The United Illuminating Company

Development and Management Plan for the Construction of the Singer-Housatonic River West Bank 345 kV Transmission Line

Pursuant to the

The United Illuminating Company and the Connecticut Light & Power Company application for a Certificate of Environmental Compatibility and Public Need for the construction of a 345 kV electric transmission line and associated facilities between the Scovill Rock Switching Station in the Town of Middletown and the Norwalk Substation in the Town of Norwalk, Connecticut.

October 9, 2003

(Docket No. 272)

March 6, 2006

Development and Management Plan
For the Construction of the
Singer-Housatonic River West Bank 345 kV Transmission Line
Bridgeport and Stratford, CT

The United Illuminating Company ("UI") hereby submits its Development and Management ("D&M") Plan for the Singer-Housatonic River West Bank 345 kV Double Circuit Transmission Lines (the "Lines") in the City of Bridgeport and the Town of Stratford, Connecticut. The Lines are part of UI's portion of a 345 kV electric transmission line facility to be constructed between Connecticut Light & Power's existing Scovill Rock Switching Station in the Town of Middletown, and the existing Connecticut Light & Power Norwalk Substation in the Town of Norwalk (the "Middletown-Norwalk Project"). UI's construction responsibility on the project will consist of two basic components: 1) construction of the proposed 345 kV Singer Substation including several hundred feet of underground 115 kV transmission line, and 2) construction of approximately 5.6 miles of double circuit underground 345 kV transmission lines. UI will prepare two D&M Plans for the Lines. This D&M Plan addresses the construction of the Lines from the proposed Singer Substation in the City of Bridgeport to the proposed splice chambers near the west bank of the Housatonic River in the Town of Stratford. A second D&M Plan will address specific river and stream crossings along the proposed route. The D&M Plan is being submitted to the Connecticut Siting Council ("Siting Council") in accordance with the Decision and Order from the Siting Council dated April 7, 2005.

This Development and Management Plan consists of the sections and appendices listed in the Table of Contents.

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APPENDICES

Appendix K Written Response to Stratford's 60% Design Comments

SECTION 1.0
INTRODUCTION

This D&M Plan was prepared in accordance with the D&M Plan requirements contained within the Regulations of Connecticut State Agencies (RCSA), Sections 16-50j-60 through 16-50j-62, as they pertain to construction of a new transmission line project and in accordance with the Decision and Order received from the Siting Council for the Middletown-Norwalk Project.

To interconnect certain substations that are a part of the Middletown-Norwalk Project, UI will construct the Lines between the proposed Singer Substation in the City of Bridgeport and proposed splice chambers near the west bank of the Housatonic River, in the Town of Stratford. Total line length is estimated to be approximately 5.6 miles. All of the Lines will be placed underground, with most of it being located within public road rights-of-way.

This D&M Plan addresses the construction of the Lines. One additional D&M Plan will be submitted by UI for the construction of the Lines at specific river and stream crossings.

SECTION 2.0
TRANSMISSION LINE REQUIREMENTS

The Lines will consist of six cross-linked polyethylene (XLPE) insulated cables. Each cable will measure approximately 5.5 inches in diameter and will be placed in a conduit system.

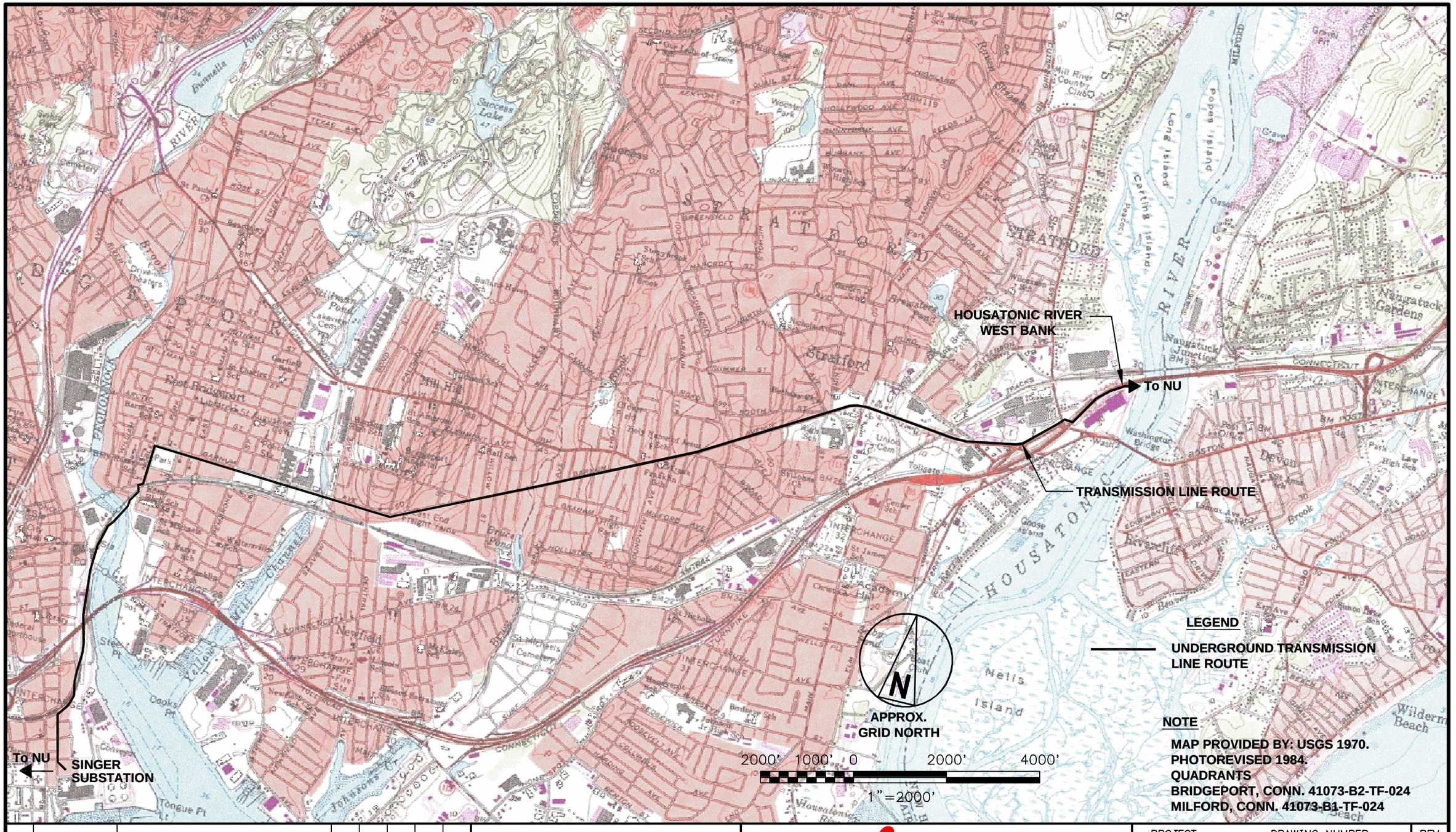
Where open trenching is possible, the conduit system will consist of PVC conduits that will be encased with concrete. The concrete duct bank will be approximately 36 inches wide and 48 inches high. It will contain six (6) PVC conduits, each being approximately 8 inches in diameter, up to four PVC conduits approximately 4 inches in diameter for fiber optic cable, and two (2) 2-inch PVC conduits for ground conductors. Burial depths will vary depending on topography and underground utilities or obstructions. Typically, the distance from the top of the duct bank to the road surface will be a minimum of 30 inches. Typical cross-sections of the 345 kV underground facilities appear on drawing 24214-702 in Appendix A

Where open trenching is not possible, such as at railroad crossings, the conduit system will be installed using jack and bore techniques. With the jack and bore method, a precast concrete casing is first installed under the crossing. Then a PVC conduit system, as described above, is installed in the casing. After the conduit system is installed, grouting material is pumped in to fill the voids between the inside of the casing and outside the conduits.

The Lines will require a series of underground splicing chambers to facilitate cable pulling, splicing and maintenance. These will be spaced approximately 1,700 feet apart. They will measure approximately 10 feet wide by 32 feet long by 10 feet high; outer dimensions, and will be constructed of precast concrete panels and sections, or be cast-in-place.

SECTION 3.0
KEY MAP

A Key Map identifying routing of the Lines, as described above, is shown in Figure 1.



NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
1	1/06/2006	MINOR REVISION	GS	MAP			
0	11/23/2005	INITIAL ISSUE	ASM	ASM			

BLACK & VEATCH CORPORATION

The United Illuminating Company
157 Church St. New Haven, Ct. 06506

ENGINEER	DRAWN ASM
CHECKED	DATE

MIDDLETOWN – NORWALK PROJECT
DEVELOPMENT AND MANAGEMENT PLAN
USGS MAP WITH ROUTE LAYOUT

PROJECT	DRAWING NUMBER	REV
136745	SK111904	1

CODE

AREA

FIGURE 1

SECTION 4.0
CONSTRUCTION

The Lines will consist of constructing one underground double circuit 345 kV transmission line. Construction will include planning activities such as development of a Worksite Safety Plan, Traffic Maintenance and Control Plan and a Sediment and Erosion Control Plan. Actual construction work tasks will include clearing, pavement cutting, trench excavations, relocation of existing underground utilities, jack and bore procedures at selected locations, duct bank construction, installation of splicing chambers, backfilling, cable pulling and splicing, final grading, and restoration. These activities are addressed in greater detail in Section 6.0 Supplemental Information.

4.1 Schedule

The overall project construction schedule for the Lines between Singer Substation and west bank of the Housatonic River is shown below in Table 1. UI proposes to construct this section of the project beginning in the second quarter of 2006 with a projected completion date in fourth quarter of 2009.

Table 1
Project Construction Schedule

ID	Task Name	Start	Finish
1	Mobilize Civil Contractor	4/28/06	5/30/06
2	Excavation and Duct Bank Installation	5/30/06	9/27/07
3	Cable Installation	9/27/07	8/20/09
4	Final Commissioning	10/28/09	11/26/09

It is the intent of UI to energize its portion of the Middletown-Norwalk Project according the project's master schedule. However, full restoration of public road rights-of-way and disturbed areas off of the final right-of-way (temporary access roads, lay down and staging areas, splice vault locations, damaged sidewalks, etc.) may require additional time beyond the scheduled energizing date. Such restoration work (final site stabilization, reseeding, paving and resurfacing, etc.) may be performed after construction is completed during appropriate weather conditions and during the next growing season in Connecticut, both of which may occur after the scheduled energizing date.

Overall, construction of UI's portion of the Lines is expected to require approximately 18 to 36 months to complete. This may not include the final off-roadway restoration work, which will be performed during the next appropriate growing season.

Transmission line construction typically proceeds in a linear fashion down the route. However, UI will consider the use of multiple construction crews where appropriate that will allow for construction activities to be performed concurrently at different locations along the route. This will be dependent to some degree on seasonal traffic flow along the selected city streets, and by restrictions imposed on the project by each community

and CDOT. Specialized crews will be employed with experience in underground construction within city streets and roadways, in splicing chamber installation, and in pulling and splicing XLPE cable.

4.1.1 Work Hours

Normal work hours for most of the project construction will be between 7:00 a.m. and 7:00 p.m., with construction activities in public road rights-of-way being guided by the approved Traffic Maintenance and Control Plan. These construction hours may be altered by local municipalities as a result of adjoining land use activities. For example, no night work will likely occur in residential areas. However, in commercial areas, night work may be required to minimize customer disruptions and economic impacts to nearby commercial establishments. Work will proceed Monday through Saturday, excluding some statutory holidays. The proposed work hours may be extended, on a temporary and case-by-case basis, to complete critical installation items that otherwise could result in inconvenience to the public or result in adverse impacts to identified environmental resources. Once the 345 kV XLPE cable is installed, splicing activities will be conducted on a 24-hour basis within each appropriate splicing chamber. These splicing activities could have a duration of up to two weeks at each splicing chamber.

4.1.2 Special Construction Timing Windows

Special timing windows have been established for certain activities associated with construction and operation of the Lines. The special timing windows for the Lines, along with conditions associated with them, are as follows:

4.1.2.1 Construction at Perennial Stream Crossings - Between Singer Substation and Housatonic River West Bank, the Lines will cross three perennial streams: the Pequonnock River, Yellow Mill Creek, and Bruce Brook. All construction crews and equipment will cross these streams using three existing bridges and roads. For the Pequonnock River crossing, access to both banks of the river will be secured via existing bridges on Crescent Avenue and Stratford Avenue. For the crossings of Yellow Mill and Bruce Brook, the project will use Barnum Avenue. The details of the construction at these crossings will be included in a separate D&M Plan.

4.1.2.2 Construction at Wetland Crossings – The only area that may have wetland characteristics will be at the crossing of Yellow Mill Creek at Barnum Avenue. If such wetlands are encountered at Yellow Mill Creek, they will not be affected by construction because UI proposes to cross the creek using jack and bore techniques that will place the Lines beneath the bottom of the wetland. Construction activities in this area will be limited to the greatest extent possible to avoid wet periods between April 1 and June 1.

4.1.2.3 Soil Stabilization after Grading – Soils disturbed during construction of the Lines and associated splicing chambers will be stabilized after grading according to the following guidelines:

- Work areas will be seeded and mulched or otherwise stabilized within seven workdays after the final grade has been established.

- If any grading work is suspended for more than 30 days, seed, mulch or other industry-recognized measures will be applied within the first seven days after the stoppage of grading activities in order to stabilize soils.

4.2 Ancillary and Support Facilities

The following ancillary and support facilities are associated with the UI portion of the Middletown-Norwalk Project. The terminal stations and 115kV transmission lines required for the Lines are addressed in the D&M Plan for Singer Substation.

4.2.1 Communications

Up to four separate communication conduits will be constructed in the double circuit 345 kV duct bank. One fiber optic cable will be installed in each of two of the communication conduits to provide independent relaying communication between Singer Substation and East-Devon Substation.

4.2.2 Temperature Monitoring System

A temperature monitoring system will be built into the double circuit 345 kV XLPE cable. UI requires that a monitoring cable be placed in the outer layer of the XLPE cable at the time of manufacturing. Additional fiber optic cables in existing conduit may be required in the future for the temperature monitoring system for the double circuit 345 kV line.

4.2.3 Cathodic Protection System

No cathodic protection system will be required for the double circuit 345 kV XLPE cable.

4.2.4 Access Roads

Few new access roads will be required to construct the Lines. For the most part, existing city and town streets and roads will be used as the primary means of accessing the work areas. The contractor will use the road shoulder (if available) and existing street and road rights-of-way as the primary service road for construction access. When the Lines are not located in public road rights-of-way, in most instances, access to construction areas will be available via paved driveways, parking lots and along paved roadways that are located behind commercial and industrial establishments. For example, at the crossing of the Pequonnock River, existing paved and gravel parking lots will provide access to construction areas on both sides of the river. At the west crossing location of the Housatonic River, construction access will be available via a paved parking lot and boat storage area of a local marina, while at the east crossing location; construction access will utilize an existing access road leading to a State of Connecticut boat launch facility on the river.

4.2.5 Project Administration and Construction Offices

UI will direct the overall construction of the Lines from its existing engineering headquarters in New Haven, Connecticut. In addition, a temporary construction office for UI's field engineering and construction management representatives will be located at or near the Singer Substation site.

4.2.6 Staging Areas

The project contractor, working with UI, will establish temporary staging areas for construction of the project. These areas will be used for the staging of construction materials, supplies and equipment. The contractor may also use one or more staging areas to locate temporary construction offices, trailers and materials. Possible preliminary staging areas for the Lines have been identified as follows:

- A paved employee parking lot and truck park area at a vacant Remington plant adjacent to the Singer Substation site in the City of Bridgeport.
- The site of a future HUD housing development bounded by Main St., Broad St., Whiting St., and Railroad Ave. in the City of Bridgeport
- Vacant lots bounded by the Metro North Railroad to the south, Barnum Avenue to the north, Pembroke Street to the west, and Yellow Mill Creek to the east in the City of Bridgeport.
- A vacant lot on the south side of Barnum Avenue at Sage Avenue in the City of Bridgeport.
- A vacant lot on the south side of Barnum Avenue just west of California Street in the Town of Stratford.
- Vacant parcels near the intersection of Barnum Avenue and East Main Street and Bridgeport Avenue (U. S. Route 1) in the Town of Stratford.

4.2.7 Vehicular Parking

Construction workers and UI engineering and construction management personnel will park their personal vehicles at project staging areas or use off-street parking, when available, along the final underground route. Those workers that must use their personal vehicles to gain access to construction areas will park on side streets when off-street parking is not available. Parking of personal and company vehicles will not be permitted on the city streets that will be supporting the route of the Lines.

4.3 Land Requirements

Nearly all of the 5.6-mile route of the Lines will be located within existing public road rights-of-way. The double circuit XLPE cable and duct bank will be installed in a single trench. Approximately 36 splicing chambers will be installed in pairs at approximately 1,700-foot intervals along the route for cable pulling and splicing. Each splicing chamber will have two entry points at the surface and will be covered by approximately two and one half to four feet of roadway base or soil. Whenever possible, entry will be located outside of traffic flow.

The concrete duct bank and XLPE cable will be installed in an open trench that will be approximately four feet wide and at an average depth of eight feet. This will require a work area of 15 to 20 feet in width in the roadway (see alignment maps in Appendix A). After completion of construction, the workspace area (pavement or grassed area) will be restored to pre-construction conditions through pavement resurfacing and site rehabilitation in accordance with local and state requirements.

Where open trenching is not possible to cross railroad tracks, jack and bore construction will be used. For jack and bore construction, two large excavations will be required on

either side of the railroad tracks crossed. A pit approximately 30 feet long by 12 feet wide by 15 feet deep will be required for the hydraulic jack and bore apparatus. A smaller excavation will be required on the opposite side to receive the bore as it is pushed through the earth. These excavations will also be large enough to facilitate connecting the casing-enclosed conduit that is pulled through the bore to the concrete-encased duct bank.

SECTION 5.0
PLAN DRAWINGS

The set of transmission line construction drawings that are being submitted with this D&M Plan depict the location of the proposed Lines within city streets, state roads and on a combination of UI, PSEG, and CDOT rights-of-way, and private property. Because of size, the drawing set is bound separately. The plan and profile drawings have been prepared using a vertical scale of 1" = 4' and a horizontal scale of 1" = 40'. Information provided on the drawings includes locations of buildings, existing vegetation, waterways, streets, curb lines, existing vaults, sidewalks, and driveways. Underground utilities, such as storm sewers and catch basins, sanitary sewers, gas lines, water lines, telephone facilities, and electric facilities, are also located on the drawings. The information provided in each drawing represents the existing utilities' positions as identified from the best available information. Key locations will be verified via test pitting prior to the start of construction.

The plan and profile drawings also depict the location of the proposed underground cable splicing chambers. The drawings include the horizontal curves and vertical bends that will be required of the 345 kV XLPE concrete duct bank.

Various cross-section drawings are included in Appendix A to depict the 345 kV XLPE concrete duct bank and a typical splice chamber along the 345 kV route

SECTION 6.0
SUPPLEMENTAL INFORMATION

This portion of the D&M Plan provides more specific information on anticipated construction methods to be employed during the installation of the Lines. The following narrative is supplemented by the plan and profile drawings in Appendix A and included as a separate bound package to this D&M Plan.

6.1 Project Description

The Lines are part of UI's portion of a 345 kV electric transmission line facility to be constructed between Connecticut Light & Power's existing Scovill Rock Switching Station in the Town of Middletown, and the existing Connecticut Light & Power Norwalk Substation in the Town of Norwalk (the "Middletown-Norwalk Project"). A detailed description is given in Section 1.0 Introduction.

6.2 Proposed Rights-of-Way

Most of the route of the Lines (approximately 5.6 miles) will be located within public road rights-of-way. From the proposed Singer Substation to the proposed splice vaults west of the Housatonic River, the Lines will be located in the following municipal streets: Main Street, Ferry Access Road where it parallels the Metro North Railroad track in Bridgeport, Water Street, Noble Avenue, and Barnum Avenue

For the jack and bore crossing under the Amtrack/Metro North Railroad on Barnum Avenue in Stratford, a temporary off road work area of 30 feet by 150 feet will be required at both ends of the crossing to conduct the boring operation.

6.3 Public Road Crossings

Since the Lines will be located in an urban environment, it will intersect with many municipal streets. When in municipal streets, all construction will be below grade. At intersections, most traffic lanes will remain open during construction to maintain vehicular flow in all directions. The requirements and limitations shown in Appendices E, F, and G are the result of discussions with CDOT and the affected municipalities.

6.4 Route Access

Access to the route of the Lines will be via state, city and town streets, existing UI easements and right-of-way. Where the routes are located on private property, access will be acquired through negotiations with the property owner whose land is to be crossed by the Lines.

6.5 Clearing

Construction of the Lines is expected to require little vegetation removal. The Lines will be located primarily within public road rights-of-way. Locations not in public road rights-of-way consist of industrial, commercial and transportation land uses that have already been cleared of vegetation.

6.5.1 Description of Vegetation

Native grasses (fescues and some bluegrass), common weeds and low growing woody vegetation can be found in the corridor.

6.5.2 Limits of Clearing

Approximately 200 linear feet of vegetation removal will occur as a result of installation of the Lines. All vegetation will be disposed of at a state-approved area landfill. Upon completion of all construction activities, the impacted area within the right-of-way will be graded and reseeded during the next appropriate growing season and according to UI right-of-way maintenance and restoration guidelines.

It is expected that no large trees, street shade trees and ornamental trees will require removal or otherwise be impacted by construction of the Lines. Construction equipment and vehicles will not be parked within the drip line of trees near or adjacent to the final routes, staging areas, equipment and vehicle parking areas, and directional drilling and jack and bore construction locations.

6.5.3 General Guidelines for Vegetation Removal

All vegetation removal activities will conform to the methods described in this section and to any applicable requirements in the Project's Erosion and Sediment Control Plan, Appendix H, and in consideration of the following:

- Appropriate authorities and the Connecticut Call-Before-You-Dig system will be notified before any excavation work commences.
- Any required clearing will be confined to the designated workspace and in no case will the contractor cut trees located outside of the designated workspace.
- Clearing activities will be restricted to the work hours defined in this D&M Plan or will be in accordance with local regulations.
- Stump removal (if any) will only occur if stumps fall within the trench or splicing chamber excavation.

6.6 Facility Relocation Work

The Lines will cross other underground facilities. To avoid damage to these facilities, the following measures will be taken:

- Appropriate authorities and the Connecticut Call-Before-You-Dig system will be contacted to locate known underground facilities before excavation commences.
- Underground crossings will be located and carefully exposed during excavation, by hand digging when necessary.

At this time, UI is aware of the need to locate a small number of gas, water, and sewer facilities. The need to relocate additional underground facilities will be determined during final design which will incorporate updated information from utilities, CDOT, and municipalities, as well as information derived from test pits taken along the route.

6.7 Sensitive Areas

Sensitive areas have been defined as certain environmental areas along the proposed routes, such as the locations of known and recorded federal and state designated protected plant and animal species and habitats, area wetlands, rivers and streams, known and recorded cultural resources, population concentrations, and noise sensitive receptors such as residential housing and hospitals..

6.7.1 Environmental Areas

6.7.1.1 Protected Species and Habitats

As identified in the Middletown-Norwalk Project Application to the Siting Council, one protected species has been identified for the project area between Singer Substation and Housatonic River West Bank. The peregrine falcon has been listed as "Endangered" by both the Federal Government and the State of Connecticut, and is reported to nest on an Interstate 95 (I-95) bridge in Bridgeport. UI will consult with the Connecticut Department of Environmental Protection (DEP) to determine the exact bridge location in Bridgeport relative to the final route of the Lines.

The falcon is a frequent resident in urban environments, finding locations and habitat for nesting, forage, cover, resting, and roosting. The Lines will pass beneath the I-95 Bridge on Water Street in Bridgeport. If peregrine falcons are identified as nesting on the support structures of this bridge, construction activities will be scheduled outside of the falcon's breeding season, which is generally from April 1 to August 1. Final construction scheduling at the specific location will be dependent on the presence of the falcon and on consultations with DEP.

