTC is 123.31 sq in as compared to 233.04 sq in for XLPE which is 1.9 x more space (not counting the concrete box that is required to protect it in the trench. The PTC cross section equivalent consists of one 10 inch steel pipe containing the conductor, one 5 inch pipe for fluid circulation and the two 4 inch PVC pipes for communication that Eversource is requiring. The XLPE consists of four 8 inch pipes, three of which will contain one phase conductor each, two 4 inch PVC pipes for communication and two 2 inch PVC pipes for temperature measurements.

Our expert consultant has calculated that one (1) pipe PTC can meet the electric capacity with a circulating fluid which reduces or eliminates hot spots which can diminish the ampacity rating of a transmission line. XLPE is can become limited if hot spots occur reducing the rating of the transmission line. In the future if steam pipes or electric distribution duct banks that produce heat are installed close to the existing XLPE line, the line's rating can be compromised. Furthermore, an advantage of the circulating fluid of the PTC is that a chiller or heat exchanger

can be added to the system in the future to further increase the capacity of the line when needed, without having to construct or trench to install another circuit.

From the Towns' perspective a smaller footprint will allow better accessibility to the towns' water, sewer, and drainage which they, like Eversource, need to operate reliably and consistently for their taxpayers.

More benefits of PTC technology summarized:

- 1) As stated by Eversource's expert, the magnetic field level of PTC is 5 to 10 times less than HVED/XLPE. Our expert's testimony states that it can even be up to 50 times.
- 2) Footprint is smaller so that the Towns have better future access to their own utilities for repair and replacement, also leaving more valuable underground space available for future use
- 3) The manhole vault for PTC is 22 ft long vs HVED/XLPE which is 30 ft long.
- 4) PTC has longer pull lengths, resulting in fewer manholes. For this project, if pulls are 3000 feet long the number of vaults can be decreased from 28 to about 15.
- 5) One Pulling Operation is needed to pull of three of PTC cables into one pipe for a circuit, rather than 3 separate cable pull operations for HVED/XLPE.
- 6) NSTAR has been using PTC since the 1940s. With over 200 miles of PTC, it is the second largest PTC system in the USA next to NYC's ConEdison. HVED/XLPE is relatively new in the Transmission industry when the first 345kV XLPE line was installed after 2000.

- 7) PTC has very low number of faults over its long history. HVED/ XLPE typically has more faults than PTC although still overall relatively low.
- 8) Eversource in CT installed a 345kV XLPE line in 2008. It has had one fault.
- 9) This proposed HVED/XLPE 345kV 3500kcmil is the first of its kind in Massachusetts. Eversource could not provide knowledge of where else in the US that a similar line with 3500kcmil insulation was installed.
- 10) The longest 345kV HVED/XLPE line in MA is 0.10 mile (about 500 feet) long (no manholes for splices – just termination to termination) – None in roadways.
- 11) The capacity of an existing PTC can be increased in the future by creating a flow of the fluid within the pipe and adding a heat exchanger and cooling pipe to cool the line. This cannot be done with HVED/XLPE. This was recently accomplished in Cambridge.
- 12) Two PTC lines can be housed in one manhole. Only one XLPE line can be housed in one manhole.

Q. What is the cost comparison of PTC to XLPE for this Project?

A. Eversource stated that the costs of PTC to XLPE for this Project would be \$4 to \$6 million per mile more. Futhermore, Eversource stated that two PTC circuits and pipes would be needed to match the ampacity requirements of the project. As a result of questioning this estimate and that two PTC were needed, the Town hired an expert consultant to do perform the following:

1. Determine the equivalent PTC to the proposed HVED-XLPE meeting the ampacity requirements

2. Determine the costs for both PTC and HVED-XLPE and compare

Mr. Peter Tirinzoni of PDC was hired as expert consultant and has provided testimony.

In reviewing his effort, he indeed designed a one 10 inch pipe PTC system with a 5 inch circulation line meeting the ampacity requirements. This is a smaller footprint than the HVED-XLPE.

He also developed the costs for both technologies to compare. He found that the costs of the PTC design using the 10 inch conductor pipe and a 5 inch circulating pipe is comparable to the proposed four – 8 inch HVED – XLPE cross section, much more in line than with expected costs than \$4 to \$6 million per mile.

Eversource provided a design using smaller conductor therefore requiring two pipes instead of one resulting in the higher costs.

With one 10 inch pipe for the conductor and one 5 inch pipe for circulation and the ability to increase its ampacity in the future for comparable cost as the proposed project, it is a better solution, given the capacity flexibility for the future, the smaller footprint to more easily thread through the existing utility congestion, allowing easier access to Town utilities and saving space for the future in the roadway subsurface, and allaying the EMF concerns of the abutting residents - all with the same technology.

**Q. Does this complete your testimony?**

A. Yes.

SIGNED UNDER THE PAINS AND PENALTIES OF PERJURY THIS 22ND DAY OF  
AUGUST 22 2016.

A handwritten signature in black ink, appearing to read "Greg Okanowich", written over a horizontal line.