6.7.1.2 Wetlands, Rivers and Streams

Hydrologic areas identified as being sensitive along the route of the Lines include the Pequonnock River, Yellow Mill Creek, and Bruce Brook. The Lines will be placed beneath the bottoms of these streams through directional drilling or jack and bore construction techniques, which are addressed in a separate D&M Plan for Transmission Line Pequonnock River, Yellow Mill Creek, and Bruce Brook Crossings.

Portions of the Lines will fall within 1,000 feet of the Pequonnock River. These areas have been defined by the State of Connecticut as Coastal Management Zones. In the City of Bridgeport, approximately 8,400 feet (1.6 miles) of the Lines will fall within the designated Coastal Zone. Except in the immediate area of the crossing location of the Pequonnock River, the Lines will be located within public road rights-of-way while being situated in the Coastal Zone. Except at the immediate crossing of the Housatonic River, the line will also be located within city streets when in the Coastal Zone. Construction of the Lines in public road rights-of-way will be consistent with the goals and policies of Connecticut's Coastal Management Act.

6.7.1.3 Cultural Resources

Most of the Lines are located in public roadways that were originally established in the mid-1800's. The oldest sections along Barnum Avenue in Stratford were in place from 1673-1810. However, it is estimated that generations of road and utility construction in the project area have probably removed, or severely damaged, any remains of original roadways.

Furthermore, numerous studies and investigations completed for the Siting Council application identified a variety of archaeological sites along the proposed underground routes. Road and underground utility construction over the years have most likely disrupted the remains of original archaeological deposits.

Historic properties and one historic district have been identified along portions of the Singer-Housatonic River West Bank underground route. These include the Mary and Ellza Freeman Houses just north of the Singer Substation site on Main Street in Bridgeport, and the East Bridgeport Historic District. As the Lines are proposed to be placed underground, the potential to impact identified historic properties is minimal. Some visual impacts to the historic setting of each structure and the district will occur during construction activities, but upon completion of the project, the visual integrity of each historic property will return to pre-construction conditions. Construction of the

Lines is not expected to physically impact any of the identified historic resources identified in or near to the proposed route.

UI recognizes that unknown and unrecorded cultural resources may exist within the final route proposed for the Lines. Such resources are usually discovered during project excavation work. In the event that new cultural resource sites or human remains are discovered during construction, UI proposes to implement the following procedures:

Artifact Discoveries

- If suspected artifacts are uncovered during a construction activity, that activity will be immediately stopped until a determination is made as to the significance of the find. If contractor construction personnel discover the artifacts, any construction activities that could adversely affect the integrity of the cultural materials will be suspended and the contractor's construction foreman will be notified immediately. The foreman will, in turn, notify UI's Project Manager. Notification will include the specific location of the discovery (trench, spoil pile, splicing chamber excavation, foundation excavation, etc.). If artifacts are identified by UI personnel, they will direct the contractor to stop work on activities that could adversely affect the integrity of the resource and inform the UI Project Manager.
- Upon notification or discovery of a possible site, UI will determine if the artifacts are within a previously recorded site. If the artifacts are determined to be from a previously recorded site that was addressed in the pre-construction archaeological investigations, no further work will be required. The location of the find will be recorded on UI project maps, along with the date of the discovery.
- If the artifacts are discovered in an area in which no sites were recorded, UI will consult with a professional archaeologist to determine the significance of the resource. If the archaeologist cannot visually examine the artifacts immediately, UI will fax photographs or drawings to the archaeologist for review. If on-site archaeological investigations are determined to be necessary, UI will inform the construction contractor to suspend all construction in the vicinity of the find. The site will be flagged as being off-limits for work.
- Review of the artifacts and the site, along with testing and data recovery, will be performed in a timely manner to determine the significance of the site and to allow for construction at the site, if permitted, to continue in a timely manner.
- Information and data on the site will be faxed or sent by overnight express mail to the Siting Council and the Connecticut State Historic Preservation Officer (SHPO). Regardless of the site's significance, UI will work with the Siting Council and the SHPO to ensure that the site is protected, recorded, and eventually cleared as soon as possible to avoid adverse delays to the project schedule.

Human Remains Discoveries

- If discovered, the treatment of human remains will be guided by the policy statement adopted by the Advisory Council on Historic Preservation (see *Consulting about Archaeology under Section 106,* Advisory Council 1990), and by the relevant state laws and guidelines.
- If human remains are identified during construction, all construction work in the immediate vicinity of the site that could affect the integrity of the remains will be stopped immediately. The remains will not be touched, moved, or further disturbed.
- The exact location and time of discovery will be immediately forwarded to the UI Project Manager, who will be responsible for immediately contacting an archaeologist.
- UI will be responsible for the prompt notification of appropriate Siting Council personnel as well as the SHPO, the Chief Medical Examiner of the appropriate governmental jurisdiction, and the State Police.
- If the remains are Native American, consultations will be held with the SHPO to determine if prudent and feasible alternatives are available to protect the site. Results of any consultations will be provided to the Siting Council in writing. If it is not possible to protect the remains, they may be excavated only under a Special Permit granted by the State Archaeologist after review and approval of a data recovery plan that specifies the qualified research team, the appropriate research design, and the proposed method of disposition of the remains. If the remains are determined not to be Native American, the remains will be treated in accordance with the Connecticut Historical Commission's (CHC) policy and guidelines.
- In all cases, UI will take due care in the excavation and subsequent transport and storage of remains to ensure that the remains, regardless of origin, are afforded the utmost respect and protection.

6.7.2 Population Concentrations

Most of the route of the Lines passes through a very urban and densely populated environment. While construction in public roadways will be similar to typical street and utility construction activities, UI will be sensitive to areas where there are large residential concentrations. Construction activities will be scheduled between 7:00 a.m. and 7:00 p.m. Monday through Saturday in residential areas. To minimize construction noise, UI will require that construction equipment and vehicles are properly muffled and that all equipment and mufflers are in proper working condition. Fugitive dust will be controlled by regular sweeping, watering or other industry-recognized dust control methods. Excavation in proximity to driveways will be performed in such a manner to allow for access at the end of the work day. Temporary steel plates will be employed to provide access to each individual driveway until the excavation is backfilled and a temporary patch is completed.

In commercial districts, UI will minimize disruptions to individual business establishments by scheduling work during hours that would minimize impact to the business establishment. Ductline excavations that must be left open will be covered by temporary

steel plates to allow for vehicular and pedestrian access to commercial establishments during normal business hours in order to minimize economic impacts to area businesses.

6.7.3 Other Noise Sensitive Receptors

Other noise sensitive receptors in the project area can include parks, schools, churches, and other facilities where people congregate. The route for the Lines is located in Noble Avenue and Barnum Avenue as it passes along the west and north edges of Washington Park, a passive day-use facility in Bridgeport. It passes by the Little Lamb Daycare Center, East Side School, and Franklin School when located in Barnum Avenue. Noise from construction activities will be similar to typical street and utility construction. Such noise will occur during the normal work week and will proceed down the street in various stages that will include pavement cutting and removal, trench and splicing chamber excavations, duct bank construction, backfilling, cable pulling, temporary street patching, and final restoration and paving. Excavation and construction equipment will be similar in size and noise generated by vehicles and equipment commonly seen and heard during street repairing and paving.

Noise from construction of the Lines should in no way detract from the recreational activities experienced at Washington Park. Likewise, construction noise should not interfere with student activities at the nearby schools and daycare center. Every attempt will be made to schedule the construction in the vicinity of schools to times when the school is not in session.

6.7.4 EMF Mitigation

The following Statutory Facilities have been identified as being adjacent to the Lines:

Stratford High School
Sarita C Cubero Day Care
Franklin School
A.B.C.D. Holy Name of Jesus Child Care
Evelyn Bermudez Day Care
Little Lamb Day Care
Bridge Academy
Washington Park
Barnum School Annex
Residential Areas

The 345 kV transmission line route has been designed to maximize distance between these facilities and the line. In all instances there is a minimum of fifty feet between these facilities and the line. As the project proceeds toward final design these distances will continue to be maximized, taking into account the proximity of obstructions such as other utilities. As per Siting Council Order 14j, a post construction electric and magnetic monitoring plan will be developed and submitted for approval prior to the completion of construction. The approved plan will then be attached as Appendix D.

6.8 Construction Procedures

Installation of the Lines will involve construction activities associated with open trenching and jack and boring techniques. These techniques will be addressed in the following sections.

6.8.1 Worksite Safety Plan

UI will develop a worksite safety plan that will be strictly adhered to by all UI employees and contractors during construction of the Lines. Each construction contractor will be responsible for the safety and protection of all workers on-site. In addition, with construction in public road rights-of-way, contractors will also be responsible for the safety and protection of the public, including but not limited to vehicles, pedestrians and adjoining private property. During construction, contractors will protect all existing structures, features, utilities, and equipment near the work area and designated to remain in place.

As the Lines are located in municipal streets in urban built-up sections of Bridgeport, and Stratford, they will encounter numerous intersections and sidewalks. These intersections and sidewalks will remain open during construction. If certain traffic lanes must be temporarily closed for construction, traffic will be rerouted according to the project's approved Traffic Maintenance and Control Plan(s). Appropriate signage and barriers will clearly alert motorists to detours, lane closures, or lane shifts. Likewise, if sidewalks must be temporarily closed, UI will ensure that alternate pedestrian routes are clearly indicated by signage, with secure barriers being employed to prohibit pedestrian usage of the closed sidewalks. Excavation will require cutting and removal of street or sidewalk pavement. Openings will be covered with steel plates at the end of each work day to permit access and traffic flow, and such openings will be temporarily resurfaced until final finished paving can be accomplished. Appropriate signs, barricades, warning devices, flagmen, traffic control officers, and temporary sidewalks will be used during construction in public roads. When temporary lane or sidewalk closures are required, such closures will be coordinated with and approved by CDOT and the local governmental jurisdictions before such closures are instituted.

6.8.2 Traffic Maintenance and Control

UI and its construction contractor will establish a system to maintain and control vehicular, bicycle and pedestrian traffic through consultations with the municipalities of Bridgeport and Stratford and CDOT (see Appendices E, F, and G. The developed system will provide safe passage to the public and a safe working environment for construction workers. Vehicular and bicycle traffic will be safely and adequately accommodated. Excavated materials, tools, machinery, and other objects that could impede or endanger pedestrians will be kept off of sidewalks. Owners of private drives to residences and business establishments will be verbally notified in advance of construction activities that could temporarily block their driveways. If the owner or occupant of the home or business is not available, written notification will be left at the residence or business.

On primary thoroughfares, it is UI's intent to maintain traffic flow by keeping one or two travel lanes open at all times. For example, in Bridgeport, Main Street basically consists

of two travel lanes. One lane will be left open at all times during construction. On Barnum Avenue, multiple travel lanes exist, along with parking lanes on each side of the street. Depending on the final location of the Lines in Barnum Avenue, a parking lane and one travel lane may be temporarily closed, or two travel lanes will be closed for construction and parking will be prohibited on one side, allowing for the parking lane to be used as a temporary travel lane in order to maintain traffic flow. On secondary residential streets, local access will be maintained at all times. Protection and maintenance of traffic flow and access at all intersections, to parking lots, and to the Bridgeport Fire Department Engine Co. #1 Station on Barnum Avenue will be required. No streets or intersections will be totally obstructed to traffic during the project without prior authorization from the local governing jurisdiction. UI will provide the Siting Council with the final construction requirements, working hours and construction limitations at each intersection and within each public road and street upon final consultations with Bridgeport, Stratford and CDOT.

The procedures to maintain and control vehicular, bicycle and pedestrian traffic will be in accordance with guidelines published by CDOT (Highway Design Manual), the Manual on Uniform Traffic Control Devices, and the standards and guidelines provided by the two local governmental jurisdictions (Bridgeport and Stratford). Such procedures will provide every means available to minimize inconvenience to the public, and will use appropriate barricades, lighting, protective fencing, steel plating, warning lights, uniformed traffic control police officers, and flagmen. The Traffic Maintenance and Control Plan for the Lines to be developed and approved by CDOT and the local governmental jurisdictions will be added as amended Appendices E, F, and G of this D&M Plan prior to the start of construction.

6.8.3 Sedimentation and Erosion Control

Soil erosion and sediment control during construction activities in city streets and at the crossings of the Pequonnock River will be consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control (2002). A project specific Erosion and Sediment Control Plan appears in Appendix G of this D&M Plan.

Throughout the Middletown-Norwalk project, UI and its contractors will practice sound and prudent construction procedures to reduce or eliminate the potential for soil erosion and sedimentation. As such, measures will be taken to avoid sediment flow into city storm sewers. All excavated materials will be removed from the construction area in city streets immediately upon being excavated. The intent is to have no earthen materials stockpiled anywhere along the routes, especially on pavement. During stripping and vegetation removal, some topsoil may be stockpiled on grassy areas at the crossing of the Pequannock River. This will only be done if a suitable amount of topsoil is available and can be used for site restoration and seeding after construction is completed at this location.

If earthen materials must be temporarily stockpiled on or near pavement, such stockpiles will be surrounded by a straw or hay bale sediment barrier, such barrier to remain until all earthen materials are removed. The sediment barrier is intended to filter any runoff as it flows through the area before it enters the city storm sewer system. Straw or hay

bales will be placed in a single row, lengthwise, with the ends of adjacent bales tightly abutting one another. To prevent deterioration of the bindings, bales will be bound (string-tied or wire-bound) around the sides rather than along the tops and bottoms. Rebar driven through the bale will be used to securely anchor each individual bale. Gaps between bales will be filled in by wedging loose straw in the gaps to prevent water from escaping between the bales. Sediment fabric filter fences will be used to control runoff when earthen materials are temporarily stockpiled on pavement.

If trench dewatering is required, water pumped from the trench will be directed through a straw or hay bale sediment barrier to filter out sediment before entering the city storm sewer system. In the event that contaminated water is encountered, the water will be collected in tanks and disposed of appropriately.

If excavated earthen materials or topsoil are stockpiled for any duration, the contractor will be required to develop and implement suitable dust control measures. These could include the application of water, calcium chloride or other industry-recognized measures. Dust control measures will be approved by the local governing jurisdiction.

Once construction is completed in the excavated trench, the trench will be backfilled with suitable materials. During such operations, backfill will be applied directly from truck to the trench. Stockpiling of backfill materials will not be permitted anywhere on pavement. Pavement will be cleaned of excess backfill as soon as backfilling operations are completed for a given area.

6.8.4 Earthwork
Earthwork will occur along the entire length of the Lines.

6.8.4.1 Pavement Cutting and Removal
Pavement will be cut with a concrete saw. The cuts in concrete and asphalt will be no larger than necessary to provide adequate working space for excavations and installation of concrete duct bank, conduit, and splice chambers. Pavement cuts will consist of a clean groove at least equal in depth to the thickness of the existing pavement. Cuts will be made at each side of the proposed trench along accurately marked straight or curved lines parallel to the centerline of the trench. Once mechanically broken, the pieces of pavement will be immediately removed from the work area and not be spoiled along the routes.

6.8.4.2 Trench Excavation
A large backhoe typically will be used to mechanically excavate the trench for the Lines once pavement has been cut. However, mechanical equipment will not be used in locations where its operation would cause damage to trees, buildings, culverts, or other existing property, facilities, or structures above or below ground. For these locations smaller excavators or hand excavation methods will be used. The trench will be excavated to the minimum width that will provide adequate working space and clearance for the concrete-encased duct bank. Trench excavation will be open cut for the Lines.

For the XLPE cable duct bank, no more trench will be opened than is necessary to actually construct a major segment of the concrete-encased duct bank. Once the duct bank concrete has cured to suitable strength the trench will be backfilled and the pavement will receive a temporary patch. It is estimated that approximately 300 feet of trench will be open at one time at any construction location.

6.8.4.3 Jack and Bore Excavation

Jack and bore construction is a method of boring beneath obstacles to allow for the placement of underground utilities where open trenching is not possible. Jack and bore construction is typically used for short bores of up to 300 feet and will be used to cross beneath the Amtrack/Metro North railroad track crossing Barnum Avenue in Stratford.

Jack and bore construction consists of excavating two large pits at either end of the crossing. A hydraulic boring machine is lowered into one of the pits and placed on tracks within the pit. The machine will bore into the earth while using the back wall of the pit for bracing (jacking). Pipe sections are lowered into the pit and attached to the boring machine as it pushes the casings through the earth. An auger is used inside the casings to clean out the material inside the casing as the casing is advanced. The boring procedure proceeds to the second pit where the appropriate conduits are pulled back through the casings. The boring machine is then removed from the boring pit and the conduits are attached to the concrete-encased duct bank that was installed in the open cut trench on either side of the crossing. Once this attachment is made, the two boring pits are backfilled and the bored casings and conduit are ready for cable installation.

6.8.4.4 Blasting

Because the location of the Lines is proposed to be predominantly beneath city streets, it is anticipated that previous underground construction of other utilities and street construction itself will have eliminated most major rock formations and thus precluded the need for blasting along the route of the Lines. At this time, no blasting is anticipated.

6.8.4.5 Preservation of Trees

As most of the route of the Lines is located in public road rights-of-way, the potential to impact area trees is minimal. However, UI will make every effort to protect trees from damage. When in proximity to trees, excavation will avoid the peripheral root system of the trees. In addition, construction activities will avoid striking and damaging trunks and overhanging limbs, and construction equipment, materials and vehicles will not be parked or stored within the drip line of trees.

6.8.4.6 Splicing Chamber Excavation

Splicing chamber locations will be mechanically excavated, typically by a large backhoe, after pavement cutting with a concrete saw. Hand excavation will be employed when within three feet of permanent structures, facilities and underground utilities unless approved otherwise in advance by UI. Most splicing chamber locations should be within public road rights-of-way, so mechanical excavations will likely be used except when other underground utilities are encountered. During excavation, vertical faces will not be undercut, and subgrades will be firm, dense, free from mud, thoroughly compacted, and stable. If subgrades must be stabilized, reinforcement will consist of one or more layers of crushed rock or gravel. The finished elevation of the stabilized structure subgrade will not be above the design subgrade elevation.

6.8.4.7 Below Grade Facilities

Below grade facilities for the Lines will consist of a concrete-encased duct bank for the 345 kV XLPE cable system. The Lines will also require below ground splicing chambers

spaced periodically along the final route. Once the duct bank is installed, the XLPE cable will be pulled through the conduit and be spliced together within the splicing chambers. Optic Fiber embedded in the cable will also be spliced within the XLPE cable splicing chamber.

6.8.4.8 Fugitive Dust Control
UI will require that all contractors practice dust control throughout the construction period. Dust suppression will be accomplished through the use of water, calcium chloride or a crushed stone cover. Dust control on pavement during excavation activities will use a water spray, continuous sweeping, crusting agent, or a material covering, whichever is most feasible given the size and location of the area to be controlled.

6.8.4.9 Disposal of Materials

6.8.4.9.1 Normal Earthen Materials – When excavation occurs in public road rights-of-way, all normal earthen materials will be immediately hauled away from the construction site for disposal at a state-approved construction landfill. When excavation is not in public road rights-of-way, earthen materials free of rock, broken concrete, tree roots, etc. that may be suitable for backfill or site restoration will be stockpiled at an appropriate location for later use. UI will notify the Siting Council of the designated landfill at the time the construction contract is awarded.

6.8.4.9.2 Broken Concrete and Pavement – All broken pavement from trench and splicing chamber excavations will be immediately removed from the project site and hauled away for disposal at a state-approved construction landfill. At no time will broken concrete and pavement be used as backfill.

6.8.4.9.3 Contaminated Soils and/or Hazardous Substances and Waste – If contaminated soils or hazardous substances or waste are encountered during trench or splicing chamber excavations, UI will notify the appropriate authorities. Contractor will be directed to stop excavation of such soils until a special waste disposal contractor can be brought on site. The contaminated soils will be disposed of through a state-approved waste disposal contractor. Unless qualified, UI's general contractor will not be responsible for the disposal of such contaminated soils.

6.8.4.9.4 Excavated Rock Disposal – If rock is encountered during excavations, it is assumed at this time that such rock can be broken into pieces through drilling or mechanical rock fracturing equipment and not by blasting. Excavated rock will be immediately removed from the project site and hauled away for disposal at a state-approved landfill. At no time will excavated rock be used as backfill. UI will notify the Siting Council of the designated landfill at the time the construction contract is awarded.

6.8.4.10 Sheeting and Shoring
To protect and maintain the stability of previously constructed structures and facilities and the sides of excavations and trenches until they are backfilled, adequate sheeting and shoring will be provided. Sheeting, bracing and shoring will be designed and built according to OSHA regulations. It will be capable of withstanding all loads that might

occur as a result of earth movement or pressure, and will maintain the shape of the excavation under all circumstances.

In place of sheeting and shoring, and where space permits (such as in the UI right-of-way), trench banks may be cut back on slopes that meet federal and state slope ratio requirements for safe work zones.

6.8.4.11 Removal of Water

UI will maintain on-site at all times adequate dewatering equipment to remove surface and ground water that may enter the trench and splice chamber excavations. All excavations will be kept dry through construction so that no damage from hydrostatic pressure, flotation, or other hydrologic causes will result to installed facilities or the subgrade. Surface water (storm water runoff) will be diverted and prevented from entering excavations. Water that is removed from excavations will be directed through a straw or hay bale sediment barrier to filter out sediment before it is allowed to enter city storm sewers. In the event that contaminated water is encountered, the water will be collected in tanks and disposed of appropriately.

6.8.4.12 Temporary Plating of Trench

The temporary use of heavy steel plating will be employed to allow traffic in streets and at intersections and access to driveways, parking facilities, sidewalks, walkways, and similar facilities to be maintained. Any portions of open trench, or portions which have been backfilled but not resurfaced, will be covered by plating where traffic flow or access must be maintained. The use of such temporary plating will meet the requirements of CDOT and the local municipalities.

6.8.5 Splicing Chambers

Approximately 36 splicing chambers and eighteen fiber optic boxes will be installed along the 5.6-mile proposed route. They will be approximately 1,700 feet apart and placed in pairs, one for each 345 kV cable circuit, and a single box for fiber optic cable, and will be used for pulling and splicing of the cables. The splicing chambers will consist of precast or cast-in-place concrete chambers with covers, precast or cast-in-place necks, wall and top sections, bottoms, wall openings, sump depressions, pulling irons, and other required appurtenances. The body of the fiber optic cable boxes will be made of fiberglass.

6.8.5.1 Construction

Cast-in-place concrete splicing chambers may be used in certain locations. They will be constructed on-site at the specific location and consist of steel reinforced concrete using job-built forms. Trucks will deliver the concrete to each chamber site. Once in place, the structural concrete will be protected from moisture loss for not less than seven days by a polyethylene film or membrane curing compound.

Most splicing chambers are anticipated to be constructed of precast concrete according to project specifications. In addition, the top surface of the chamber floor will be sloped toward one corner, lifting eyes or lugs will be provided in each precast section, and wall sections will have interlocking joints to provide a watertight seal.

6.8.5.2 Installation

Precast splicing chambers will be delivered to each chamber location by semi-trailer-trucks. They will be placed in the excavation by a lifting crane. The precast structure will be positioned on six inches of level compacted aggregate. All joints and wall opening connections will be inspected to ensure a watertight fit. As indicated in Section 6.8.5.1, cast-in-place splicing chambers will be constructed on-site. Once the concrete construction or section assembly is completed, backfilling will then complete installation. All backfill material will consist of loose earth only and will not contain wood, grass, roots, broken concrete or pavement, stones and rocks, and trash or debris of any kind.

6.8.6 Solid Dielectric Cable Installation

6.8.6.1 Receiving and Handling

The concrete-encased duct bank for the 345 kV XLPE cable will be built on-site in the excavated trench. As such, few materials will be received in advance of construction. Lumber and plywood forms, steel reinforcing rods and heavy gauge wire will be received and stored at selected locations along the 5.6-mile route, along with the required PVC conduit. As work progresses along the final route, required materials will be brought to the actual construction location by the contractor on an as-needed basis. Once the appropriate forming is completed, concrete will be delivered to the construction site by truck.

6.8.6.2 Duct Bank Construction

The planned concrete-encased duct bank will be constructed on the level bottom of the excavated trench. Forms will be constructed and set in place, and the required number of PVC conduit for the XLPE cable and the fiber optic cable will be securely fastened into position to form the skeleton of the duct bank. Once all forms and conduits are properly positioned and connected, concrete will be placed into the formed trench. During this phase of construction, the contractor will ensure that the interior of all installed PVC conduit are clean and free of any debris.

The formed concrete-encased duct bank will then be left open for approximately 24 hours to cure. However, the open trench will be covered by heavy steel plating, where required to maintain traffic flow, until such time as backfilling can commence. Approximately 300 feet of trench will be left open at one time during the construction of the duct bank.

6.8.6.3 Trench Backfill

Backfill will either be a granular material requiring mechanical compaction or it will be a flowable lean concrete mix which does not require compacting, to within approximately fifteen inches of the road surface. If granular trench backfill is used, it will be compacted for the full width and depth of the trench. The compacted backfill material will be furnished by the contractor from his own source. All granular backfill material will consist of loose earth only and will not contain wood, grass, roots, broken concrete or pavement, stones and rocks, and trash or debris of any kind. Excavated material from the trench will not be used as trench backfill. The backfill will be placed in uniform layers not

exceeding six inches in uncompacted thickness. When the trench is located in public roads and crosses streets, railroads, parking areas, underground piping, underground electrical ducts and conduit, and other facilities that may be subject to damage by settlement, the trench backfill will be compacted to not less than 95 percent of the maximum dry density.

6.8.7 XLPE Cable Installation

6.8.7.1 Receiving and Handling

The XLPE cable will most likely be delivered to the project area by truck. However, given the project area's proximity to port facilities, cable may be delivered to the area by ship, and then by truck to the materials storage yards. Once in the project area, it will be received, thoroughly inspected, unloaded, and properly stored. The cable will be shipped on covered reels, with the ends of each cable sealed by the manufacturer to protect the cable from the elements. Cable storage will likely be at the Singer Substation site or its nearby temporary marshalling yard, and optimally at selected locations along the 5.6-mile cable route. Cable reels will be unloaded by boom trucks. Reels will not be rolled down skids, runways, or along the pavement.

6.8.7.2 Pulling Apparatus

The cable will be pulled through the PVC conduit in the concrete-encased duct bank. At splicing chambers, feed-in tubes will be used to ensure that the cable is properly fed into the duct bank. The following equipment will be used for all cable pulling operations:

- A variable speed pulling winch with at least a 50,000 pound pulling capacity at speeds of 10 to 30 feet per minute.
- An accurately calibrated dynamometer with the capability to indicate tension up to 50,000 pounds and to chart recording of pulling tension with respect to length pulled.
- Reliable radio and/or telephone communications between all strategic pulling positions.
- A pulling rope of strength compatible with the winch capabilities and of a size and stranding to securely pull each XLPE cable. The rope will have a minimum diameter of one inch and will be kept clean and dry at all times.
- An accurate footage indicator.
- Guide troughs, guide reels and rollers, and feed-in tubes necessary to feed the cable directly into each PVC conduit within the duct bank.
- Sufficient caps to enclose cable ends at the end of each work day in each splicing chamber and at the terminations.
- A suitable pulling yoke for the XLPE cable.

6.8.7.3 Cable Pulling

The XLPE cable will be installed only during clear and unthreatening weather. A single reel of cable will be set in such a manner to allow for feeding the cable into the PVC conduit with a minimum of cable bending. The ends of the XLPE cable will be immediately sealed after pulling. At all times the cable and pulling apparatus will be

protected from wind driven rain. Cable will be pulled in specified directions only. At terminal structures, cable will be fed down into the riser facilities.

UI and the contractor will jointly determine cable pulling locations relative to splicing chambers and the terminal locations. During pulling, the cable will not be allowed to touch the ground or form loops having a radius of less than 20 times cable outside diameter. A braking device at each reel will control cable slack during pulling. Adequate ventilation will be provided at splicing chambers to avoid dangerous gases. The pulling winch operator will be in direct and continuous communications with inspectors as the cable is unreeled. Once the cable installation is started, it will proceed without interruption until the installation is complete for that section of duct bank.

6.8.7.4 Cable Joining
Cable joining, or splicing, will be performed only in splicing chambers. Each chamber will have sealed splash rings installed along with a waterproof shelter over the openings in each chamber roof during cable joining. Carbon dioxide type fire extinguishers and adequate lighting will be provided in each chamber and shelter. Each chamber will be checked for dangerous gas levels just before personnel are permitted to enter, and will be checked continuously while work is being performed. The contractor will have a suitable safety program in force relative to asphyxiation. In addition, emergency resuscitation facilities and equipment will be provided near each chamber.

All splices will be made by at least two experienced cable splicers in strict accordance with the cable manufacturer's instructions, specifications and drawings.

6.8.7.5 Cable Terminations
As the Lines will be terminated within the GIS building at the Singer Substation, weatherproof shelters will not be necessary during termination activities. Work areas and shelters will be adequately lighted and carbon dioxide type fire extinguishers will be required at each termination work site. Once the temporary cable cap is removed from the end of the cable, terminator installation will proceed to completion without interruption. All terminations will be installed in strict accordance with the manufacturer's instructions, specifications and drawings.

6.8.8 Fiber Optic Cable
The Lines will include the installation of two fiber optic ducts for necessary project communications and up to two fiber optic ducts if required for municipal or CDOT facilities. Each duct will consist of a four inch diameter PVC conduit with up to four inner ducts. Each utility fiber optic duct will be continuous between each splicing chamber to provide a continuous fiber optic link between the Singer Substation and the East Devon Substation. The four inch PVC conduits will be installed during construction of the concrete-encased duct bank for the XLPE cable. The conduits designated for the fiber optic cables will be routed around the splicing chambers to their own pull chambers at approximately 1700 foot intervals.

The fiber optic cable will be pulled through the inner ducts using woven wire grips. A nonfreezing swivel will be inserted between the pulling line and the cable pulling grip to prevent cable twisting. A pulling lubricant will be used to assist in cable pulling.

Cable pulling equipment will be positioned outside of the pull chamber (manhole). The cable will be fed into the conduit with the reel turned by hand to provide the required cable slack. Cables will be spliced within pull chambers, and will be terminated inside the control buildings of the Singer and East Devon substations.

6.8.9 Specialized Construction Procedures and Plans

This portion of the D&M Plan provides information on specialized construction procedures that may be employed with installation of the Lines. These methods have been developed in response to site and project specific conditions along the route of the Lines relative to wetland and water body crossings, roadway and railroad crossings, cultural resources, visually sensitive and residential areas, and sensitive wildlife habitats.

6.8.9.1 Wetland Crossing Plan

The only area that may have wetland characteristics along the route of the Lines will be the crossing of Yellow Mill Creek at Barnum Avenue in the City of Bridgeport. As most of the route of the Lines will be located within public road rights-of-way, construction in wetland areas is not expected.

At this time, no federal or state jurisdictional wetlands are crossed by the route of the Lines. If such wetlands are encountered at Yellow Mill Creek, they will not be affected by construction because UI proposes to cross the creek using jack and bore techniques that will place the Lines beneath the bottom of the wetland. The specifics of this crossing are addressed in a separate D&M Plan for Transmission Line Pequonnock River, Yellow Mill Creek, and Bruce Brook Crossings.

6.8.9.2 Stream and River Crossing Plan

Perennial streams and rivers identified along the route of the Lines include the Pequonnock River, Yellow Mill Creek, and Bruce Brook. The Lines will be placed beneath the bottoms of these streams through directional drilling or jack and bore construction. Construction vehicles and equipment will use existing bridges to cross these water bodies. The construction procedures to cross these identified streams are addressed in the UI D&M Plan for Transmission Line Pequonnock River, Yellow Mill Creek, and Bruce Brook Crossings.

6.8.9.3 Highway and Utility Crossing Plan

Most of the route of the Lines will be located within public road rights-of-way. As the lines are located in an urban environment, city streets will be used for much of each route. Typically, these streets are paved with curb and gutter, and do not offer shoulders that may be used for the underground construction. As such, the final location of the Lines will likely be in paved travel lanes or parking lanes of the city streets. The Lines will cross numerous underground utility lines (water, storm and sanitary sewer, gas, telephone, cable television, etc.). UI has identified and contacted representatives of the

appropriate utilities and will coordinate construction plans with each utility, highway department and municipality.

6.8.9.3.1 Notification – UI will notify utilities, municipalities and CDOT of the new construction through the Connecticut One-Call system (Call-Before-You-Dig). UI will also hold periodic utility, municipal and CDOT coordination meetings. Notification will be given to all parties at least ten days before construction commences within the right-of-way of local streets and state roads.

6.8.9.3.2 Road Construction, Road Crossings and Traffic Control – Installation of the Lines will be completed by open cutting project streets. During construction, every effort will be made to eliminate delays or public inconvenience in streets and at intersections, and to otherwise avoid restricting normal vehicular, bicycle and pedestrian traffic flow. Local or state permit(s) will dictate final traffic control procedures. Proposed Traffic Maintenance and Control Plans have been prepared by UI to mitigate potential adverse impacts to traffic during construction and have been submitted for review to CDOT and the affected municipalities. The approved Plan and drawings will be attached as amended Appendices E, F, and G.

The intent of the Plan is to minimize disruptions to traffic flow and access, and to maintain continuous traffic flow while adhering to the project construction schedule. Various mitigation measures may be employed to maintain traffic flow, including but not limited to, temporary lane closures with suitable detours, daily backfill of trench sections upon completion of duct bank installation, use of heavy steel plating over open trenches in travel and parking lanes and at driveway crossings, and use of off-road areas for equipment and materials staging and storage. UI will continue to consult with traffic authorities at local and state levels regarding the development, review and approval of the Traffic Maintenance and Control Plans.

UI will implement appropriate safety procedures to prevent injuries to workers in city streets and to the general public. Construction warnings for the public will consist of flag persons, signs and barricades, police details, traffic controls, flashing lights, and markers. Trenches in city streets will be backfilled or plated, where required to maintain traffic flow, at the end of the work period, and will be marked with the appropriate reflectors and warning lights. Similar marking devices will be used for adjacent spoil piles, construction equipment and project materials left within 50 feet of the street.

6.8.9.3.3 Underground Utility Crossings – The Lines will cross other underground utilities such as natural gas pipelines, sanitary and storm sewers, water lines, laterals to residences and businesses for these services, and cable television and telephone lines, etc. These utilities will be identified, located and flagged before construction excavation commences in a particular area. While mechanical trench excavation is proposed, hand excavation will occur when within 24 inches of any pipeline or utility line. A 12-inch minimum clearance will be maintained from the outside of the concrete-encased duct bank to the outside of the existing pipeline or utility line. If such a clearance cannot be established, other measures will be employed to ensure that there is additional and adequate protection between the existing utility and the Lines.

6.8.9.4 Railroad Crossing Plan

The Lines will have four railroad crossings. UI intends to make one railroad crossing by jack and bore beneath the railroad track while the others will be crossed where the railroad is elevated on bridges. This will allow normal open trenching under the tracks for installation of the duct bank. This construction approach will eliminate all potential impacts to rail traffic and allow for the uninterrupted movement of passenger and freight trains during the construction phase of the Lines.

6.8.9.5 Protection of Historic and Archaeological Resources

In the event that historic or prehistoric archaeological resources are discovered during trench excavations for the Lines, and for associated splicing chambers, construction in the immediate area of discovery will stop. UI's Project Manager will be notified immediately, and the State Historic Preservation Officer (SHPO) at the Connecticut Historical Commission will be notified at once. Construction will only proceed in the affected area after the SHPO has reviewed the discovery and has authorized construction activities to resume.

6.8.9.6 Visual Impact Mitigation Plan

UI will mitigate the Lines' visual impacts by placing it underground. While some visual impacts may occur during construction, once installed, the Lines will not be visible to area residents and passing motorists, thereby eliminating any visual impacts.

Temporary visual impacts during construction will consist of excavating equipment, contractor's vehicles, material delivery trucks, lifting cranes, reels of cable, and barricades on city streets, and materials marshalling yards along the routes. While these visual impacts are unavoidable, they are temporary and short-term in duration. For the Lines, once the duct bank is installed, the trench will be backfilled and a temporary pavement patch will be applied. Thus, the visual impact of construction will move along the city streets as construction proceeds from Singer substation to the west bank of the Housatonic River. Actual visual impacts during construction activities will be similar to typical urban street construction or utility installations within city streets. Upon completion of all construction, final pavement restoration will leave the project area in a similar appearance to pre-construction conditions.

The Lines terminating at Singer Substation will be within the GIS building and will not be visible from outside the substation.

6.8.9.7 Residential Mitigation Plan

Residential areas are considered to be noise sensitive receptors. As such, UI will implement procedures to minimize the impact of construction work on such areas.

The extent of noise impact at a sensitive receptor is dependent upon a number of factors. These can include the following:

- Change in the ambient noise level.
- Duration and character of the noise.
- Presence of other, non-project noise sources.

- People's attitudes towards the project.
- Number of people exposed to the noise.
- Type of activity affected by the noise.

Project construction will require the use of various types of construction equipment (e.g. pavement cutting saws, backhoes, rock drills, dump trucks, concrete trucks, side booms and small lifting cranes, and various smaller utility vehicles). Each of these will generate sounds that may or may not be heard above the ambient sounds along the routes. While the Lines will pass through residential areas, much of the underground routes will be located in public road rights-of-way. As such, noise sensitive receptors will be accustomed to urban traffic noise, such as on Barnum Avenue. In addition, the project area is traversed by Interstate 95 and the Metro-North Railroad. Both of these transportation facilities generate a considerable amount of background noise on a daily basis at all hours of the day and night.

To minimize construction noise impacts, UI will implement and require the following:

- Construction activities in residential areas will be limited to daylight hours, generally between 7:00 a.m. and 7:00 p.m or as dictated by the affected municipalities and CDOT. Furthermore, construction activities will be staged to move sequentially along the route of the Line, thereby making the construction process in residential area temporary and short-term.
- Construction equipment will be properly muffled, with mufflers being in good working condition and property maintained to minimize engine noise. Such equipment will not be permitted to operate or idle unnecessarily near noise sensitive receptors.
- Construction schedules will be modified, where possible, to mitigate construction noise on sensitive sites.
- UI will make every effort to schedule or minimize noise and vibration when rock drilling or hammering must be conducted.
- Critical operations or extreme circumstances may require a deviation from the scheduled work hours of 7:00 a.m. to 7:00 p.m. during the normal work week of Monday through Saturday. Exceptions to this schedule, such as overtime work, which may include Sundays and holidays, will be at the discretion of UI and subject to approval of the local municipality and CDOT.
- UI will be receptive to local agreements which will expedite the construction activity through a particular neighborhood.

6.8.9.8 Endangered Species Protection Plan

As identified in the Middletown-Norwalk Project Application to the Connecticut Siting Council, one protected species has been identified for the project area between Singer Substation and Housatonic River West Bank. The peregrine falcon has been listed as "Endangered" by both the Federal Government and the State of Connecticut, and is reported to be nesting on an Interstate 95 (I-95) bridge in Bridgeport. The falcon is frequently found in urban environments, finding city buildings and structures to be most suitable habitat for nesting, forage, cover, resting, and roosting.

The proposed Lines will pass beneath the I-95 Bridge at Water Street. If peregrine falcons are identified as nesting on the support structures of this bridge, construction activities will be scheduled outside of the falcon's breeding season, which is generally from April 1 to August 1. Final construction scheduling at the specific location will be dependent on the presence of the falcon and on consultations with the DEP. Prior to finalizing the project construction schedule, UI will meet with the DEP to determine the exact bridge location in Bridgeport relative to the final route of the Line.

6.8.9.9 Invasive Species Control and Management Plan
As most of the Lines will be constructed underground within city streets, the opportunity for invasive weed species to become established within the final rights-of-way will not occur.

For that portion of the Lines that is not located in public road rights-of-way, UI will maintain the right-of-way in native grasses, prohibiting the growth of woody vegetation and invasive weed species.

As such, UI has opted not to prepare an Invasive Species Control and Management Plan for the Lines.

6.8.10 Construction Supervision and Environmental Monitoring and Compliance

6.8.10.1 General
UI construction contractors will be required to adhere to all project-specific permit and certificate conditions and stipulations, applicable regulatory requirements, construction specifications, contract conditions, and best management practices that are standard to the installation of underground electric transmission lines. UI will oversee these contractors with a team dedicated solely to management and supervision of the construction activities and the contractors. This team will have expertise in the areas of construction management, construction engineering, right-of-way, surveying, government relations, and environmental services. It is the intent of UI to staff this team with personnel who have been involved with the project through the Siting Council permitting and licensing process and who routinely work with Connecticut's local governmental jurisdictions.

Direction of all aspects of construction and ensuring contractor compliance with the D&M Plan and all other applicable permit requirements will be the responsibility of UI's Construction Manager. Environmental compliance monitoring will be the responsibility of UI's Environmental Management Department.

UI's environmental and compliance monitoring program will consist of the following;

- All applicable environmental provisions and stipulations will be included in the Lines' construction specifications. The final approved D&M Plan will be made a part of the construction specifications as an attachment.
- An environmental inspector will be hired, subject to the Siting Council's approval, to monitor and report on the installation of the Line. It will be the

environmental inspector's responsibility to verify that construction is performed in accordance with all environmental requirements.

- All personnel that will be involved in construction activities will be subject to pre-construction environmental training to ensure that they are aware of all pertinent environmental documents, permits, and certificate conditions and stipulations that will govern work on the project. The role and authority of UI's environmental inspector will be clearly defined at this time.

- All regulatory authorities and municipal officials will be notified regarding the participants on UI's project team. Names, areas of responsibility and telephone numbers (day and evening) will be provided to ensure points-of-contact are continuously available so that prompt coordination can be facilitated and the appropriate follow-ups can occur in the event that concerns or issues arise during the course of construction.
- Continuous dialogue, communication channels and on-going coordination with the Siting Council will be established and maintained to facilitate the exchange of information concerning project status, issues, and issue resolution.
- Established procedures developed by UI's Environmental Department will be used in the event of environmental compliance issues or disputes. Such procedures will facilitate the quick resolution of such issues or disputes in order to minimize adverse impacts to the environment.
- Construction personnel will be made aware of the penalties and subsequent contractual consequences for not adhering to the environmental permit and certificate conditions and stipulations.

All construction personnel and inspectors (UI and contractors) will be required to attend a project-specific safety and environmental training workshop. At this time, relevant portions of the D&M Plans and other permit/certificate requirements that will govern construction activities will be summarized. Work site safety and environmental compliance will be emphasized, and consequences of non-compliance will be addressed.

The contractor will be provided with a copy of the applicable D&M Plan as an addendum to the construction specification. He will be responsible for compliance with all portions of the Plan. UI will periodically audit the contractor's work, and will have the authority to stop contractor tasks or to perform activities to maintain compliance.

UI will require contractors to certify that they understand and will comply with the applicable D&M Plan and other relevant environmental requirements. UI may also require the contractor to sign an affidavit that confirms compliance with all of the specified environmental conditions.

6.8.10.2 Proposed Deviations to the D&M Plan
UI will use one or more of the following procedures to notify the Siting Council of deviations to the D&M Plan after Siting Council review and approval of the D&M Plan. Notification will occur prior to implementation of the proposed deviation.

- For emergency situations in the field, UI will contact Siting Council staff by telephone to present the proposed modification. Upon receipt of verbal approval, a written specification of the deviation will be submitted to the Siting Council within 24 hours after receipt of the Siting Council verbal approval.
- Prior to the start of construction, or well in advance of a certain phase or activity of construction, UI will submit a written request explaining the deviation to the Siting Council for its review and approval.
- Implementation of Siting Council approved deviations to the D&M Plan will be documented in the project's quarterly progress reports to the Siting Council.

6.8.11 Final Restoration

As most of the Lines will be located within public road rights-of-way, little grading and restoration of disturbed areas will be required. Primary restoration efforts will involve pavement replacement. The park on the east side of the Pequonnock River will be restored to a condition mutually acceptable to the City of Bridgeport and UI. Sidewalks, curbs, and landscaping in Stratford will be restored to a condition mutually acceptable to the Town of Stratford and UI and will generally conform to the Town's streetscape master plan developed by STV, Inc., Stratford CT.

6.8.11.1 Final Grading

For workspaces off of public road rights-of-way, the backfilled and compacted trench will be graded to pre-construction contours that match adjacent unaltered areas. If topsoil was stockpiled, it will be spread back across the graded workspace. A slight crown will be maintained over the backfilled trench to allow for consolidation and settling. Similar grading procedures will be employed, if necessary, at material marshalling yards along the route.

6.8.11.2 Pavement Replacement

Once trench and splicing chamber excavations in city streets and sidewalks (if any) have been backfilled and compacted, temporary replacement pavement will be installed. When the large underground portions of the project are completed, permanent replacement of pavement may be installed. All pavement replacement will be in accordance with UI directives and requirements set forth by the municipalities of Bridgeport and Stratford. CDOT will also be consulted relative to final pavement replacement where state highways are crossed.

Finished replacement surfacing will match the existing pavement surface in content, strength, material type, and appearance. It will be finished flush with the adjoining surfaces. Base material will match the thickness and density of the base material removed during excavation work. All replacement surfacing will be coordinated with and approved by the municipalities of Bridgeport and Stratford, and CDOT.

6.8.11.3 Rehabilitation of Disturbed Areas

Rehabilitation and restoration of disturbed areas, in the form of grading, seeding and plantings, will occur in areas where the Lines are located off of public road right-of-way, and at material marshalling and storage yards. Restoration measures will be permanent. Grading will ensure that natural drainage patterns reestablish themselves

and post-construction erosion is avoided. Private and public property will be restored as close to its original condition as practical.

Rehabilitation of disturbed areas will be graded and seeded, most likely with a mixture of Kentucky bluegrass and fescues, both common to Connecticut. Grass seeding will be by one of two methods: hydro-seeding or broadcast seeding with a covering of straw mulch to retain moisture and control seed erosion during major rain events. Unless woody vegetation is damaged or destroyed during construction activities, or at material marshalling and storage yards, UI does not expect to plant any woody species as part of project rehabilitation and restoration activities. If plants are damaged or destroyed, UI will work with the landowner to determine the replacement species. UI will either compensate the landowner for the lost plants, or replace them with approval of the landowner.

6.9 Site Security

UI's contractor will retain responsibility for security along the route of the Lines in city streets. Trench excavation work areas will be fenced during the workday to prohibit unauthorized access. Trenches will be covered by heavy steel plating during overnight hours or when unattended. Secure barricades, warning signs and lights, and police officers will provide security. Construction equipment that cannot be stored at a secure site during inactive periods will be locked at all times.

Each material storage site will have a temporary security fence totally enclosing the area. All fencing will remain securely in place and all gates will be lockable until construction is completed and the storage site is restored to its original condition.

6.10 Public Safety

The contractor will be responsible for the protection of all workers and the public. During construction activities, they will protect all existing structures, features, utilities, and equipment designated to remain in place and which are adjacent to the Lines.

Appendices E , F, and G (Traffic Management and Control Plans and Drawings) provide the methods by which UI will maintain a safe environment for vehicle and pedestrian traffic during construction. Draft Appendix E and the draft Maintenance and Protection of Traffic Drawings have been reviewed by CDOT and the municipalities of Bridgeport and Stratford. Upon finalization, amended Appendices E, F. and G will be filed with the Siting Council.

6.11 Cleanup

All construction equipment and excess materials will be removed upon completion of all construction, installation, testing, and pavement replacement surfacing. Debris and waste will be disposed of by the contractor at a state-approved area construction landfill. Excess XLPE cable, hardware, and other useable materials will be returned to UI, and will be stored at existing UI storage facilities. Cleanup will be final task in restoring city streets to their pre-construction appearance, or as close to such appearance as possible.

6.12 Permits
Any permits required for construction of the new facilities and for the disposal of excess materials and spoil will be secured by the construction contractor before such activities occur. UI will provide the Siting Council with copies of all final permits, agreements and approvals as obtained by the construction contractor.

6.13 Maintenance
As with all new facilities, a specific maintenance program will be developed prior to the energizing of the facilities. Some elements of that program will be the periodic inspection of splicing chambers for structural failures, the periodic inspection of splicing chamber covers to ensure that they are securely in place and do not pose a safety hazard to motorists, and the periodic inspection and testing of termination structures within Singer Substation to ensure their structural integrity.

SECTION 7.0
PROCEDURES FOR NOTICES AND REPORTS

The procedure governing notices of the beginning and completion of construction activities, and of any changes in the D&M Plan during construction activities, will be as follows:

7.1 Advance Notice on Construction Activities
UI will provide the Siting Council, in writing, with a minimum of two weeks advance notice of the beginning of construction activities on the Lines.

7.2 Municipal Notification
UI will provide the City of Bridgeport and the Town of Stratford, in writing, with a minimum of two weeks advance notice of the beginning of construction activities on the Lines.

7.3 Landowner Notification
UI will notify each adjoining landowner, in writing, with a minimum of two weeks advance notice of the beginning of construction activities along the route of the Lines.

7.4 Notice of Completion
UI will provide the Siting Council with written notice of completion of construction activities as the work on the Lines is completed.

7.5 Modifications to D&M Plan
UI will provide the Siting Council with advance written notice whenever a significant change to the approved D&M Plan is deemed necessary. Such written notice will explain the change and document, in text and/or drawings, why the change to the Plan is required.

7.6 Weekly Report

A weekly report will be submitted to the Siting Council, either via e-mail or fax, regarding construction work and environmental issues, and the methods implemented to resolve them.

7.7 Quarterly Progress Reports

UI will submit to the Siting Council quarterly progress reports concerning the construction phase of the Lines. Any changes and deviations from the approved D&M Plan will be included in the quarterly progress reports.

7.8 Final Report

UI will provide the Siting Council with a final report on the construction phase of the project after completion of all construction activities for the Lines. The Final Report will also identify any significant changes to the D&M Plan that were required during the course of construction.

APPENDIX A

THE UNITED ILLUMINATING COMPANY
MIDDLETOWN-NORWALK PROJECT
345KV XLPE UNDERGROUND TRANSMISSION LINES
SINGER SUBSTATION TO HOUSATONIC RIVER WEST BANK

PLAN AND PROFILE DRAWINGS

APPENDIX B

CIVIL CONSTRUCTION SPECIFICATIONS INCLUDING APPENDICES B, C, I AND J

APPENDIX C

SITING COUNCIL DECISION AND ORDER

DOCKET NO. 272 - The Connecticut Light and Power Company and The United Illuminating Company application for a Certificate of Environmental Compatibility and Public Need for the Construction of a New 345-kV Electric Transmission Line and Associated Facilities Between Scovill Rock Switching Station in Middletown and Norwalk Substation in Norwalk, Connecticut Including the Reconstruction of Portions of Existing 115-kV and 345-kV Electric Transmission Lines, the Construction of the Beseck Switching Station in Wallingford, East Devon Substation in Milford, and Singer Substation in Bridgeport, Modifications at Scovill Rock Switching Station and Norwalk Substation and the Reconfiguration of Certain Interconnections.	}	Connecticut Siting Council April 7, 2005

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction of a new 345-kV electric transmission line and associated facilities between Scovill Rock Switching Station in Middletown and Norwalk Substation in Norwalk, Connecticut including the reconstruction of portions of existing 115-kV and 345-kV electric transmission lines, the construction of the Beseck Switching Station in Wallingford, East Devon Substation in Milford, and Singer Substation in Bridgeport, modifications at Scovill Rock Switching Station and Norwalk Substation and the reconfiguration of certain interconnections, including effects on the natural environment; ecological integrity and balance; forests and parks; scenic, historic, and recreational values; air and water purity; fish and wildlife; and public health and safety are not disproportionate either alone or cumulatively with other effects compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application. Therefore, the Council directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to the Connecticut Light and Power Company (CL&P), and the United Illuminating Company (UI), (collectively referred to as the "Applicants") for the construction, operation and maintenance of such facilities.

The facilities shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and is subject to the following conditions:

1. The Certificate Holders shall construct new substations or switching stations at Beseck, East Devon and Singer, and the modification of the existing facilities at Scovill Rock and Norwalk all as proposed in the application except that the Singer Substation is to be located on a parcel of property in Bridgeport bounded by Main Street, Russell Street, Atlantic Street, and Henry Street, and owned by PSEG Power of Connecticut.

2. The Certificate Holders shall install 500-kV rated equipment in the new 345-kV substations and replace approximately 1,200 lightning arresters in various existing substations with similar units having a higher rating.

3. The Certificate Holders shall construct and reconstruct facilities from Scovill Rock to Chestnut Junction; Oxbow Junction to the proposed Beseck Switching Station and Black Pond Junction to Beseck Switching Station as proposed in the application.

4. The Certificate Holders shall utilize the Royal Oak Bypass which shall include a rights-of-way not to exceed 165 feet in width, and cleared rights-of-way of 125 feet, for the proposed 345-kV transmission line and leave the existing 115-kV ROW in place.

5. The Certificate Holders shall construct and reconstruct facilities from Beseck Switching Station to Cook Hill Junction as proposed in the application and the supported route change as follows:

    a. Cheshire supported change. Removing one of the existing 115-kV overhead circuits (Circuit 1640) from the ROW and placing it underground (using 115-kV XLPE cable) along Old Farms Road and Old Lane Road for approximately 5,000 feet. The proposed 345-kV transmission line and the remaining 115-kV line (Circuit 1208) would be installed on a single double-circuit monopole structure.

6. The Certificate Holders shall construct and reconstruct facilities from Cook Hill Junction to East Devon Substation as proposed in the application except that:

    a. In the vicinity of the Jewish Community Center the Certificate Holders shall use of the center of the ROW.
    b. In the vicinity of Congregation B'Nai Jacob/Ezra Academy the right-of-way shall be shifted farther away from buildings on property owned by Congregation B'Nai Jacob/Ezra Academy.

7. The Certificate Holders shall construct and reconstruct 115-kV circuits between the existing Devon Generating Station and the proposed East Devon Substation as proposed in the application.

8. The Certificate Holders shall construct an underground 345-kV circuit from the proposed East Devon Substation to the proposed Singer Substation substantially as proposed in the application except that the cable to be utilized shall be 3,000 kcmil XLPE and as follows:

    a. Bridgeport supported change as follows: proceeding along Noble Street under the Metro North Railroad and then cross the Pequonnock River onto waterfront property owned by the city. The variation would then cross back under the railroad and turn south on Housatonic Avenue/Water Street.

9. The Certificate Holders shall construction an underground 345-kV circuit from the proposed Singer Substation to the existing Norwalk Substation substantially as proposed in the application except that the cable shall be 3,000 kcmil XLPE and the supported route change as follows:

    a. Westport supported change as follows: proceeding south from the proposed route on the Post Road and follow Imperial Avenue for approximately a quarter of a mile, and turn west into Westport Commuter Metro North parking lot before crossing the Saugatuck River. On the west side of the river, the route would cross over Riverside Avenue and continue west along Lincoln Street before merging with Post Road.
    b. Norwalk supported change as follows: construction of an alternate Norwalk River crossing that would begin approximately 1,000 feet south of the original location to mitigate impacts to the Riverside Cemetery Association.

10. The Certificate Holders shall conform to the Council's Best Management Practices for Electric and Magnetic Fields, in accordance with the Opinion.

11. The Certificate Holders shall develop low magnetic field designs as outlined in the Council's Findings of Fact Appendix B (Cross Sections 1-8) as part of the Development and Management (D&M) Plan and file the D&M Plan with each municipality regarding facilities in said municipality for comment. The Council will allow the municipality to file comments for a period of not more than 30 days after the filing a D&M Plan section. The Certificate Holders are encouraged to consult with the municipality prior to such filing.

12. The record indicates that EMF levels may be greater in the immediate vicinity of underground transmission lines than in the immediate vicinity of overhead lines. Where the underground portions of the line are in the vicinity of facilities listed in Conn. Gen. Stat. § 16-50p(i), the Certificate Holders are directed to utilize measures necessary to ensure that public health and safety is protected no less than in the vicinity of statutory facilities adjacent to the approved overhead portions of the line.

13. The Certificate Holders shall comply with all future electric and magnetic field standards promulgated by State or federal regulatory agencies. Upon the establishment of any new standards, the facilities granted in this Decision and Order shall be brought into compliance with such standards.

14. The Certificate Holders shall not commence construction of the overhead and underground electric transmission system until securing Council approval of a D&M Plan, consistent with the Regulations of Connecticut State Agencies Section 16-50j-60 through Section 16-50j-62 and which includes the following elements:

    a. A detailed site plan showing the placement of the access roads, structure foundations, equipment and material staging area for the overhead route;
    b. A detailed site plan showing the underground route, splice boxes, provisions for underground cable protection, and equipment and material staging area;
    c. Identification of horizontal directional drill and jack and boring sites;
    d. An erosion and sediment control plan, consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control as amended for both overhead and underground routes;
    e. Provisions for crossing inland wetland and watercourses for both overhead and underground routes;
    f. Vegetative clearing plan;
    g. A wetland restoration plan;
    h. Invasive species management plan;
    i. A Plan for a pre-construction survey for all other endangered, threatened and species of special concern, flag areas of mudwort and bayonet grass, sweep areas for eastern box turtle and wood turtle prior to construction and abide to construction periods as outlined by the DEP Wildlife Division;
    j. A post-construction electric and magnetic field monitoring plan;
    k. A plan for installing construction fencing at vernal pools near construction activities and a buffer area be established around inland wetlands;
    l. An inland wetlands restoration plan;
    m. Monitoring and Operations Plan for each water body crossing;
    n. A traffic control plan to include scheduling of construction hours during nights and/or weekends and mitigation of lighting and noise;
    o. A blasting plan;
    p. Groundwater best management practices plan;
    q. Identification of developed areas for staging and equipment lay down, field office trailers, sanitary facilities and parking before establishing a new area;
    r. Excavated material in upland construction may be allowed to be graded in proximity to the structure and excavated soil in wetland construction shall be stockpiled in an upland area for use in wetland restoration;
    s. Conductor installation sites shall be within the existing ROW, use of existing cleared area, to the extent possible, and pulling sites will not be allowed in wetlands;

t. A plan for the following: structure #4010 may be eliminated; in Woodbridge, details on removal of structure #3920 and new poles may be eliminated in the area of wetland #133; a number of structures within wetland #70 adjacent to Tamarac Swamp in Wallingford may be reduced, especially structures #8769 and 8800; and a set of existing pole structures immediately adjacent to the Farmington Canal Recreational Trail in Hamden could be removed.

15. The Certificate Holders are directed to consult with DEP on the following matters:

a. Concerning horizontal directional drill and the jack and bore crossing techniques;
b. Fording streams; and
c. Construction scheduling at the Milford boat launch and the line should be sited so as to not interfere unreasonably with any future maintenance needs.

16. The Certificate Holders shall abide to the following Regional Water Authority (RWA) conditions:

a. Shall provide all information necessary for the RWA to prepare a DPH Change in Use Application and Revocable License Agreement for the construction activities on RWA owned watershed land.
b. Shall prepare a Stormwater Pollution Prevention Plan (SWPPP) during the development of the Development and Management Plan (D&M Plan). The D&M Plan shall be prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control.
c. Refueling of construction equipment on public water supply watershed and aquifer areas shall only be conducted over portable spill containment areas. Absorbent spill response materials shall be readily available on-site. The RWA shall be immediately notified of any hazardous material spills or other water quality incidents on its public water supply watershed or aquifers.
d. Any fuel, oils, paints, solvents, or other hazardous materials stored on-site during the construction process shall be in a secure area with at least 100 percent secondary containment.
e. Submittal of an Integrated Pest Management Pan for long-term maintenance of right-of-ways and submittal of an annual summary of pesticide use and other maintenance activities on RWA property.
f. If blasting is required, pre-blast surveys of RWA facilities shall be done, recording seismographs shall be in place during blasting, and copies of the survey sand seismograph results shall be provided to the RWA.
g. Provision of reimbursement for reasonable costs incurred by the RWA regarding review and inspection of the Project, including costs for review by its special consultants, and costs associated with designing and relocating the RWA's facilities, if required.
h. Preliminary and final D&M Plans shall be provided to the RWA for its review comments. The RWA shall be allowed at least 30 days to review and comment.
i. The RWA shall receive between three and five days notice prior to commencement of construction activity on public water supply watershed or aquifers, or in the vicinity of RWA facilities.

17. The Certificate Holders shall use the DOT encroachment permit process developed for the Docket No. 217 project as a template.

18. The Certificate Holders shall provide the following permits prior to the commencement of construction:

a. Department of Public Health change-in-use permit;
b. Office of Long Island Sound Programs (OLISP) coastal permits for the Singer and East Devon Substations; and
c. DEP water body crossing permits.

19. The Certificate Holders shall obtain necessary waste management permits for activity in any solid waste disposal area and remove and dispose of contaminated soil per municipal, state, and federal regulations

20. The Certificate Holders shall hire an independent environmental consultant, subject to Council approval, to monitor and report on the installation of the overhead and underground transmission system.

21. The Certificate Holders shall conduct a Phase II Archeological Reconnaissance Survey in consultation with the Connecticut Historical Commission prior to construction.

22. The Certificate Holders shall provide to the Council an operating report within three months after the conclusion of the first year of operation of all facilities herein, and annually thereafter, with information relevant to the overall condition, safety, reliability, and operation of the cable systems, for three years.

23. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within six years of the effective date of the Decision and Order, or within six years after all appeals to this Decision and Order have been resolved.

We hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of the Decision published in the Hartford Courant, The Connecticut Post, Norwalk Hour, Minuteman Press, The Middletown Press, The New Haven Register, The Record-Journal, The Advisor, The Amity Observer, The Bridgeport News, The Cheshire Herald, The Courier(Monroe/Easton), The Fairfield Citizen News, The Hamden Journal, The Milford Mirror, The Milford Weekly, The Norwalk Hour, The Norwalk Citizens News, The North Haven Post, The Stratford Bard, The Stratford Star, The Trumbull Times, The Wallingford Voices, The Waterbury Republican, The West Haven News, The Weston Forum, The Westport News, The Wilton Bulletin, and The Wilton Villager.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The Parties and Intervenors in this proceeding are:

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Party	Communities for Responsible Energy	Trish Bradley, President Ed Schwartz, Treasurer Comunities for Responsible Energy, Phase II 45 Ironwood Lane Durham, CT 06422 (860) 349-9137 thebradco7@aol.com
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Party	The Woodlands Coalition for Responsible Energy, Inc.	Lawrence J. Golden, Esq. Pullman & Comley, LLC 90 State House Square Hartford, CT 06103-3702 (860) 424-4346 (860) 424-4370 lgolden@pullcom.com Ruthann@woodlandscoalition.com
Intervenor	ISO New England Inc.	Anthony M. Macleod, Esq. Whitman Breed Abbott & Morgan LLC 100 Field Point Road Greenwich, CT 06830 (203) 869-3800 (203) 869-1951 – fax amacleod@wbamct.com
Party	Department of Transportation	Charles H. Walsh Assistant Attorney General Juris. No. 402623 55 Elm St., P.O. Box 120 Hartford, CT 06141-0120 (860) 808-5090 (860) 808-5384 fax charles.walsh@po.state.ct.us Arthur.gruhn@po.state.ct.us
Party	Town of Fairfield	Honorable Kenneth A. Flatto First Selectman Independence Hall 725 Old Post Road Fairfield, CT 06824 (203) 256-3030 (203) 256-3008 – fax firstselectmanffld@town.fairfield.ct.us ekennelly@town.fairfield.ct.us

Party	PSEG Power Connecticut LLC	David A. Reif Jane K. Warren Joel B. Casey McCarter & English, LLP CityPlace I Hartford, CT 06103 (860) 275-6700 (860) 724-3397 – fax dreif@mccarter.com jwarren@mccarter.com jcasey@mccarter.com h.borden@pseg.com
Party	Town of Wilton	Monte E. Frank, Esq. Cohen and Wolf, P.C. 158 Deer Hill Avenue Danbury, CT 06810 (203) 368-0211 (203) 576-8504 fax mfrank@cohenandwolf.com
Party	Town of Weston	David A. Ball, Esq. Cohen and Wolf, P.C. 1115 Broad Street Bridgeport, CT 06604 (203) 337-4134 (203) 576-8504 fax dball@cohenandwolf.com
Party	South Central Connecticut Water Authority	Andrew W. Lord, Esq. Murtha Cullina LLP CityPlace I, 29th Floor 185 Asylum Street Hartford, CT 06103-3469 (860) 240-6180 (860) 240-6150 alord@murthalaw.com

Party	Town of Orange	Brian M. Stone,Esq. Sousa, Stone & D'Agosto, LLC 375 Bridgeport Avenue Shelton, CT 06484 (203) 929-8283 (203) 548-0006 brianstone@snet.net Mitchgoldblatt@aol.com
Intervenor	Connecticut Business & Industry Association (CBIA)	Robert E. Earley Connecticut Business & Industry Assoc. 350 Church Street Hartford, CT 06103-1106 (860) 244-1900 (860) 278-8562 fax earleyr@cbia.com
Party	Town of Cheshire	Richard J. Buturla, Esq. Town Attorney Berchem, Moses & Devlin, PC 75 Broad Street Milford, CT 06460 (203) 783-1200 (203) 878-4912 fax rbuturla@bmdlaw.com mmilone@cheshirect.org
Party	Town of Hamden	Joaquina Borges King Assistant Town Attorney Hamden Government Center 2750 Dixwell Avenue Hamden, CT 06518 (203) 287-7050 (-7053) (203) 287-7051 fax jborgesking@hamden.com jgruen@hamden.com

Party	City of Middletown	Timothy P. Lynch Deputy City Attorney City Attorney's Office 245 deKoven Drive, P.O. Box 1300 Middletown, CT 06457-1300 (860) 344-3422 (860) 344-3521 timothy.lynch@cityofmiddletown.com
Party	Town of Bethany	Honorable Derrylyn Gorski First Selectman Bethany Town Hall 40 Peck Road Bethany, CT 06524-3378 (203) 393-2100 ext. 100 DGorski@Bethany-CT.com Kevin195774@yahoo.com
Party	Town of Easton	William J. Kupinse, Jr. First Selectman Easton Town Hall 225 Center Road, P.O. Box 61 Easton, CT 06612 (203) 268-6291 (203) 268-4928 fax w_kupinse@eastonct.org
Intervenor	Honorable William A. Aniskovich State Senate – 12th District 15 Grove Avenue Branford, CT 06405 (860) 240-0596 William.A.Aniskovich@po.state.ct.us	
Party	Town of North Haven	David J. Monz Updike, Kelly & Spellacy, P.C. One Century Tower 265 Church Street New Haven, CT 06510 (203) 786-8303 (203) 772-2037 fax dmonz@uks.com

Party	Woodbridge Jewish Organizations *(Ezra Academy, Congregation B'Nai Jacob, the Jewish Community Center of Greater New Haven, the Jewish Federation of Greater New Haven, and the Department of Jewish Education).*	David R. Schaefer, Esq. Brenner Saltzman & Wallman, LLP 271 Whitney Avenue New Haven, CT 06511 (203) 772-2600 (203) 562-2098 fax dschaefer@bswlaw.com
Intervenor	Senator Joseph J. Crisco, Jr. 17th District State Capitol Hartford, CT 06106-1591 (860) 240-0189 (860) 240-0027 – fax Crisco@senatedems.state.ct.us	
Intervenor	First District Water Department	Franco Chieffalo General Supervisor First District Water Department P.O. Box 27 Norwalk, CT 06852 (203) 847-7387 (203) 846-3482 fax fchieffalo@norwalkfdwd.org
Intervenor	Honorable Leonard A. Fasano State Senator – 34th District 7 Sycamore Lane North Haven, CT 06473 Len.Fasano@po.state.ct.us	
Party	City of New Haven	Elizabeth Gilson, Esq. 383 Orange Street New Haven, CT 06511 (203) 777-4050 (203) 787-3259 – fax egilson@snet.net

Intervenor	Branford Conservation and Environment Commission	Karyl Lee Hall, Esq. Co-Chairman Branford Conservation & Environment Comission c/o Box 3072 Branford, CT 06405 860-262-5044 Karylleehall1@aol.com
Party	Town of Branford	Honorable John E. Opie, First Selectman Branford Town Hall P.O. Box 150, Town Hall Branford, CT 06405 (203) 488-8394 jopie@branford-ct.gov
Party	Linda Wilson	Sebastian N. Giuliano, Esq. Giuliano, Rafala & Scalora P.O. Box 820 Middletown, CT 06457-0820 (860) 344-9045 (860) 344-8397 fax Robert Hoff, Esq. Reid and Riege, P.C. One Financial Plaza Hartford, CT 06103 (860) 278-1150 (860) 240-1002 RHoff@ReidandRiege.com TArmstrong@ReidandRiege.com
Intervenor	The Honorable Kevin M. DelGobbo, Ranking Member Energy and Technology Committee Legislative Office Building, Room 3904 Hartford, CT 06106-1591 (860) 240-8700 (860) 240-0207 fax Kevin.delgobbo@housegop.state.ct.us	

Party	Ralph E. Wilson, Allison Wilson, and the South Main Street Irrevocable Trust	Sebastian N. Giuliano, Esq. Giuliano, Rafala & Scalora P.O. Box 820 Middletown, CT 06457-0820 (860) 344-9045 (860) 344-8397 fax Robert Hoff, Esq. Reid and Riege, P.C. One Financial Plaza Hartford, CT 06103 (860) 278-1150 (860) 240-1002 RHoff@ReidandRiege.com TArmstrong@ReidandRiege.com

CERTIFICATION

The undersigned members of the Connecticut Siting Council (Council) hereby certify that they have heard this case, or read the record thereof, in **DOCKET NO. 272** - The Connecticut Light and Power Company and The United Illuminating Company Application for a Certificate of Environmental Compatibility and Public Need for the Construction of a New 345-kV Electric Transmission Line and Associated Facilities Between Scovill Rock Switching Station in Middletown and Norwalk Substation in Norwalk, Connecticut Including the Reconstruction of Portions of Existing 115-kV and 345-kV Electric Transmission Lines, the Construction of the Beseck Switching Station in Wallingford, East Devon Substation in Milford, and Singer Substation in Bridgeport, Modifications at Scovill Rock Switching Station and Norwalk Substation and the Reconfiguration of Certain Interconnections, and voted as follows to approve the applicant with modifications as outlined in the Opinion and Decision and Order:

Council Members	**Vote Cast**
Pamela B. Katz, P.E., Chairman	Yes
Commissioner Donald W. Downes Designee: Gerald J. Heffernan	Yes
Commissioner Gina McCarthy Designee: Brian J. Emerick	Yes
Philip T. Ashton	Yes
Daniel P. Lynch, Jr.	Yes
James J. Murphy, Jr.	Yes
Brian F. O'Neill	Yes
Colin C. Tait	Yes
Edward S. Wilensky	Yes

Dated at New Britain, Connecticut, April 7, 2005.

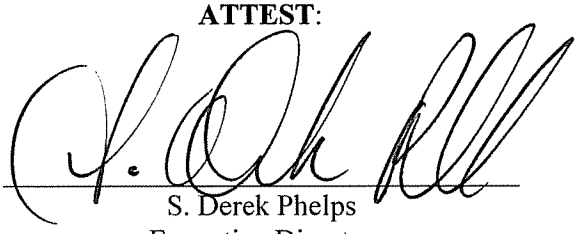
STATE OF CONNECTICUT)

ss. New Britain, Connecticut :

COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the Findings of Fact, Opinion, and Decision and Order issued by the Connecticut Siting Council, State of Connecticut.

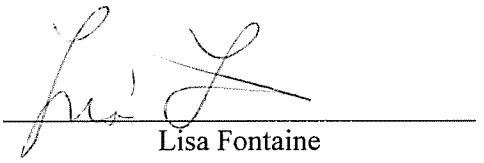
ATTEST:



S. Derek Phelps
Executive Director
Connecticut Siting Council

I certify that a copy of the Findings of Fact, Opinion, and Decision and Order in Docket No. 272 has been forwarded by Certified First Class Return Receipt Requested mail on April 14, 2005 to all parties and intervenors of record as listed on the attached service list, dated January 26, 2005.

ATTEST:



Lisa Fontaine
Pre-Professional Trainee
Connecticut Siting Council

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Applicant	The Connecticut Light and Power Company	Anthony M. Fitzgerald, Esq. Brian T. Henebry, Esq. Carmody & Torrance LLP 50 Leavenworth St., P.O. Box 1110 Waterbury, CT 06721-1110 (203) 573-1200 (203) 575-2600 - fax afitzgerald@carmodylaw.com bhenebry@carmodylaw.com tranmn345docket272@nu.com
Applicant	The United Illuminating Company	Linda L. Randell, Esq. Bruce L. McDermott, Esq. Wiggin & Dana LLP One Century Tower New Haven, CT 06508-1832 (203) 498-4322 (203) 782-2889 - fax lrandell@wiggin.com bmcdermott@wiggin.com
Intervenor (granted 11/20/03)	Norwalk Association of Silvermine Homeowners **~STATUS WITHDRAWN 03/26/04~**	Norwalk Association of Silvermine Homeowners c/o Leigh Grant 99 Comstock Hill Road Norwalk, CT 06850 (203) 846-4577 (203) 846-4577 - fax cartellino@aol.com
Party (granted 11/20/03)	Honorable Robert W. Megna State Representative - 97th District 40 Foxon Hill Road, #54 New Haven, CT 06513 (860) 240-8585 1-800-842-8267 Robert.Megna@po.state.ct.us	

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Intervenor (granted 11/20/03)	Honorable Al Adinolfi State Representative 103rd District 235 Sorghum Mill Drive Cheshire, Connecticut 06410 (203) 272-9701 - Home 1-800-842-1423 – Capitol (860) 240-0207 - fax Alfred.adinolfi@housegop.state.ct.us	
Party (granted 11/20/03)	Town of Middlefield	Eric Knapp, Esq. Branse & Willis, LLC 41-C New LondonTurnpike Glen Lochen East Glastonbury, CT 06033-2038 (860) 659-3735 (860) 659-9368 – fax eknapp@bransewillis.com
Party (granted 11/20/03)	Town of Milford	Julie Donaldson Kohler, Esq. Hurwitz & Sagarin, LLC 147 North Broad St. Milford, CT 06460 (203) 877-8000 (203) 878-9800 - fax jdk@hurwitz-sagarin.com
Party (granted 11/20/03)	Town of Wallingford	Peter G. Boucher, Esq. Halloran & Sage, LLP 225 Asylum Street Hartford, CT 06103 (860) 297-4650 (860) 548-0006 fax boucher@halloran-sage.com

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Party (granted 11/20/03)	Town of Wallingford continued…	Janis M. Small, Esq. Town Attorney Wallingford Town Hall 45 South Main St. Wallingford, CT 06492 (203) 294-2140 (203) 294-2112 – fax wlfdlaw@sbcglobal.net
Party (granted 11/20/03)	Town of Durham	Peter G. Boucher, Esq. Halloran & Sage, LLP 225 Asylum Street Hartford, CT 06103 (860) 297-4650 (860) 548-0006 fax boucher@halloran-sage.com Maryann Boord First Selectwoman Durham Town Hall 30 Townhouse Rd. Durham, CT 06422 (860) 349-3625 (860) 349- 8391 – fax mboord@townofdurhamct.org
Party (granted 11/20/03)	City of Norwalk	Louis S. Ciccarello Corporation Counsel P.O. Box 798 Norwalk, CT 06856-0798 (203) 854-7750 (203) 854-7901 fax lciccarello@norwalkct.org
Party (granted 11/20/03)	Town of Westport	Town of Westport c/o Ira W. Bloom, Esq. 27 Imperial Avenue Westport, CT 06880 (203) 227-9545 (203) 227-2443 - fax ibloom@wsdb.com ecederbaum@wsdb.com

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Intervenor (granted 11/20/03)	Honorable Mary G. Fritz State Representative - 90th District 43 Grove Street Yalesville, CT 06492 (203) 289-1169 1-800-842-1902 (860) 240-0206 - fax mary.fritz@po.state.ct.us	
Party (granted 11/20/03)	Town of Woodbridge	David A. Ball, Esq. Cohen and Wolf, P.C. 1115 Broad Street Bridgeport, CT 06604 (203) 337-4134 (203) 576-8504 fax dball@cohenandwolf.com
Party (granted 11/20/03)	City of Meriden	Deborah L. Moore, Esq. Legal Department City Hall 142 East Main Street Meriden, CT 06450 (203) 630-4045 (203) 630-7907 - fax dmoore@ci.meriden.ct.us
Party (granted 11/20/03)	Attorney General Richard Blumenthal	Michael C. Wertheimer Assistant Attorney General Office of the Attorney General 10 Franklin Square New Britain, CT 06051 (860) 827-2603 (860) 827-2893 michael.wertheimer@po.state.ct.us

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Intervenor (granted 11/20/03)	Honorable Raymond Kalinowski State Representative – 100th District P.O. Box 391 Durham, CT 06422 1(800)842-1423 860) 240-0207 - fax repkalinowski@aol.com	
Party (granted 11/20/03)	City of Bridgeport	Melanie J. Howlett Associate City Attorney Office of the City Attorney 999 Broad Street Bridgeport, CT 06604-4328 (203) 576-7647 (203) 576-8252 – fax Howlem0@ci.bridgeport.ct.us
Party (granted 11/20/03)	Communities for Responsible Energy	Trish Bradley, President Ed Schwartz, Treasurer Comunities for Responsible Energy, Phase II 45 Ironwood Lane Durham, CT 06422 (860) 349-9137 thebradco7@aol.com
Party (granted 11/20/03)	Office of Consumer Counsel	Bruce C. Johnson Litigation Attorney Office of Consumer Counsel Ten Franklin Square New Britain, CT 06051 (860) 827-2900 (860) 827-2929 – fax bruce.johnson@po.state.ct.us

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Intervenor (granted 11/20/03	Honorable Themis Klarides State Representative – 114th District 23 East Court Derby, CT 06418 (203) 735-5911 1-800-842-1423 (860) 240-0207 - fax Themis.klarides@housegop.state.ct.us	
Party (granted 11/20/03)	The Woodlands Coalition for Responsible Energy, Inc.	Lawrence J. Golden, Esq. Pullman & Comley, LLC 90 State House Square Hartford, CT 06103-3702 (860) 424-4346 (860) 424-4370 lgolden@pullcom.com Ruthann@woodlandscoalition.com
Intervenor (granted 12/9/03)	ISO New England Inc.	Anthony M. Macleod, Esq. Whitman Breed Abbott & Morgan LLC 100 Field Point Road Greenwich, CT 06830 (203) 869-3800 (203) 869-1951 – fax amacleod@wbamct.com
Party (granted 12/9/03)	Department of Transportation	Charles H. Walsh Assistant Attorney General Juris. No. 402623 55 Elm St., P.O. Box 120 Hartford, CT 06141-0120 (860) 808-5090 (860) 808-5384 fax charles.walsh@po.state.ct.us Arthur.gruhn@po.state.ct.us

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Intervenor (granted 12/9/03)	Honorable John E. Stripp State Representative – 135th District 4 Scatacook Trail Weston, CT 06883 1(800)842-1423 (860)240-0207 – fax john.stripp@housegop.state.ct.us **~STATUS WITHDRAWN 01/04~**	
Party (granted 12/9/03)	Town of Fairfield	Honorable Kenneth A. Flatto First Selectman Independence Hall 725 Old Post Road Fairfield, CT 06824 (203) 256-3030 (203) 256-3008 – fax firstselectmanffld@town.fairfield.ct.us ekennelly@town.fairfield.ct.us
Party (granted 12/9/03)	PSEG Power Connecticut LLC	David A. Reif Jane K. Warren Joel B. Casey McCarter & English, LLP CityPlace I Hartford, CT 06103 (860) 275-6700 (860) 724-3397 – fax dreif@mccarter.com jwarren@mccarter.com jcasey@mccarter.com h.borden@pseg.com
Party (granted 12/22/03)	Town of Wilton	Monte E. Frank, Esq. Cohen and Wolf, P.C. 158 Deer Hill Avenue Danbury, CT 06810 (203) 368-0211 (203) 576-8504 fax mfrank@cohenandwolf.com

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Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Party (granted 12/22/03)	Town of Weston	David A. Ball, Esq. Cohen and Wolf, P.C. 1115 Broad Street Bridgeport, CT 06604 (203) 337-4134 (203) 576-8504 fax dball@cohenandwolf.com
Party (granted 12/22/03)	South Central Connecticut Water Authority	Andrew W. Lord, Esq. Murtha Cullina LLP CityPlace I, 29th Floor 185 Asylum Street Hartford, CT 06103-3469 (860) 240-6180 (860) 240-6150 alord@murthalaw.com
Party (granted 12/22/03)	Town of Orange	Brian M. Stone,Esq. Sousa, Stone & D'Agosto, LLC 375 Bridgeport Avenue Shelton, CT 06484 (203) 929-8283 (203) 548-0006 brianstone@snet.net Mitchgoldblatt@aol.com
Intervenor (granted 01/12/04)	Connecticut Business & Industry Association (CBIA)	Robert E. Earley Connecticut Business & Industry Assoc. 350 Church Street Hartford, CT 06103-1106 (860) 244-1900 (860) 278-8562 fax earleyr@cbia.com

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Party (granted 01/12/04)	Town of Cheshire	Richard J. Buturla, Esq. Town Attorney Berchem, Moses & Devlin, PC 75 Broad Street Milford, CT 06460 (203) 783-1200 (203) 878-4912 fax rbuturla@bmdlaw.com mmilone@cheshirect.org
Party (granted 1/12/04)	Town of Hamden	Joaquina Borges King Assistant Town Attorney Hamden Government Center 2750 Dixwell Avenue Hamden, CT 06518 (203) 287-7050 (-7053) (203) 287-7051 fax jborgesking@hamden.com jgruen@hamden.com
Party (approved 2/3/04)	City of Middletown	Timothy P. Lynch Deputy City Attorney City Attorney's Office 245 deKoven Drive, P.O. Box 1300 Middletown, CT 06457-1300 (860) 344-3422 (860) 344-3521 timothy.lynch@cityofmiddletown.com
Party (approved 2/3/04)	Town of Bethany	Honorable Derrylyn Gorski First Selectman Bethany Town Hall 40 Peck Road Bethany, CT 06524-3378 (203) 393-2100 ext. 100 DGorski@Bethany-CT.com Kevin195774@yahoo.com

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Party (approved 2/3/04)	Town of Easton	William J. Kupinse, Jr. First Selectman Easton Town Hall 225 Center Road, P.O. Box 61 Easton, CT 06612 (203) 268-6291 (203) 268-4928 fax w_kupinse@eastonct.org
Intervenor **(approved 2/18/04**	Honorable William A. Aniskovich State Senate – 12th District 15 Grove Avenue Branford, CT 06405 (860) 240-0596 William.A.Aniskovich@po.state.ct.us	
Party (approved 2/18/04)	Town of North Haven	David J. Monz Updike, Kelly & Spellacy, P.C. One Century Tower 265 Church Street New Haven, CT 06510 (203) 786-8303 (203) 772-2037 fax dmonz@uks.com
Party (approved 3/17/04)	Woodbridge Jewish Organizations *(Ezra Academy, B'Nai Jacob, the Jewish Community Center of Greater New Haven, the Jewish Federation of Greater New Haven, and the Department of Jewish Education).*	David R. Schaefer, Esq. Brenner Saltzman & Wallman, LLP 271 Whitney Avenue New Haven, CT 06511 (203) 772-2600 (203) 562-2098 fax dschaefer@bswlaw.com

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Intervenor (approved 3/17/04)	Senator Joseph J. Crisco, Jr. 17th District State Capitol Hartford, CT 06106-1591 (860) 240-0189 (860) 240-0027 – fax Crisco@senatedems.state.ct.us	
Intervenor (approved 3/23/04)	First District Water Department	Franco Chieffalo General Supervisor First District Water Department P.O. Box 27 Norwalk, CT 06852 (203) 847-7387 (203) 846-3482 fax fchieffalo@norwalkfdwd.org
Intervenor (approved 4/15/04)	Honorable Leonard A. Fasano State Senator – 34th District 7 Sycamore Lane North Haven, CT 06473 Len.Fasano@po.state.ct.us	
Party (approved on 7/13/04)	City of New Haven	Elizabeth Gilson, Esq. 383 Orange Street New Haven, CT 06511 (203) 777-4050 (203) 787-3259 – fax egilson@snet.net

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Intervenor (approved 7/13/04)	Branford Conservation and Environment Commission	Karyl Lee Hall, Esq. Co-Chairman Branford Conservation & Environment Comission c/o Box 3072 Branford, CT 06405 860-262-5044 Karylleehall1@aol.com
Party (approved 07/13/04)	Town of Branford	Honorable John E. Opie, First Selectman Branford Town Hall P.O. Box 150, Town Hall Branford, CT 06405 (203) 488-8394 jopie@branford-ct.gov
Party (approved as intervenor on 08/26/04- changed on 01/19/05)	Linda Wilson	Sebastian N. Giuliano, Esq. Giuliano, Rafala & Scalora P.O. Box 820 Middletown, CT 06457-0820 (860) 344-9045 (860) 344-8397 fax Robert Hoff, Esq. Reid and Riege, P.C. One Financial Plaza Hartford, CT 06103 (860) 278-1150 (860) 240-1002 RHoff@ReidandRiege.com TArmstrong@ReidandRiege.com

LIST OF PARTIES AND INTERVENORS
SERVICE LIST

Status Granted	Status Holder (name, address & phone number)	Representative (name, address & phone number)
Intervenor (approved on 8/26/04)	The Honorable Kevin M. DelGobbo, Ranking Member Energy and Technology Committee Legislative Office Building, Room 3904 Hartford, CT 06106-1591 (860) 240-8700 (860) 240-0207 fax Kevin.delgobbo@housegop.state.ct.us	
Party (approved as intervenor on 12/21/04 – changed on 01/19/05 to party)	Ralph E. Wilson, Allison Wilson, and the South Main Street Irrevocable Trust	Sebastian N. Giuliano, Esq. Giuliano, Rafala & Scalora P.O. Box 820 Middletown, CT 06457-0820 (860) 344-9045 (860) 344-8397 fax Robert Hoff, Esq. Reid and Riege, P.C. One Financial Plaza Hartford, CT 06103 (860) 278-1150 (860) 240-1002 RHoff@ReidandRiege.com TArmstrong@ReidandRiege.com

APPENDIX D

POST CONSTRUCTION ELECTRIC AND MAGNETIC FIELDS MONITORING PLAN
(To be provided prior to the completion of construction)

APPENDIX E

GENERAL TRAFFIC MAINTENANCE AND CONTROL PLAN

(DETAIL DRAWINGS BOUND SEPARATELY)

Traffic Management Plan

Reference is made in this Traffic Management Plan to Sections or Articles of the Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816, dated 2004 and any subsequent Supplemental Specifications to the Standard Specifications. Reference is designated by the abbreviation "CDOT – Form 816". The referenced Section, Article or Subarticle along with title may follow the abbreviation CDOT – Form 816. Modifications may include additions, deletions, corrections and changes. Copies of CDOT Form 816 may be purchased from:

Connecticut Department of Transportation
Manager of Contracts
P.O. Box 317546
2800 Berlin Turnpike
Newington, CT 06131-7546

Within the CDOT – Form 816 Standard Specifications and wherever the following terms are used they shall mean, respectively:

CDOT – Form 816 or Contract Documents term	**Meaning Herein**
State, Department	State of Connecticut Department of Transportation (CDOT)
Owner	The United Illuminating Company (UI)
Engineer	Design Representative of the Owner
Inspector	Construction Representative of the Owner
Laboratory	Laboratory designated by the Owner
Contractor	Contractor hired by the Owner

All work under this contract shall follow and be constructed in conformance with CDOT – Form 816 except as amended herein.

Note:

This specification is to be used with the Maintenance and Protection of Traffic drawings to form a composite Traffic Management Plan.**General Work**

Rules

The Contractor shall conduct the work with as little interference as possible to traffic, and the work of other Contractors. Whenever it is necessary to cross, obstruct, or close roads, driveways, parking areas and walks, the Contractor shall provide and maintain suitable and safe bridges, detours, or other temporary expedients at his own expense. The Contractor shall follow the direction of all Special Provisions, CDOT Standards, the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD) and approved Site Specific Maintenance and Protection of Traffic Plans (M&PT) allowing for traffic management as shown in the Contract Drawings.

During daily allowable active work periods, the Contractor shall establish, at minimum, an alternating one-way traffic operation following the appropriate MUTCD Construction Traffic Control Plan. In areas where the construction duration will exceed the daily allowable work hours and plating limits, (such as for the installation of the Splicing Chambers), the Contractor shall follow the Site Specific M&PT Plans that allow for traffic management generally as shown in the Contract Drawings.

The Project will require sidewalk pedestrian traffic to be maintained with directional signs to re-direct pedestrian traffic away from work areas during construction.

All operations which will present a hazard to traffic, both pedestrian and vehicular, shall be suitably protected by use of a combination of barrier curbs, barricades, impact attenuators, traffic drums, warning lights and temporary pavement markings. Installation and maintenance of all traffic control patterns, safety and warning equipment shall be according to the guidelines from the governing authority and following MUTCD standards all at the Contractor’s expense.

Temporary Plating of Trench

The Contractor shall maintain traffic and access to driveways, parking facilities, sidewalks, walkways, and similar facilities to minimize

inconvenience to the public. Temporary steel plates shall be utilized to maintain access where necessary, and with the permission of the governing authority. CDOT regulations include but are not limited to:

- For trench wider than 3' a Professional Engineer licensed in the State of Connecticut must approve design and support system.
- The maximum covered trench length is 300'.
- If the trench depth is more than 3', sidewall shoring must be used.
- Plates must have a permanent slip-resistant surface.
- Plates may be used from March 15 to the day before Thanksgiving subject to plate removal and trench patching within 24 hours of receipt of notification from CDOT that a significant winter weather event is anticipated. The use of steel plates may be resumed upon completion of storm clean-up activities.
- Plates may be used in intersections, but may not be used within 100 feet of a stop sign or stop bar approaching any intersection.
- If steel plates are needed within 100 feet of a stop sign or stop bar, they shall be buried and paved over or other skid-resistant means approved by the governing authority.

Notification

The Contractor shall notify the Police, Fire and local governing authorities at least 24 hours in advance setting up maintenance and protection of traffic.

A minimum of 24 hours advance notice to the Connecticut Department of Transportation and local governing authorities is required before impacting critical intersections on State and local roads.

A ten (10) day minimum notice to the Connecticut Department of Transportation and governing local authorities is required for all State and local road detours.

The Contractor will submit any revisions to the proposed M&PT Plans or any other traffic related changes to the CDOT (on State roads) or municipal officials (on City roads) for review and approval at least thirty (30) days prior to implementation.

The Contractor will notify each abutter at least 24 hours in advance of the start of any work that will require the temporary closure of access.

The Contractors work schedule should be coordinated on a daily basis, with at a minimum: ConnDOT inspection personnel, the Bridgeport and Stratford Traffic Operations Center, and local police and fire departments.

The Contractors work schedule shall be made available on a weekly basis to other impacted road users and local officials, such as: local elected officials, public works personnel, emergency service providers, hospitals, public transit providers, Board of Education transportation coordinators, US Postal Service, etc.

Time Restrictions and Allowable Traffic Impacts

The Contractor can work within roadways and impact traffic operations during the approved daily allowable work hours allowed by the State and local government agencies having authority and following CDOT standards and the latest edition of the MUTCD. The daily allowable work hours shall generally apply for short-duration construction operations such as trenching and installation of the duct bank. Where construction of facilities, such as the splicing chambers, will have a longer duration the Contractor shall provide Traffic Management measures generally as shown on the site specific M&PT plans as shown in the Contract Drawings.

Daily Allowable Active Work Hours and Traffic Impacts

State of Connecticut Roadways:

Water Street (Route 130), Stratford Avenue (Route 130)

The Contractor shall maintain and protect the existing number of lanes of traffic, including turning lanes at intersections, each lane on a paved travel path not less than 11 feet in width.

Except between 7:00 P.M. and 6:00 A.M. from Sunday evening through Friday morning, subject to CDOT and the City of Bridgeport final approval, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least an alternating

one-way traffic operation on a paved travel path not less than 11 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet. When more than one alternating one-way traffic operation is in place at the same time, there shall be at least one mile between signing patterns.

During this period, the Contractor will be allowed to halt traffic for a period not to exceed ten minutes. The Contractor shall allow all stored vehicles to proceed through the work area before halting traffic for another ten-minute period.

The Contractor's construction equipment shall not obstruct sight lines at intersecting roadways and drives.

The Contractor shall not leave construction materials or equipment on the State right-of-way during non-working hours.

Barnum Avenue (U.S. Route 1)

The Contractor shall maintain and protect the existing number of lanes of traffic, including turning lanes at intersections, each lane on a paved travel path not less than 11 feet in width.

From Boston Avenue (U.S. Route 1) to Nichols Avenue (Route 108)

Except between 9:00 P.M. and 6:00 A.M. from Sunday evening through Friday morning, subject to Town of Stratford and CDOT final approval, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least an alternating one-way traffic operation on a paved travel path not less than 11 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet. When more than one alternating one-way traffic operation is in place at the same time, there shall be at least one mile between signing patterns.

From Nichols Avenue (Route 108) to Longbrook Avenue

Except between 10:00 P.M. and 6:00 A.M. from Sunday evening through Friday morning, subject to Town of Stratford and CDOT final approval, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least an alternating one-way traffic operation on a paved travel path not less than 11 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet.

When more than one alternating one-way traffic operation is in place at the same time, there shall be at least one mile between signing patterns.

From Longbrook Avenue to East Main Street (Route 110)

Except between 8:30 P.M. and 6:00 A.M. from Sunday evening through Friday morning, subject to Town of Stratford and CDOT final approval, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least an alternating one-way traffic operation on a paved travel path not less than 11 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet. When more than one alternating one-way traffic operation is in place at the same time, there shall be at least one mile between signing patterns.

During these periods, the Contractor will be allowed to halt traffic for a period not to exceed ten minutes. The Contractor shall allow all stored vehicles to proceed through the work area before halting traffic for another ten-minute period.

The Contractor's construction equipment shall not obstruct sight lines at intersecting roadways and drives.

The Contractor shall not leave construction materials or equipment on the State right-of-way during non-working hours.

Barnum Avenue (Route 1) acts as a back-up artery for I-95. In the event of a major accident on I-95 the Contractor will immediately halt all construction activities affecting traffic and restore all travel lanes that had been closed.

City of Bridgeport Roadways:

Main Street; Ferry Access Boulevard; Noble Avenue; Barnum Avenue

The Contractor shall maintain and protect the existing number of lanes of traffic, including turning lanes at intersections, each lane on a paved travel path not less than 11 feet in width.

Except between 9:00 A.M. and 4:00 P.M., and additionally between 7:00 P.M. and 6:00 A.M. in designated Commercial/Industrial areas subject to

City final approval, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least an alternating one-way traffic operation on a paved travel path not less than 11 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet. When more than one alternating one-way traffic operation is in place at the same time, there shall be at least one mile between signing patterns.

During this period, the Contractor will be allowed to halt traffic for a period not to exceed ten minutes. The Contractor shall allow all stored vehicles to proceed through the work area before halting traffic for another ten-minute period.

The Contractor's construction equipment shall not obstruct sight lines at intersecting roadways and drives.

The Contractor shall not leave construction materials or equipment on the State and Municipal right-of-way during non-working hours.

Town of Stratford Roadways:

Barnum Avenue

The Contractor shall maintain and protect the existing number of lanes of traffic, including turning lanes at intersections, each lane on a paved travel path not less than 11 feet in width.

Except between 9:00 A.M. and 4:00 P.M., and additionally between 7:00 P.M. and 6:00 A.M. in designated Commercial/Industrial areas subject to Town final approval, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least an alternating one-way traffic operation on a paved travel path not less than 11 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet. When more than one alternating one-way traffic operation is in place at the same time, there shall be at least one mile between signing patterns.

During this period, the Contractor will be allowed to halt traffic for a period not to exceed ten minutes. The Contractor shall allow all stored vehicles to proceed through the work area before halting traffic for another ten-minute period.

The Contractor's construction equipment shall not obstruct sight lines at intersecting roadways and drives.

The Contractor shall not leave construction materials or equipment on the State and Municipal right-of-way during non-working hours.

All Other Roadways:

The Contractor shall maintain and protect one lane of through traffic in each direction and turning lanes at intersections, each lane on a paved travel path not less than 11 feet in width.

Except during the approved work hours for the associated roadway, or during hours approved by the governing authority, when the Contractor is actively working, at which time the Contractor will be allowed to maintain and protect at least an alternating one-way traffic operation on a paved travel path not less than 11 feet in width. The length of the alternating one-way traffic operation shall not exceed 300 feet. When more than one alternating one-way traffic operation is in place at the same time, there shall be at least one mile between signing patterns.

During this period, the Contractor will be allowed to halt traffic for a period not to exceed ten minutes. The Contractor shall allow all stored vehicles to proceed through the work area before halting traffic for another ten-minute period.

The Contractor's construction equipment shall not obstruct sight lines at intersecting roadways and drives.

The Contractor shall not leave construction materials or equipment on the State and Municipal right-of-way during non-working hours.

Night Work

Night work will be permitted only in areas considered commercial/industrial as specifically allowed by the governing authorities.

During night work, existing roadway lighting must be maintained. Temporary lighting may have to be installed.

Other Work Stipulations

The Contractor will not be allowed to perform work that will interfere with existing traffic flows on any streets during the following periods:

On the following State observed Legal Holidays:
New Year's Day*
Good Friday, Easter***
Memorial Day*
Independence Day*
Labor Day*
Columbus Day
Thanksgiving Day**
Christmas Day*

A Holiday marked with an * also designates the following restrictions:

On the day before and the day after any of the above Legal Holidays.

On the Friday, Saturday and Sunday immediately preceding any of the above Holidays celebrated on a Monday.

On the Saturday, Sunday and Monday immediately following any of the above Holidays celebrated on a Friday.

** From 6:00 a.m. the Wednesday before the Holiday to 8:00 p.m. the Monday after the Holiday.

*** From 6:00 p.m. the Thursday before the Holiday to 8:00 p.m. the Monday after the Holiday.

Commercial and Residential Driveways

The Contractor shall maintain access to and egress from all commercial and residential driveways throughout the project limits. The Contractor will be allowed to close driveways to perform the required work during those periods when the businesses are closed unless permission is granted from the business owner to close the driveway during business hours. If a temporary closure of a residential driveway is necessary, the Contractor shall coordinate with the owner to determine the time period of the closure.

All cones will be approximately placed and moved as necessary to maintain adequate abutter access at all times. Work may require additional signs, cones, drums and other traffic control devices, grading and temporary pavement for passage of pedestrian, vehicular and emergency traffic through the work areas, both during and after work hours, to maintain such access.

Materials

All barrier curbs, barricades, impact attenuators, traffic drums, warning lights and temporary pavement markings shall conform to the CDOT standards. Installation of safety and warning equipment shall be sufficient to comply with the latest edition of the MUTCD and to the satisfaction of the United Illuminating Company.

Traffic Signals

The Contractor shall keep each traffic signal in the project limits operational at all times during construction. Operational shall mean operating in a manner similar to its operation prior to the commencement of work.

Vehicle loop detectors and system detectors damaged during construction operations shall be replaced within twenty-four (24) hours. If it is anticipated that detectors cannot be restored within twenty-four (24) hours, the Contractor shall first install temporary video or microwave detection and make them operable prior to disturbing the existing detectors. Temporary detection shall remain operable until such time that the detectors can be restored. Use of a traffic signal contractor on stand-by duty during new construction activities shall be provided. The specification for Camera Video Detection System is included in this Appendix.

The Contractor shall coordinate all work with the responsible Municipal Traffic Engineer or CDOT District Engineer as the case may be.

Signing

The Contractor shall maintain all existing signs throughout the project limits during the duration of the project. The Contractor shall temporarily relocate any existing signs that are impacted during construction. Once

construction has been completed, the Contractor shall re-install the signs to their original locations. Any signs or supports damaged during construction must be replaced by the Contractor at no additional charge.

Requirements for Winter

The Contractor shall schedule a meeting with representatives of the Engineer, Maintenance and Traffic authorities to determine what interim traffic control measures the Contractor must accomplish for the winter to provide safety to the motorist and permit adequate snow removal procedures.

Signing Patterns

The Contractor shall erect and maintain all signing patterns in accordance with the latest edition of the MUTCD and M&PT Plans contained herein. All sign patterns shall follow MUTCD guidelines. No sign shall obscure any existing traffic sign or any other signs.

All non-essential temporary construction traffic control devices will be covered or removed during non-working hours.

All flaggers shall be in accordance with the requirements under Section 9.74 “Trafficperson” in the State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816 and shall have completed training through ATSSA (American Traffic Safety Services Association) or other organizations, as approved by ConnDOT.

The Contractor shall have at least one person trained as a work zone safety supervisor through ATSSA, or other organization approved by ConnDOT.

Restoration of Traffic Facilities

All traffic facilities and equipment shall be restored as follows:

Guide rail and appurtenances shall conform to Sections 9.10, 9.11, 9.12 and 9.18 of the CDOT Form 816.

Traffic Signals and appurtenances shall conform to Sections 10.01, 10.02, 10.08, 10.10, 10.012, 11.05, 11.06, 11.07, 11.08, 11.11 and 11.12 of the CDOT Form 816.

All permanent pavement markings shall be Epoxy Resin and shall conform to standards in Section 12.10 of the CDOT Form 816.

All temporary pavement markings shall be Plastic Pavement Marking Tape and shall conform to standards in Section 12.12 of the CDOT Form 816.

All permanent signs shall conform to standards in Sections 12.07 and 12.08 of the CDOT Form 816.

All construction signs shall conform to standards in Section 12.20 of the CDOT Form 816.

Other Surfaces – restore all sidewalks, ramps, curbs etc. to “as-new” condition.

Supplemental Information

The following CDOT Guidelines shall apply to all State and Municipal roadways as part of this Traffic Management Plan:

Pavement Markings -Non-Limited Access Multilane Roadways

Secondary and Local Roadways

During construction, the Contractor shall maintain all pavement markings on paved surfaces on all roadways throughout the limits of the project.

Interim Pavement Markings

The Contractor shall install plastic pavement marking tape which shall include centerlines, shoulder edge lines, lane lines (broken lines), lane-use arrows, and stop bars, on each intermediate course of bituminous concrete pavement and on any milled surface by the end of the work day/night. Centerlines shall consist of two 4 inch wide yellow markings, 2 feet in length, side by side, 4 to 6 inches apart, at 40-foot intervals, or as

shown on the Contract Drawings. No passing zones should be posted with signs in those areas where the final centerlines have not been established on two-way roadways. Stop bars may consist of two 6 inch wide white markings or three 4 inch wide white markings placed side by side. If the next course of bituminous concrete pavement will be placed within seven days, shoulder edge lines are not required. The Contractor shall remove and dispose of the Temporary Plastic Pavement Marking Tape when another course of bituminous concrete pavement is installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

If an intermediate course of bituminous concrete pavement will be exposed throughout the winter, then Epoxy Resin Pavement Markings should be installed unless directed otherwise by the Engineer.

Final Pavement Markings

In accordance with Section 12.10 of CDOT Form 816 entitled "Epoxy Resin Pavement Markings, Symbols, and Legends," the Contractor should install permanent Epoxy Resin Pavement Markings on the final course of bituminous concrete pavement by the end of the work day/night. If the permanent pavement markings are not installed by the end of the work day/night, then Temporary Plastic Pavement Marking Tape shall be installed as described above and the permanent Epoxy Resin Pavement Markings shall be installed by the end of the work day/night on Friday of that week.

If Temporary Plastic Pavement Marking Tape is installed, the Contractor shall remove and dispose of these markings when the permanent Epoxy Resin Pavement Markings are installed. The cost of furnishing, installing and removing the Temporary Plastic Pavement Marking Tape shall be at the Contractor's expense.

NOTE: Painted pavement markings will not be allowed as a substitution for either the permanent Epoxy Resin Pavement Markings or the Temporary Plastic Pavement Marking Tape on the final course of bituminous concrete pavement.

Traffic Control During Construction Operations

The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for the safe and efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

The Contractor shall use CDOT typical traffic control plans at all locations during normal approved hours of work.

At the following locations, the Contractor shall follow the M&PT plans included in the Contract Drawings:

Splice Chambers SC-2A & SC-2B	STA. 35+50
Horizontal Directional Drill	STA. 35+50
Splice Chambers SC-4A & SC-4B	STA. 69+50
Splice Chambers SC-5A & SC-5B	STA. 85+00
Splice Chambers SC-6A & SC-6B	STA. 102+00
Jack and Bore – Yellow Mill River	STA. 114+00
Splice Chambers SC-7A & SC-7B	STA. 117+50
Splice Chambers SC-8A & SC-8B	STA. 134+00
Splice Chambers SC-9A & SC-9B	STA. 150+00
Jack and Bore – Bruce Brook	STA. 158+50 – STA. 161+00
Splice Chambers SC-10A & SC-10B	STA. 165+00
Splice Chambers SC-11A & SC-11B	STA. 180+50
Splice Chambers SC-13A & SC-13B	STA. 210+50
Splice Chambers SC-14A & SC-14B	STA. 227+00

Splice Chambers SC-15A & SC-15B	STA. 242+50
Splice Chambers SC-16A & SC-16B	STA. 260+50
Splice Chambers SC-16A & SC-16B	STA. 277+00

TRAFFIC CONTROL PATTERNS: Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder. For each situation, the installation of traffic control devices shall be based on the following:

Speed and volume of traffic
Duration of operation
Exposure to hazards

Traffic control patterns shall be uniform, neat and orderly so as to command respect from the motorist.

In the case of a horizontal or vertical sight restriction in advance of the work area, the traffic control pattern shall be extended to provide adequate sight distance for approaching traffic.

If a lane reduction taper is required to shift traffic, the entire length of the taper should be installed on a tangent section of roadway so that the entire taper area can be seen by the motorist.

Any existing signs that are in conflict with the traffic control patterns shall be removed, covered, or turned so that they are not readable by oncoming traffic.

When installing a traffic control pattern, a Buffer Area should be provided and this area shall be free of equipment, workers, materials and parked vehicles.

Typical traffic control plans shown on the Maintenance and Protection of Traffic Plans and Details which are part of this appendix may be used for moving operations such as line striping, pot hole patching, mowing, or sweeping when it is necessary for equipment to occupy a travel lane.

Traffic control patterns will not be required when vehicles are on an emergency patrol type activity or when a short duration stop is made and

the equipment can be contained within the shoulder. Flashing lights and appropriate trafficpersons shall be used when required.

Although each situation must be dealt with individually, conformity with the typical traffic control plans contained herein is required. In a situation not adequately covered by the typical traffic control plans, the Contractor must contact the Engineer for assistance prior to setting up a traffic control pattern.

PLACEMENT OF SIGNS: Signs must be placed in such a position to allow motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side of the roadway as the work area. On multi-lane divided highways, advance warning signs may be installed on both sides of the highway. On directional roadways (on-ramps, off-ramps, one-way roads), where the sight distance to signs is restricted, these signs should be installed on both sides of the roadway.

Allowable Adjustment of Signs and Devices Shown on the Traffic Control Plans

The traffic control plans contained herein show the location and spacing of signs and devices under ideal conditions. Signs and devices should be installed as shown on these plans whenever possible.

The proper application of the traffic control plans and installation of traffic control devices depends on actual field conditions.

Adjustments to the traffic control plans shall be made only at the direction of the Engineer to improve the visibility of the signs and devices and to better control traffic operations. Adjustments to the traffic control plans shall be based on safety of work forces and motorists, abutting property requirements, driveways, side roads, and the vertical and horizontal curvature of the roadway.

The Engineer may require that the traffic control pattern be located significantly in advance of the work area to provide better sight line to the signing and safer traffic operations through the work zone.

Table I indicates the minimum taper length required for a lane closure based on the posted speed limit of the roadway. These taper lengths shall only be used when the recommended taper lengths shown on the traffic control plans cannot be achieved.

TABLE I – MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT MILES PER HOUR	MINIMUM TAPER LENGTH IN FEET FOR A SINGLE LANE CLOSURE
30 OR LESS	180
35	250
40	320
45	540
50	600
55	660
65	780

SECTION 1. WORK ZONE SAFETY MEETINGS

1.a) Prior to the commencement of work, a work zone safety meeting will be conducted with representatives of CDOT and/or Municipal Traffic Authority, Owner, Engineer, Municipal Police, the Contractor (Project Superintendent) and the Traffic Control Subcontractor (if different than the prime Contractor) to review the contract requirements and discuss the procedures. Other work zone safety meetings during the course of the project should be scheduled as needed.

1.b) A Work Zone Safety Meeting Agenda, shall be developed and used at the meeting to outline the anticipated traffic control issues during the construction of this project. Any issues that can't be resolved at these meetings will be brought to the attention of the Owner, CDOT and/or Municipal Traffic Authority.

SECTION 2. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS

2.a) Lane Closures shall be installed beginning with the advanced warning signs and proceeding forward toward the work area.

2.b) Lane Closures shall be removed in the reverse order, beginning at the work area, or end of the traffic control pattern, and proceeding back toward the advanced warning signs.

2.c) Stopping traffic may be allowed:

- As per the contract for such activities as blasting, steel erection, etc.
- During paving, milling operations, etc. where, in the middle of the operation, it is necessary to flip the pattern to complete the

operation on the other half of the roadway and traffic should not travel across the longitudinal joint or difference in roadway elevation.

- To move slow moving equipment across live traffic lanes into the work area.

2.d) Under certain situations when the safety of the traveling public and/or that of the workers may be compromised due to conditions such as traffic volume, speed, roadside obstructions, or sight line deficiencies, as determined by the Engineer and/or Police, traffic may be briefly impeded while installing and/or removing the advanced warning signs and the first ten traffic cones/drums only. Appropriate measures shall be taken to safely slow traffic. If required, Police may use traffic slowing techniques, including the use of Truck Mounted Impact Attenuators (TMAs) as appropriate, for a minimum of one mile in advance of the pattern starting point. Once the advanced warning signs and the first ten traffic cones/drums are installed/removed, the two TMAs and sign crew should continue to install/remove the pattern as described in Section 4c and traffic shall be allowed to resume their normal travel.

2.e) The Contractor must adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.

2.f) Additional devices are required on entrance ramps, exit ramps, and intersecting roads to warn and/or move traffic into the proper travelpath prior to merging/exiting with/from the main line traffic. This shall be completed before installing the mainline pattern past the ramp or intersecting roadway.

2.g) Prior to installing a pattern, any conflicting existing signs shall be covered with an opaque material. Once the pattern is removed, the existing signs shall be uncovered.

2.h) On limited access roadways, workers are prohibited from crossing the travel lanes to install and remove signs or other devices on the opposite side of the roadway. Any signs or devices on the opposite side of the roadway shall be installed and removed separately.

SECTION 3. USE OF HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

3.a) On limited access roadways, one Flashing Arrow shall be used for each lane that is closed. The Flashing Arrow shall be installed concurrently with the installation of the traffic control pattern and its

placement shall be as shown on the traffic control plan. For multiple lane closures, one Flashing Arrow is required for each lane closed. If conditions warrant, additional Flashing Arrows should be employed (i.e.: curves, major ramps, etc.).

3.b) On non-limited access roadways, the use of a Flashing Arrow for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the Flashing Arrow.

3.c) The Flashing Arrow shall not be used on two lane, two-way roadways for temporary alternating one-way traffic operations.

3.d) The Flashing Arrow board display shall be in the “arrow” mode for lane closures and in the “caution” mode for shoulder work, blocking the shoulder, or roadside work near the shoulder. The Flashing Arrow shall be in the “caution” mode when it is positioned in the closed lane.

3.e) The Flashing Arrow shall not be used on a multi-lane roadway to laterally shift all lanes of traffic, because unnecessary lane changing may result.

3.f) If the required number of Flashing Arrows is not available, the traffic control pattern shall not be installed.

SECTION 4. USE OF TRUCK MOUNTED IMPACT ATTENUATOR VEHICLES (TMAs)

4.a) For lane closures on limited access roadways, a minimum of two TMAs shall be used to install and remove traffic control patterns. If two TMAs are not available, the pattern shall not be installed.

4.b) On non-limited access roadways, the use of TMAs to install and remove patterns closing a lane(s) is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to utilize the TMAs.

4.c) Generally, to establish the advance and transition signing, one TMA shall be placed on the shoulder and the second TMA shall be 1000 feet ahead blocking the lane. The sign truck and workers should be immediately ahead of the second TMA. In no case shall the TMA blocking the lane be used as the sign truck. Once the transition is in place, both TMAs shall travel in the closed lane until all Changeable Message Signs (CMS), signs, Flashing Arrows, and cones/drums are installed.

4.d) A TMA shall be placed prior to the first work area in the pattern. If there are multiple work areas within the same pattern, then additional TMAs may be positioned at each additional work area as needed.

4.e) TMAs shall be positioned a sufficient distance prior to the workers or equipment being protected to allow for appropriate vehicle roll-ahead in the event that the TMA is hit, but not so far that an errant vehicle could travel around the TMA and into the work area. For additional placement and use details, refer to the specification entitled "Type 'D' Portable Impact Attenuation System". Some operations, such as paving and concrete repairs, do not allow for placement of the TMA(s) within the specified distances. In these situations, the TMA(s) should be placed at the beginning of the work area and shall be advanced as the paving or concrete operations proceed.

4.f) TMAs should be paid in accordance with how the unit is utilized. When it is used as a TMA and is in the proper location as specified, then it should be paid at the specified hourly rate for "Type 'D' Portable Impact Attenuation System". When the TMA is used as a Flashing Arrow, it should be paid at the daily rate for "High Mounted Internally Illuminated Flashing Arrow". If a TMA is used to install and remove a pattern and then is used as a Flashing Arrow, the unit should be paid as a "Type 'D' Portable Impact Attenuation System" for the hours used to install and remove the pattern, typically 2 hours (1 hour to install and 1 hour to remove), and is also paid for the day as a "High Mounted Internally Illuminated Flashing Arrow".

4.g) If the required number of TMAs is not available, the pattern shall not be installed.

SECTION 5. USE OF POLICE OFFICERS

Uniformed Municipal Police Officers shall be used as Trafficpersons on all non limited access highways as outlined in CDOT Form 816 and as required by the governing authority.

5.a) At least one Officer should be used per critical sign pattern. Shoulder closures and right lane closures can generally be implemented without the presence of a Police Officer. Likewise in areas with moderate traffic and wide, unobstructed medians, left lane closures can be implemented without Police presence. Certain situations may require Police presence, if one is available, even though the general guidelines above indicate otherwise. Examples of this include:

nighttime lane closures; left lane closures with minimal width for setting up advance signs and staging; lane and shoulder closures on turning roadways/ramps or mainline where sight distance is minimal; and closures where extensive turning movements or traffic congestion regularly occur.

5.b) Once the pattern is in place, the Police Officer should be positioned in a non- hazardous location at the beginning of the pattern or at one of the work areas not protected by a TMA. If traffic backs up beyond the beginning of the pattern, then the Police Officer should be repositioned prior to the backup to give warning to the oncoming motorists. Where Police Officer and TMA are in proximity to each other, the TMA should be placed to protect the Police Officer's vehicle from oncoming traffic.

5.c) Other functions of the Police Officer(s) shall include:

- *Assisting entering/exiting construction vehicles within the work area.
- *Enhancing worker visibility/safety for workers in close proximity to the open travel lane(s).
- Speed control of traffic within the work area.
- Enforcement of speed and other motor vehicle laws within the work area.

Typically, the Police Officer should be out of the vehicle for the functions marked with an asterisk (*).

SECTION 6. USE OF (REMOTE CONTROL) CHANGEABLE MESSAGE SIGNS

6.a) For lane closures on limited access roadways, one Changeable Message Sign shall be used in advance of the traffic control pattern. Prior to installing the pattern, the Changeable Message Sign shall be installed and in operation, displaying the appropriate lane closure information (i.e.: Left Lane Closed - Merge Right). The Changeable Message Sign shall be positioned ½ - 1 mile ahead of the lane closure taper. If the nearest Exit ramp is greater than the specified ½ - 1 mile distance, then an additional Changeable Message Sign shall be positioned a sufficient distance ahead of the Exit ramp to alert motorists of the lane closure and provide them an opportunity to take the exit.

6.b) On non-limited access roadways, the use of Changeable Message Signs for lane closures is optional. The roadway geometry, sight line distance, and traffic volume should be considered in the decision to use the Changeable Message Sign.

6.c) The advance Changeable Message Sign is typically placed off the right shoulder, 5 feet from the edge of pavement. In areas where the Changeable Message Sign cannot be placed beyond the edge of pavement, it may be placed on the paved shoulder with a minimum of five (5) traffic drums placed in a taper in front of it to delineate its position. The advance Changeable Message Sign shall be adequately protected if it is used for a continuous duration of 36 hours or more.

6.d) When the Changeable Message Signs are no longer required, they should be removed from the clear zone and have the display screen cleared and turned 90° away from the roadway.

6.e) The Changeable Message Sign generally should not be used for generic messages (ex: Road Work Ahead, Bump Ahead, Gravel Road, etc.).

6.f) The Changeable Message Sign should be used for specific situations that need to command the motorist's attention which cannot be conveyed with standard construction signs (Examples include: Exit 34 Closed Sat/Sun - Use Exit 35, All Lanes Closed - Use Shoulder, Workers on Road - Slow Down).

6.g) Messages that need to be displayed for long periods of time, such as during staged as shown on the Contract Drawings construction, should be displayed with construction signs. For special signs, please coordinate with the Owner and the Engineer for the proper layout/dimensions required.

6.h) Section 10 contains the messages that are allowed on the Changeable Message Sign. For any other message(s), approval must be received from the Office of Construction prior to their use. No more than two (2) displays shall be used within any message cycle.

6.i) If the required number of Changeable Message Signs is not available, the pattern shall not be installed.

SECTION 7. USE OF TRAFFIC DRUMS AND TRAFFIC CONES

7.a) Traffic drums shall be used for taper channelization on limited-access roadways, ramps, and turning roadways and to delineate raised catch basins and other hazards.

7.b) Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 72-hour duration.

7.c) Traffic Cones less than 42 inches in height shall not be used on limited-access roadways or on non-limited access roadways with a posted speed limit of 45 mph and above.

7.d) Typical spacing of traffic drums and/or cones shown on the Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.

SECTION 8. GENERAL

8.a) If the required minimum number of signs and equipment (i.e. one High Mounted Internally Illuminated Flashing Arrow for each lane closed, two TMAs, Changeable Message Sign, etc.) are not available, the traffic control pattern shall not be installed.

8.b) The Contractor shall have back-up equipment (TMAs, High Mounted Internally Illuminated Flashing Arrow, Changeable Message Sign, construction signs, cones/drums, etc.) available at all times in case of mechanical failures, etc. In the case of sudden equipment breakdowns, the pattern may be installed but the Contractor must provide replacement equipment within 24 hours.

8.c) Failure of the Contractor to have the required minimum number of signs and equipment, which results in the not being installed, shall not be a reason for a time extension.

8.d) In cases of legitimate differences of opinion between the Contractor and the Inspection staff, the Inspection staff shall err on the side of safety. The matter shall be brought to the Owner for resolution immediately or, in the case of work after regular business hours, on the next business day.

SECTION 9. UNUSED

SECTION 10. WORK ZONE SAFETY PROCEDURES - ALLOWABLE CMS MESSAGES

Message No.	Frame 1	Frame 2	Message No	Frame 1	Frame 2
1	LEFT LANE CLOSED	MERGE RIGHT	9	LANES CLOSED AHEAD	REDUCE SPEED
2	2 LEFT LANES CLOSED	MERGE RIGHT	10	LANES CLOSED AHEAD	USE CAUTION
3	LEFT LANE CLOSED	REDUCE SPEED	11	WORKERS ON ROAD	REDUCE SPEED
4	2 LEFT LANES CLOSED	REDUCE SPEED	12	WORKERS ON ROAD	SLOW DOWN
5	RIGHT LANE CLOSED	MERGE LEFT	13	EXIT XX CLOSED	USE EXIT YY
6	2 RIGHT LANES CLOSED	MERGE LEFT	14	EXIT XX CLOSED USE YY	FOLLOW DETOUR
7	RIGHT LANE CLOSED	REDUCE SPEED	15	2 LANES SHIFT AHEAD	USE CAUTION
8	2 RIGHT LANES CLOSED	REDUCE SPEED	16	3 LANES SHIFT AHEAD	USE CAUTION

Notices to Contractor

NOTICE TO CONTRACTOR – TRAFFIC DRUMS AND TRAFFIC CONES

Traffic Drums and 42-inch Traffic Cones shall have four six-inch wide stripes (two - white and two - orange) of flexible bright fluorescent sheeting.

The material for the stripes shall be one of the following, or approved equal:

- 3M Scotchlite Diamond Grade Flexible Work Zone Sheeting, Model 3910 for the white stripes and Model 3914 for the orange stripes,
- Avery Dennison WR-7100 Series Reboundable Prismatic Sheeting, Model WR-7100 for the white stripes and Model WR-7114 for the orange stripes.

NOTICE TO CONTRACTOR – NCHRP REPORT 350 REQUIREMENTS FOR WORK ZONE TRAFFIC CONTROL DEVICES

CATEGORY 1 DEVICES (traffic cones, traffic drums, tubular markers, flexible delineator posts)

Prior to using the Category 1 Devices on the project, the Contractor shall submit to the Engineer a copy of the manufacturer's self-certification that the devices conform to National Cooperative Highway Research Program (NCHRP) Report 350.

CATEGORY 2 DEVICES (construction barricades, construction signs and portable sign supports)

Prior to using Category 2 Devices on the project, the Contractor shall submit to the Engineer a copy of the Letter of Acceptance issued by the Federal Highway Administration (FHWA) to the manufacturer documenting that the devices (both sign and portable support tested together) conform to NCHRP Report 350 (TL-3).

Specific requirements for these devices are included in the Special Provisions.

Information regarding NCHRP Report 350 devices may be found at the following web sites:

FHWA:
http://safety.fhwa.dot.gov/roadway_dept/road_hardware/index.htm

ATSSA:
http://www.atssa.com/resources/NCHRP350Crashtesting.asp

NOTE: The portable wooden sign supports that have been traditionally used by most contractors in the State of Connecticut do NOT meet NCHRP Report 350 criteria and shall not be utilized on any project advertised after October 01, 2000.

CATEGORY 3 DEVICES (Truck-Mounted Attenuators & Work Zone Crash Cushions)

Prior to using Category 3 Devices on the project, the Contractor shall submit to the Engineer a copy of the Letter of Acceptance issued by the FHWA to the manufacturer documenting that the devices conform to NCHRP Report 350.

Camera Video Detection System Specification

ITEM # 1111407A - CAMERA VIDEO DETECTION SYSTEM
ITEM # 1113901A - CAMERA Pigtail

Description:

These items shall consist of furnishing and installing vehicle Video Detection System equipment at each of the project intersections as called for on the plans. This item shall also consist of furnishing and installing all vehicle video detection equipment to support the existing City of Bridgeport data collection management software.

This specification sets the minimum requirements for a wide-area vehicle detection system that processes video images for vehicle presence, count, speed, and other typical traffic parameters. The detection of vehicles passing through the field of view of an image sensor shall be available to a large variety of end user applications as simple contact closure outputs, data for a traffic controller, and other traffic data. This reflects the current real time detector or alarm states (on/off) or as summary traffic statistics that are reported locally or remotely. The contact closure outputs shall be provided to a traffic signal controller and comply to the NEMA (National Electrical Manufacturers Association) type C or D detector rack or a Type 170/2070 input file rack standards.

The system architecture shall fully support networking of system components through a variety of industry standard and commercially available infrastructure that are used in the traffic industry. The serial data communications shall support direct connect, modem, and multi-drop interconnects.

The system shall be integrated through a client-server relationship. A communications server application shall provide the data communications interface between as few as one to as many as hundreds of machine vision processor (MVP) sensors using the industry standard TCP/IP network protocol. Communications protocol for the proposed machine vision system must be compatible with the existing machine vision system infrastructure to support current data collection processes.

Materials:

All materials furnished, assembled, fabricated, or installed shall be new, corrosion resistant, and in strict accordance with the details shown in the plans

and in the Special Provisions. All equipment furnished under this item shall be current production equipment, identical models of which are field operational.

Functional Requirements:
The video detection system shall consist of the following components:

- Camera Extension Riser
- Machine Vision Processor (MVP) including camera and enclosure
- Camera Cable
- Communication Interface Panel (CIP)
- Cabinet Interface Module
- Video Detection System Software
- Traffic Data Collection

All MVP Processors and components shall be of the same type and from the same manufacturer. The MVP image sensor shall communicate with the cabinet interface module via the communications interface panel. The MVP shall be connected from the field to the communications interface panel using the twisted pair camera cable as specified herein. The MVP image sensor shall communicate to the communications interface panel, cabinet interface module and various PC applications using the industry-standard TCP/IP network protocol. Additionally, one or more PCs shall be capable of communicating directly or remotely to a MVP sensor network where each MVP sensor has a unique Internet Protocol (IP) address. The MVP sensor network shall support communications over a mix of media, including PSTN, CDPD, CDMA, dedicated twisted-pair, fiber, and wireless.

The communications interface panel shall support one to four MVPs. The communication interface panel in the cabinet shall provide electrical termination of external twisted pair cables for video, data and power to the MVP sensor. The communication interface panel shall provide transient protection to electrically protect equipment in the cabinet. The communications interface panel will provide two separate channels for supervisory connectivity via a single DB9 Male serial port and RJ-45 Ethernet Port. The use of Serial to Ethernet converters will not be acceptable. The communications interface panel consists of a predefined wire termination block for MVP power, data and video connections, a power transformer for the MVP, electrical surge protectors to isolate the modular cabinet interface unit and MVP, and an interface connector to cable directly to the modular cabinet interface unit.

The connection from the MVP(s) to the communications interface panel shall be via the manufacturers supplied 5 ½ twisted pair cable with connector to sensor. Coaxial cable is not needed and will not be accepted. Splices between the MVP

and the communications interface panel shall not be allowed. The interface panel shall provide power for one to four MVP(s) through a step-down transformer, one per MVP, taking local line voltage and producing 28 VAC, 50/60 Hz, at about 30 watts. A ½ amp slow-blow fuse shall individually protect the step-down transformers.

The cabinet interface module shall communicate directly with up to eight (8) MVP sensors and shall comply with the form factor and electrical characteristics of a NEMA type C or D detector rack or a 170/2070 input file detector rack card. For a contact closure interface to a traffic controller or other device, this interface shall accept eight (8) contact closure inputs (usually red and green control signals), and provide sixteen (16) contact closure outputs to a traffic signal controller. For a SDLC interface to a NEMA TS2 traffic controller, this interface shall display 32 phase colors and emulate up to four (4) bus interface units (BIU).

Camera Extension Arm:
As called for on the plans, the MVP sensor shall be mounted on camera extension arms. These camera extension arms are briefly described below, however the detailed specification for these camera extension arms is contained in Item # 11045xx. These camera extension arms shall be paid for through Item # 11045xx.

- Truss type
- Length shown on plan
- Clamp on attachment to pole shaft.
- Design to support minimum 25 lbs. (12kg), 2 sq.ft. (.2sq.m) end load with minimal movement from wind.
- Schedule 40, 2” (50 mm) IPS galvanized pipe.
- Heavy duty galvanized finish to match the color of the Pole/Mast arm.

Machine Vision Processor including camera and enclosure
The MVP image sensor shall be an integrated imaging color CCD array with optics, high-speed, image processing hardware and a general purpose CPU bundled into a sealed enclosure. The CCD array shall be directly controlled by the general purpose CPU, thus providing high video quality for detection that has virtually no noise to degrade detection performance. It shall be possible for the user to zoom the lens, as required for operation. The MVP shall be able to transmit MPEG 4 video streams to remote locations. This requirement is described further in the video outputs section. It shall provide a video compression co-processor so as not to interfere with detection performance while streaming video. The MVP shall provide direct real-time iris and shutter speed

control. The MVP image sensor shall be equipped with an integrated auto zoom/auto focus lens that can be changed using computer software.

The MVP sensor shall output full motion color video through the means of a differential video port in NTSC format. The differential video shall be transmitted over a single twisted pair.

Real-time detector performance shall be observed by viewing the video output from the sensor with overlaid flashing detectors to indicate the current detection state (on/off). Real-time speeds and classifications shall also be visible through streaming video via the video player and from full motion video.

Video Outputs
The MVP shall provide color video output from the interface panel for real-time NTSC or PAL display on a monitor or PC over standard coax cable. The software shall also display streaming video as part of the user software based on MPEG 4 video compression. The MPEG 4 video compression shall be accomplished either internally through software or externally through video encoders. The Contractor shall be responsible to supply all necessary equipment to accomplish MPEG 4 video compression. The MPEG 4 video compression shall be able to be viewed for individual cameras simultaneously. The streaming video shall be recordable as a data file on the PC for later playback and editing.

The Machine Vision Processor (MVP) including camera and enclosure shall meet the following requirements:

Lens
- 22X continuous-focus zoom
- Horizontal: 5 to 74 degrees
- Vertical: 4 to 59 degrees

Imaging Device
- 1/4” color CCD

Video Formats Supported
- RS170, NTSC, CCIR and PAL

Video Compression
- JPEG color video compression (software)

Resolution
- 450 TVL Horizontal

Effective Pixels
- NTSC :768(H) x 494(V) [380k]
- PAL: 752(H) x 582(V) [440k]

Synchronization

- Crystal lock

Sensitivity—at Lens

- Full video, AGC off, 3 lux
- Signal to Noise Ratio 46 dB

Communications

- Connector: MS 14-18P
- Internet Protocol (IP) address
- RS-485 communications port
- RS-485 detector port
- Differential color video port

Housing & Sunshield

Image sensor and MVP shall be sealed in a waterproof and dust-tight enclosure. The housing shall include a thermostatically controlled faceplate heater and an adjustable weather and sun-shield with drip guard.

Power

- RS170/NTSC: 24 VAC 60 Hz
- CCIR/PAL: 24 VAC 50 Hz
- 10 to 28 VDC
- 17 watts with heater on

Dimensions

- Mounting: Standard camera bracket tilt top
- Housing Enclosure: 3.5” diameter, 15.5” long
- Weather sunshield: 21.3” long

Weight

- 5 lbs. 14 oz.

Ambient Temperature Limits

- -34°C to +60°C / -29°F to +140°F

Humidity Limits

- Up to 100% relative humidity, non-condensing

Camera Cable

The Color Camera / Integrated Machine Vision Processor cable shall use Five and ½ unshielded twisted pairs cable. Overall shield shall be provided. The cable shall supply the Data and Video Signal to the CIP and 24VAC power to the camera. Coaxial cable will not be allowed from MVP to traffic control cabinet. This cable shall be referred to as a “pigtail” cable for video detection applications. This pigtail cable shall be installed from the video detection camera/integrated Machine Vision Processor back to the communications interface panel. This pigtail cable shall be a factory cable assembly that includes a round locking-type military-style connection.

The pigtail cable shall consist of four twisted pairs – 18 AWG and one twisted pair – 16 AWG. The cable shall also contain one single conductor – 16 AWG. There shall be an overall shield with drain wire and an overall UV resistance with a low density polyethylene jacket. The characteristic impedance shall be 70-120 with a nominal capacitance of 15-30 pf/ft. All pairs shall have a planetary twist at nine twists per foot. The shield shall consist of an aluminum/polyester foil facing in, with tinned stranded copper 18 AWG drain wire.

The cable outside jacket material shall be black UV resistant Santoprene 121-87, with a nominal wall thickness of 0.52" and a 300v rating. The cable identification shall be marked with the manufacturer's part number at regular intervals along the cable.

Communications Interface Panel (CIP)

The communications interface panel shall provide power, high-voltage transient protection, mechanical strain relief and electrical connections to the Color Camera / Integrated Machine Vision Processor for communications and video. The communications interface panel shall also act as a terminal for Ethernet network communications. The communications interface panel shall contain an industry standard RJ-45 type connector for CAT-5 cable interface. A single communications interface panel shall provide for a termination of one to four MVPs and a single 10/100 Base-T Ethernet network cable. The communications panel shall pass the detection information to the cabinet interface module. The communications interface panel consists of a predefined wire termination block for MVP power, data and video connections, a power transformer for the MVP, electrical surge protectors to isolate the modular cabinet interface unit and MVP, and an interface connector to cable directly to the modular cabinet interface unit. In addition to the RJ-45 Ethernet port, the communications interface panel shall have at a minimum, a detector communications port, a local PC port, four standard 75-ohm BNC video connectors, four sets of 11 compression terminals to support up to four MVPs, and a compression block for power connection.

The Communications Interface Panel (CIP) shall meet the following requirements:

General

- 32-Bit NET+ARM high performance RISC Processor (NS7520 55MHz)
- High Speed TTL Serial Interface
  - Throughput up to 230,400 bps
  - Full signal support for TXD,RXD,RTS,CTS,DTR,DSR, and DCD
  - Hardware and software flow control
- 2MB Flash and 8MB RAM integrated
- Auto-Sensing 10/100Base-T network interface with on-board RJ-45 connector
- Robust on-board IP Stack: TCP, UDP, DHCP, SNMP, SSL/TLS, HTTP, SMTP, ICMP, IGMP and ARP
- Firmware field-upgradeable via HTTP
- Secure web-based configuration (HTTP/HTTPS)
- Universal IP address assignment
- Configuration and management through SNMP (read/write)
- Strong SSL V3.0/TLS V1.0 based encryption capable:
  - DES (56 bit)
  - 3DES (168 Bit)
  - AES (128/256 Bit)

Connectors

- Ethernet Connectivity Upstream:
  - RJ-45 Connector
- Local Supervisor Port:
  - Single DB9 Male Connector
- Remote Supervisor Capability
  - Network Browser via Ethernet RJ-45
- Detector Communications Port
  - Single DB9 Female Connector
- Video Outputs
  - Four Standard 75-Ohm BNC Video Connectors
- MVP Terminations
  - Four sets of 11 compression terminals
- Line Power
  - 3 Position Compression Block

Environmental

- -34°C to +74°C / -29°F to +165°F
- Up to 100% relative humidity per MIL-E-5400T

Cabinet Interface Module

The cabinet interface module shall provide the interface between the MVPs and the traffic signal controller. The cabinet interface module shall also be referred to as the "Mini-Hub" or the detector port master. The cabinet interface module shall be capable of supporting up to eight MVPs in a single cabinet. The cabinet interface module shall be a single card rack device that can slide easily into a detector rack or be stand alone. The cabinet interface module shall provide real-time detection information from the MVP to the traffic signal controller.

The cabinet interface module shall communicate directly with up to eight (8) MVP sensors and shall comply with the form factor and electrical characteristics of a NEMA type C or D detector rack or a 170/2070 input file detector rack card. The cabinet interface module shall be capable of emulating the functions of up to four Bus Interface Units (BIUs).

The cabinet interface module shall be available in two distinct options depending on the control cabinet configuration. Option 1 shall support NEMA TS 1/TS 2 outputs without an SDLC Bus. Option 2 shall support NEMA TS 2 with an SDLC port.

The cabinet interface module shall meet the following requirements:

Environmental

- -34°C to +74°C / -29°F to +165°F
- 0 to 95% relative humidity

Option 1

Outputs

- 16 optically-isolated NEMA TS1/TS2 outputs

Inputs

- 8 optically-isolated inputs to monitor signal controller phases or other conditions

Connectors

- Female 9-pin metal shell D subminiature connector
- Female 25-pin metal shell D subminiature connector
- Cinch Jones 50-44A-30M edge connector

Power

- 20 to 28 VDC, 100 milliamps, not exceeding 5 watts (Operates at 24 VDC as allowed in section 5.3.4.5 of the TS2 standard

Option 2

TS2 Capability
- Fully comply with NEMA Publication Standard TS2-1998

Connectors
- Female 15-pin metal shell D subminiature connector
- Female 9-pin metal shell D subminiature connector
- Cinch Jones 50-44A-30M edge connector

Power
- 10 to 28 VDC, 100 milliamps, not exceeding 5 watts .(Operates at 24VDC or at 12VDC as in section 5.3.4.5 of the TS2 standard)

Video Detection System Software
The MVP sensor's embedded firmware shall automatically perform a variety of diagnostic, installation, fault tolerant, and vehicle detection operations. Vehicle detection shall be reliable, consistent, and perform under all weather, lighting and traffic congestion conditions.

A software suite of client applications shall reside on the host client / server PC. The software suite shall support Microsoft Windows 98, ME, XP, NT, 2000 and later operating systems. Client applications shall include:

Network Browser:
Learn a network of connected modular cabinet interface units and MVPs then show the topology in a logical hierarchical relationship.

Detector Editor:
Create and modify detector configurations to be executed on the MVP sensor.

Operation Log:
Extract the MVP run-time operation log of special events that have occurred.

Software Installer:
Reconfigure one or more MVP sensors with a newer release of embedded system software.

Video Player:
Play streaming color video from any or all sensors connected to network. Video player shall also have the ability to go in to a video wall option which will divide the PC screen in as many sensors that are opened giving the

user optimal viewing. The video player shall also be able to record and play back any or all sensors being viewed.

Video Controller:

Control the zoom, pan & tilt (optional) of the sensor it is controlling. Multiple sensors shall be able to be viewed or controlled at the same time. If multiple sensors are being viewed simultaneously, the video controller application shall allow the user to enlarge the screen in to a video wall option, which will split up the whole screen with the number of sensors being viewed.

Detection Types:

The MVP shall be able to be programmed with a variety of detector types that perform specific functions. The general functions performed by the detectors shall:

- Include presence/passage detection of moving and stopped vehicles.
- Enable detection based on the direction of travel or based on when a moving vehicle stops.
- Measuring vehicle speed and length and provide five (5) classes of vehicles based on length.
- Determine counts, either lane-by-lane or cumulative.
- Speed alarm detectors:
  - Output alarm on each fast vehicle, ignoring vehicles of length of less than the user defines.
  - Output alarm based on the average number of vehicles the user enters and the upper and lower speed thresholds that the user defines.
  - Output alarm based on the average speed over a user defined time frame.
  - Output alarm based on user-defined percent increase or decrease over a speed limit.

Detection Zone Programming

Placement of detection zones shall be by means of a supervisor computer (PC) operating in the Windows 98, 2000 or Windows NT graphical environments, a keyboard, and a mouse. The VGA monitor shall be able to show the detection zones superimposed on images of traffic scenes.

The detection zones shall be created and/or edited by using a mouse to draw detection zones on the supervisor computer's VGA monitor. Using a mouse and

the keyboard it shall be possible to place, size, and orient detection zones to provide optimal road coverage for vehicle detection. It shall be possible to download detector configurations from the supervisor computer to the MVP, to retrieve the detector configuration that is currently running in the MVP, and to back up detector configurations by saving them to the supervisor computer's removable or fixed disks.

Traffic Data Collection
The MVP sensor shall optionally store cumulative traffic statistics, internally in non-volatile memory, for later retrieval and analysis. MVP sensor shall have at least 5 megabytes of memory for data storage. The following data types are available to be stored in time increments from a cycle to one-hour increments:

- Average Flow Rate
- Total Volume Count
- Arithmetic Mean Speed
- Vehicle Class Count
- Average Time Headway
- Average Time Occupancy
- Level of Service
- Space Mean Speed
- Space Density
- Density

The above data types shall also be available to be viewed real-time through a standard web browser compatible with the existing City of Bridgeport data collection and management service (DCMS.) The manufacturer shall modify the existing City of Bridgeport web page interface/GIS map to include all video detection sensors as part of this project.

This DCMS shall have the capability of polling an unlimited number of video detector sensors via the fiber optic Ethernet based communication interface. The DCMS shall then display the data real-time on a the City of Bridgeport custom website. It shall be the responsibility of the manufacturer to make all necessary modifications to this website. The manufacturer shall also supply all necessary cables and hardware at the City of Bridgeport Traffic Operations Center to provide for a fully operational website displaying real-time data. In addition to displaying real-time data and color snapshots of the image sensor, the manufacturer shall archive all data for the agency to create custom data reports in Excel or HTML by simply accessing the website and filtering the dates and reporting parameters.

System Installation

The supplier of the video detection system shall supervise the installation and testing of the video detection system and computer equipment. A factory certified representative from the supplier shall be on-site during installation.

Warranty, Service and Support

The Video Detection manufacturer shall, for a minimum of two (2) years, warrant the video detection system including all software upgrades free of charge for duration of warranty period.

Method of Measurement:

The MVP Color Camera / Integrated Machine Vision processor system or approved equal will be measured for payment as the number units furnished, installed, made fully operational and tested.

MVP Color Camera / Integrated Machine Vision processor Cable will be measured for payment as linear meters, furnished, installed made fully operational and tested.

Basis of Payment:

The unit price bid for each MVP Color Camera / Integrated Machine Vision processor or approved equal System item shall include the cost of furnishing one to four (1-4) MVP Unit(s), one (1) CIP-4 (per 4 MVP Units), and one (1) cabinet interface module (detector port master) and all associated enclosures and equipment and all labor, training, materials, cables, tools and equipment necessary to complete the work. Payment for the MVP Commserver configuration software, all miscellaneous hardware, cabling, connectors, documentation, test equipment, and testing shall be included under these items. The unit price bid shall also include the cost of furnishing all labor, materials and tools and equipment necessary to complete the work and to make the system fully operational**.**

Pay Item	**Unit**
Camera Video Detection System or approved equal	Ea.
Camera cable	(LF) M

APPENDIX F

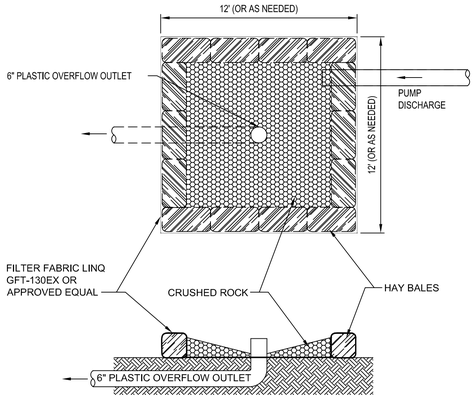
BRIDGEPORT SPECIFIC TRAFFIC INVENTORY REPORT FOR MAINTENANCE & PROTECTION OF TRAFFIC (INCLUDING ROUTE 130)

APPENDIX G

STRATFORD SPECIFIC TRAFFIC INVENTORY REPORT FOR MAINTENANCE AND PROTECTION OF TRAFFIC (INCLUDING ROUTE 1)

APPENDIX H

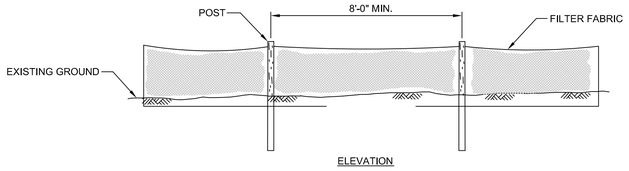
EROSION AND SEDIMENT CONTROL PLAN



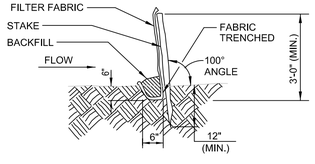
NOTES:

1. 12' x 12' ARE APPROXIMATE DIMENSIONS FOR DEWATERING BASIN. DEPENDING UPON DISCHARGE TO THE BASIN THE DIMENSIONS MAY BE ADJUSTED BY THE CONTRACTOR.
2. ALTERNATE DESIGNS SHALL BE APPROVED BY THE BLACK & VEATCH PRIOR TO IMPLEMENTATION.

DETAIL A
TEMPORARY PUMP DEWATERING DISCHARGE BASIN
NOT TO SCALE



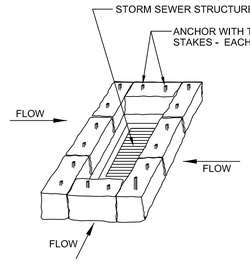
ELEVATION



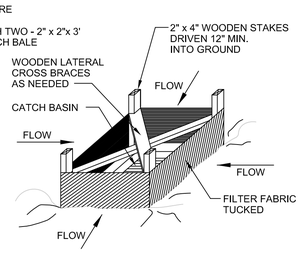
SILT FENCE INSTALLATION

A) MAXIMUM POST SPACING IS 8 L.F.
B) JOINTS ONLY AT SUPPORT POST WITH MINIMUM 6" OVERLAP, SECURELY SEALED.
C) SEDIMENTATION DEPOSITS SHALL BE REMOVED WHEN THEY REACH 1/3 THE HEIGHT OF THE SILT FENCE.
D) UPON ESTABLISHMENT OF GROUND COVER ON DISTURBED AREAS, AND WHEN DIRECTED BY UI, FENCE WILL BE REMOVED AND ANY SEDIMENTATION WILL BE THINLY SPREAD UPON EXISTING GROUND COVER.

DETAIL D
SILT FENCE
NOT TO SCALE



HAY BALE INSTALLATION AT CATCH BASIN

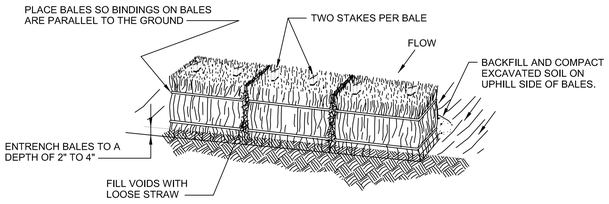


SILT FENCE INSTALLATION AT CATCH BASIN

CATCH BASIN IN A DEPRESSION

NOTE:
FOR ROAD APPLICATIONS, OTHER MEANS MAY BE USED AT CONTRACTORS DISCRESSION, SUBJECT TO APPROVAL BY UI.

DETAIL B
SEDIMENTATION CONTROL BALE PLACEMENT AT CATCH BASINS
NOT TO SCALE



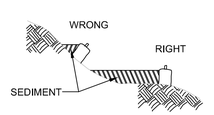
INSTALLATION

A) IDEALLY, BALES SHOULD BE ENTRENCHED 2 TO 4 INCHES AND TIGHTLY BUTTED TOGETHER. BALES CAN BE SUCCESSFULLY PLACED WITHOUT A TRENCH IF GOOD GROUND CONTACT IS MADE. REMOVE HEAVY BRUSH AND FILL IN ALL VOIDS WITH LOOSE STRAW.

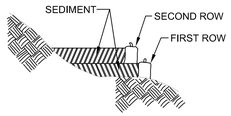
B) BALES SHALL BE ONLY USED AS A TEMPORARY BARRIER AND FOR NO LONGER THAN 60 DAYS. THEY SHALL NOT BE USED ON A JOB ADJACENT TO A RESIDENTIAL NEIGHBORHOOD, RESIDENCES OR ADJACENT TO OR IN A WATERCOURSE.

C) WHEN SEDIMENTATION DEPOSITS REACH WITHIN 3" OF THE TOP OF THE BALES, REMOVE SEDIMENTATION OR ADD ADDITIONAL BALES ON SEDIMENTATION DIRECTLY BEHIND THE FIRST ROW OF BALES AS DIRECTED BY THE ENGINEER.

D) UPON ESTABLISHMENT OF GROUND COVER ON DISTURBED AREAS AND WHEN DIRECTED BY THE THE ENGINEER, HAY BALES WILL BE REMOVED AND USED AS MULCH. ANY SEDIMENTATION WILL BE THINLY SPREAD UPON ESTABLISHED GROUND COVER.



BALE PLACEMENT



PREFERRED PLACEMENT

BALES PLACED AWAY FROM TOE OF SLOPE HAVE A LARGER CONFINEMENT AREA. ADDITIONAL BALES SHOULD BE ADDED BEHIND ORIGINAL BALES BEFORE SEDIMENT TOPS THE FIRST BALE.

DETAIL C
SEDIMENTATION CONTROL HAY BALES AT TOP OR TOE OF SLOPES
NOT TO SCALE

NOTES:

1. HAY BALES SHALL BE A MINIMUM OF 2'-0" IN HEIGHT FROM GRADE TO TOP OF HAY BALE.
2. FILTER FABRIC SHALL BE 2'-0" MINIMUM ABOVE GRADE.

BID SET
NOT TO BE USED FOR CONSTRUCTION

BLACK & VEATCH
PROJECT NO. 136745
DRAWN WJB
DESIGNED ASM
APPROVED –
CHECKED –

No	Date	Revision	By	Chkd.	Engr.	Supv.
0	11/29/2005	ISSUED FOR BID	WJB	–	ASM	–

The United Illuminating Company
157 Church St. New Haven, Ct. 06506

Drawn ____ Date ____ Scale: AS NOTED
Chkd. ____ Design Engr. ____ Design Supv. ____

MIDDLETOWN–NORWALK PROJECT
345KV UG TRANSMISSION LINE
SEDIMENT AND EROSION CONTROL DETAILS

CAD FILE NAME	SEQUENCE No.	DRAWING NUMBER
24214-941		24214-941

APPENDIX I

Written Response to Bridgeport's 60% Design Comments

Docket No. 272
The United Illuminating Company and the Connecticut Light & Power Company application for a Certificate of Environmental Compatibility and Public Need for the construction of the 345 kV electric transmission line and associated facilities between the Scovill Rock Switching Station in the Town of Middletown and the Norwalk Substation in the Town of Norwalk, Connecticut.

Response to the City of Bridgeport's 60% Design Comments

1. We would definitely like a copy of the final submission to determine the location of the proposed excavation. There might be some damage to survey control points along the route, so we may need to reference or move them to a safer location. This submission shows minimal conflict.
   Response: UI will provide their most current set of drawings as Appendix A of the D&M Plan. The D&M Plan will be provided to the City of Bridgeport for review and comment prior to its submission to the Siting Council.

2. The UI is to provide two comprehensive "Maintenance and Protection of Traffic" plans to this office for the proposed 115-kV and 345-kV underground cable construction project. This is as discussed on Wednesday, August 15th with the UI representatives.
   Response: UI provided an M&PT Plan for the 115 kV underground cable construction project on September 7, 2005. UI is submitting a proposed M&PT Plan for the 345 kV construction project as Appendices E and F of the abovementioned D&M Plan.

3. The City should investigate the possibility of requiring a "Municipal Gain" in the proposed bank of ducts from the Stratford town line to the Fairfield town line. The Municipal Gain could be a 4" PVC w/3-1" inner ducts for future municipal fiber optic cable.
   Response: UI has incorporated a conceptual design for Municipal/CDOT fiber optic circuit(s) in its Plan and Profile Design contained in Appendix A of the abovementioned D&M Plan. The location of this conduit is subject to final ampacity calculations. Agreement regarding charges for make ready work must be reached prior to the start of construction.

APPENDIX J

Written Response to CDOT'S 60% Design Comments

Note: For the purposes of the attached current and future comments, please refer to the legend designating the specific office from which the comment originated.

T = traffic, **R =** rails, **HD =** design, **E =** environmental, **M =** maintenance, **DC =** construction, **L =** lab, **U =** utilities, **BD =** bridge design, **BS =** bridge safety, **CD =** consultant design, **ROW =** Rights of Way, **S =** soils, **H =** hydraulics, **GS =** graphic services, **AG =** attorney general, **BM =** bridge maintenance, **MS =** miscellaneous, **F =** financial

1CD Possible traffic signal conflict at the Route 1/Route 130 intersection (See Plan Sheet 78).
NU to Respond

2CD Possible drainage conflict under the I-95 Bridge over Route 1 and along Route 1 (See Plan Sheet 96)
NU to Respond

3DC Could all the vaults located within the roadway be installed outside the edge of roadway pavement to minimize impacts to the traveling public?
Response: All splicing chambers on ConnDOT roads are out of the travel portion of the roadway with the exception of SC2A/2B and SC13A/SC13B shown on 24214-713 and 24214-731 respectively. In the case of SC2A/2B relocating the splicing chambers to the south would place them under the I95 overpass, while relocating them to the north would result in exceeding the allowable pulling manufacturing length of the cable. In the case of SC13A/13B, the facility preventing moving them to the curb is an 8" gas main line which parallels the duct-line for at least several hundreds of feet. Moving the splicing chambers to the curb side of the gas line would result in the destruction of the tree line in front of the buildings. If it is possible to relocate the gas line in that area, the splicing chambers could be moved closer to the curb. This option will be explored during final design. The facilities location at this stage of design is based on record research. Test pits, currently scheduled for early spring 2006 will provide the information necessary for the final design.

4DC Sta. 23+50 to 26+00, the 345 kV line should be installed below the existing drainage pipes.
Response: The existing storm drainage pipes serving the City of Bridgeport Harbor Yard Arena area vary in depth from 9 to 12 feet. There is sufficient room for the 345 kV line to go over the drainage pipes with at least two feet of clearance.

5DC Other areas of conflicts with the existing drainage pipes are:

> STA. 41+00 TO 47+00; STA. 71+80, 77+00, 79+20, 81+70, 84+35, 94+55, 103+25, 106+30, 128+70, 135+30, 142+50, 146+40, 149+05, 151+80; and STA. 262+80 TO 269+60.

Response: As shown on the profile drawings, the 345 kV line has been routed to go under all shallow storm drainage lines as directed by ConnDOT. However, in areas

where storm drainage or sanitary sewer pipes (and sometimes combined storm and sanitary sewer pipelines) exist at significant depths, the 345 kV line can be installed above those pipes with sufficient clearances to enable future maintenance or replacement.

6E Near the termination of Segment 4 at the substation in Norwalk, we have some wetland mitigation sites in the area, which were built back when that section of Rte 7 was completed. We have a responsibility to hold those wetland parcels in perpetuity. We should look for assurances from NU that they will not be disturbed. Some are right along the Norwalk River and the narrative discusses two crossings of the River.
NU to Respond

7E We have permits currently pending at DEP for the replacement of the Route 123 bridge right near the substation. We will be doing some work in the River at the request of DEP Fisheries. We should be assured that NU will coordinate their efforts in this area with our design staff at DOT, making sure that they will not impact any improvements that DOT makes in the area relative to the bridge replacement project.
NU to Respond

8M The Department is currently in the process of determining OSOW (Oversize Over Weight) permit load requirements and inspection and maintenance issues concerning vaults. These issues are to be addressed in future comments.
Response: Currently the vaults are being designed using standard H-20 loading. If it's determined that additional load requirements are necessary, the vaults will be designed to meet such requirements.

9 M STRATFORD:

PSR = <u>pavement service rating (10 = best)</u>

Route 1 (Barnum Avenue) From Route 110 to Bridge #326 (Metro-North) **PAVED 1998/PSR 7.95**

From Bridge #326 (Metro-North) to Boston Avenue **PAVED 1992/PSR 5.45**

BRIDGEPORT:

Route 130 (Fairfield Avenue) From Railroad Avenue to Fairfield Town Line PAVED 2003/PSR 8.65
Route 130 (Water Street) From State Street to Stratford Avenue **PAVED 1993/PSR 4.20**

FAIRFIELD:

Route 130 (Boston Post Road) From Bridgeport Town Line to Route 1 PAVED 1998/PSR6.50

Route 1 (Boston Post Road) From Route 130 to Eliot Place PAVED 1995/PSR 5.90
From Eliot Place to Pequot Avenue PAVED 1995/PSR 5.50
From Old Post Road to Westport Town Line PAVED 2004/PSR 9.00

WESTPORT:

Route 1 (Post Road East): From Fairfield Town Line to Cedar Road PAVED 2004/PSR 9.00
From Cedar Road to Violet Lane PAVED 1993/PSR 5.45
(Post Road West) From Lincoln Street to Norwalk Town Line PAVED 2003/PSR 8.50

NORWALK:

Route 1 (Westport Avenue) From Westport Town Line to Route 53 (East Avenue) PAVED 2003/PSR 8.50
From Route 53 (East Avenue) to SR 809 (Riverside Avenue) PAVED 2002/PSR 8.20
SR 809 (Riverside Avenue) From Route 1 to Route 123 (New Canaan Avenue) PAVED 1988/PSR 5.60
Response: The PSR ratings have been duly noted. The trench pavement repair methods required by the Contractor for the various UI work areas will be reflected on the plans and details according to ConnDOT criteria based on the PSR.

10R Sheet 711: It appears that the proposed routing avoids the Main Street undergrade, which CDOT Rail will eventually be eliminating.
Response: That is correct. The proposed routing avoids the Main Street undergrade.

11R Sheet 712: The routing takes the 345kV ducts under the railroad via the abandoned Housy Side Track underpass adjacent to the Harboryard Arena. Our concern here is with maintaining the integrity of the bridge abutment footings. We also will be monitoring very closely the height of any equipment operating under the bridge. This office and the railroad will need to see details of the trenching prior to the completion of design. Please note that although the opening is only 17+ feet wide, the skew angle results in 95+ foot trusses and I-beams.
Response: Contractor will determine equipment used. It is noted that acceptable equipment will be reviewed/required by CDOT. Final detailed drawings will be provided for review and acceptance prior to construction activities.

12R Sheet 714: I am sure that you are aware that Stratford Avenue under the railroad bridge is probably one of the “busiest” underground utility corridors I the area. Every underground job I’ve seen at this intersection has taken longer than anticipated due to the congestion and necessary coordination. As before, our concern lies mainly with the accurate depiction and avoidance of our bridge footings and with trenching operations under the structure. This office and the railroad will need to see details of the trenching prior to the completion of design. For the most part, the routing north of Stratford Avenue parallels the railroad outside of its right-of-way. As long as the work is outside the property fence, the railroad should have no further underground concerns.

Response: UI shares ConnDOT's concern about the congestion in this intersection. The Company is investigating options which include rerouting the transmission line approximately 150 feet north onto Housatonic Avenue, beyond the intersection of Water Street and Stratford Avenue. Based on the record research, this area is considerably less congested. At this point, the transmission line would cross under the railroad and into the staging area preparatory to crossing the Pequonnock River. This relocation results in more severe bends and longer sections and must to be carefully analyzed for feasibility. If the redesign proves feasible from an electric point of view, the Company plans to conduct test pits in early spring to determine the viability of the route. ConnDOT and the railroad will be provided with the proposed design well prior to its completion.

13R Sheet 715: The railroad has an underground signal crossing at the Pequonnock River. I am not sure of the exact location. Metro-North can probably provide additional information.
Response: This issue will be brought up during discussions with the Metro-North rail road for confirmation. UI intends to review the 345kV design/route with the railroad for compliance.

14R Sheet 716: The Noble Avenue crossing carries the same footing and clearance concerns as the two previous crossings. This office and the railroad will need to see details of the trenching prior to the completion of design.
Response: Detail design will identify actual section cuts being used for this area. Additional design information would be provided as requested by CDOT.

15R Sheets 734 & 735: U plans to bore the duct under the railroad adjacent to Barnum Avenue (Rt 1). The railroad requires 10 feet of clearance from the bottom of rail to the top of the duct bank encasement. It looks like UI has provided this clearance. However, this office and the railroad will still need to see details of the boring prior to the completion of design.
Response: Currently detail design has not yet been completed for this area. Additional detailed drawings will be provided for review and acceptance prior to construction activities.

16R Sheet 750: This sheet depicts UI's efforts to coordinate the placement of the duct bank with the City's design of the new Bridgeport Intermodal Transportation Center. The existing station is owned by the city but operated by CDOT. We need to maintain commuter access to the station during construction. Also, we have station employee parking, bus stops (CT Transit) and taxi stands in the area which may need to be accommodated.
Response: This is addressed in the Company's proposed Maintenance and Protection of Traffic (M&PT) Plan included in the Development and Management (D&M) Plan.

17R In general, UI will need a Metro-North access permit to work under and within the railroad right-of-way. This can be coordinated directly with the railroad, which will require more specific details prior to issuing said permit. Also, be aware that CDOT and the railroad requires the coordination of any work adjacent to its right-of-way involving

cranes and other equipment that that the potential of interfering with rail operations.
Response: UI will provide the detail necessary to obtain all required permits. Additionally, UI will coordinate all work with CDOT and the railroad to minimize its impact on both operations.

18R The two crossings below the state owned railroad corridor, specifically the "Housatonic Track Crossing" (sheet 712) adjacent to the Harboryard complex and the other in the vicinity of Barnum Avenue (sheets 734 & 735) will each require that a license agreement be executed with Metro-North Railroad (state's agent) documenting the installation and future maintenance responsibilities. The two "under railroad" crossings that involve the use town roads (Stratford Avenue & Noble Avenue) will not require such license agreements. As information, the real estate office representatives at NU/CL&P are most familiar with this DOT Rails/MNR procedure.
Response: UI will execute the abovementioned License Agreements

19R FYI: The City of Bridgeport, through their Office of Economic Development is proposing to build in the near future, elevated pedestrian walkways linking the Harboryard garage and a new bus transit facility at the corner of Stratford Ave and Housatonic Ave to the existing train station on Water Street. The substructure design for the walkway leading to/from Harboryard may potentially conflict with the utility route. It appears that the Stratford Avenue route would be clear of such walkway substructures as the utility is essentially in the street.
Response: UI has been in close contact with the City of Bridgeport throughout the conceptual and design stages of the M/N Project. UI has the latest version of the City's plans and is incorporating them in its final design.

20 BS The Housatonic River crossing is in the vicinity of the Moses Wheeler Bridge (BR. No. 00135) as well as the US Rte 1 bridge (00327) and the Devon Metro-North RR Bridge.
NU to Respond

21 BS The northerly Norwalk River crossing is in the vicinity of the Route 123 crossing (BR No. 01664).
NU to Respond

22 T We have concerns with the transmission line appurtenances (such as the vaults) in the roadway since some of the work operations may be for continuous periods from 3 days to 14 days. On some roadways, a continuous lane closure will not be allowed due to heavy traffic volumes. It is extremely important that UI verify that a continuous lane closure will not be needed for installation or for future maintenance.
Response: At locations of major UI facility construction requiring installation exceeding the allowable single work-day shut-downs (such as the vaults) within the ConnDOT Right-of-Way, UI is submitting a proposed a site specific Traffic Management Plan (TMP) also referred to as Maintenance and Protection of Traffic (M&PT) plan with the D&M Plan. The TMP will show how traffic can be maintained around the work area with

parking elimination and lane modifications, work area protection (jersey barriers and temporary impact attenuators), construction signing and other necessary features.

23 T If the splicing operation takes 10-14 continuous days, 24 hours a day, in each vault, it is extremely important that lane and shoulder closures or traffic shifts are not required to do this work.
UI will make every attempt to minimize the effect of the splicing operation on traffic without compromising the integrity of the splice. UI will require the cable manufacturer to provide detailed direction regarding the points at which the splicing operation can be safely interrupted, the procedure necessary to safely shut down a splicing operation and the procedure necessary to safely restart the splicing operation as part of its cable specification.

24 T Long-term lane and shoulder closures and traffic shifts should be avoided. However, if it is absolutely necessary, the locations should be identified and a proposal must be submitted to the Department for review.
Response: To the extent possible, UI has sought to minimize traffic impacts. Where vaults will have longer-term impacts, a proposed site-specific Traffic Management Plan is being submitted by UI for ConnDOT review as referenced in the Response to Comment 22T., This Maintenance and Protection of Traffic (M&PT) plan has been created to show how vehicular and pedestrian traffic will be managed at locations where lane and shoulder closures can not be avoided.

25 T Please verify that all vaults and hand holes will not extend into the roadway or into a proposed future widened roadway or future relocated roadway.
Response: Please see the response to comment 3DC. All known future projects will be accommodated in the final design, consistent with the level of detail provided by ConnDOT.

26 T It seems that some of the future maintenance activities will require lane or shoulder closures. This should be taken into consideration and minimized as much as possible, since lane and shoulder closures for maintenance will be restricted to certain hours of the day depending on the roadway, the volumes, the area, etc. A statement should be added that lane and shoulder closures on state roads for maintenance work will have to be approved by District 3 Permits.
Response: UI will work with CDOT for allowable time and lane restrictions. Currently it's estimated that annual maintenance procedures of four hours duration or less would be required at each vault pair site. UI will submit to CDOT's review and comment any documentation of maintenance procedures for these circuits,

27 T Please verify that the transmission line and vaults will not extend into the travel lanes on any proposed future widened roadway.
Response: UI will be obtaining any available information on future ConnDOT projects through the UI work area to determine future impacts. All known future projects will be

accommodated in the final design, consistent with the level of detail provided by ConnDOT.

28 T Maintaining pedestrian traffic and pedestrian access during the installation of the transmission line should be addressed and any necessary work included in the transmission line contract.
Response: Pedestrian traffic and access during construction will be addressed in the Traffic Management Plan. If sidewalks need to be closed, signing will be used to direct pedestrians accordingly.

29 T Maintaining existing traffic signals during the installation of the transmission line should be addressed and any necessary work included in the transmission line contract.
Response: The operation of all affected traffic signals will be maintained during the transmission line installation. At this time it is anticipated that only loop detectors would be impacted. If necessary, temporary video detection will be provided to maintain proper operations of the signals. The proposed measures will be submitted to ConnDOT for review.

30 T It appears that some pavement markings will be affected. These markings shall be re-established using epoxy resin pavement markings. Please refer to the specification for Section 12.10 in the Standard Specifications Form 816 and the Traffic Typical Sheet "Special Details and Typical Pavement Markings for Two-Way Highways" for pavement markings on secondary roadways. Please ensure that this material is included in the transmission line contract.
Response: Both specification and detail for epoxy resin pavement markings will be included in the Contract as required.

31 T It appears that some guide rail will have to be removed and reset during the installation of the transmission line. Please include this work in the transmission line contract.
Response: The removal and reset of guide rail will be included in the Contract as required.

32 T Any existing signs in the area of the transmission line installation shall be temporarily relocated as needed during construction and then reinstalled in their original location after the completion of the installation in that area. Please include this work in the transmission line contract.
Response: Sign relocation and reinstallation work will be included in the contract as required.

33 T It is important that the transmission line contract include a requirement that the Contractor must submit any revisions to the proposed traffic control plans or any other traffic-related changes to the Department for review and approval at least 30 days prior to implementation.
Response: Traffic control plan revisions will be submitted as required.

34 T It is recommended that a requirement be included in the transmission line contract that the Contractor shall only be allowed to excavate that length of roadway that can be completed, including paving, in one work day (or work night) during the allowable period. Or, if necessary, a steel plate may be used as approved by the Department. The appropriate requirements for steel plates should be included in the transmission line contract.
Response: The construction of the transmission line will be governed by the executed Encroachment Agreement presently being negotiated between ConnDOT and UI. The requirements of this agreement will be incorporated in any construction contracts.

35 T Please refer to the attached traffic-related specifications and typical plan sheets that should be included in the transmission line contract.
Response: The "traffic-related specifications and typical plan sheets" did not come with the information submitted to UI, but UI will obtain this from the ConnDOT Traffic Section and the traffic related specifications will be included as required.

36 T Please require that the Contractor's construction equipment shall not obstruct sight lines of motorists at intersecting roadways and drives.
Response: A note requiring the contractor to ensure that his equipment shall not obstruct sight lines at intersections wherever possible will be included in the Contract. Police / traffic control personal will be on site to assist as necessary.

37 T The Contractor should be required to coordinate with other projects that will be in construction at the same time as the installation of the transmission line. This coordination should be addressed in the transmission line contract. Consideration should be given to including a statement that the Department's work and their Contractor's work will be given priority if there are any conflicts.
Response: Please see response to comment 25T.

38 T Any impacts to bus stops should be addressed and discussed with the Town and the bus service.
Response: Impact to bus stops will be addressed in the Contract as required.

39 T Will any blasting be needed for rock removal? If it will be necessary to halt traffic on certain roadways for blasting, the hourly volumes should be evaluated to determine a two to three hour window during low volume hours during the day that the Contractor will be allowed to do this work. This allowable work period must be approved by the Department. The duration that traffic can be halted shall not exceed ten minutes.
Response: We do not anticipate any blasting for rock removal. If blasting becomes required, it will be handled on case by case bases and discussed with CDOT.

40 T Please investigate if any additional or different hourly restrictions are needed for weekends, holidays, and major Town events. This information should be included in the transmission line contract so that the Contractor can bid accordingly.

Response: Additional hourly or seasonal restrictions will be investigated and included in the Contract as required.

41 T Disturbed loop detectors shall be restored within 24 hours (not 48 hours). Please include this requirement in the transmission line contract.
Response: Temporary video detection will be provided to maintain proper operations of the signals if loops can not be restored within 24 hours.

42 T Please include the Typical Traffic Control Plans and guidelines for Maintenance Operations for work that affects state roads in the contract specifications in the transmission line contract.
Response: Typical traffic control plans and M&PT guidelines will be included in the Contract as required.

43 T Please include the applicable NCHRP Report 350 specifications and the Notice to Contractor – Traffic Drums and Cones in the transmission line contract.
Response: Applicable NCHRP specifications and Notice to Contractor will be included in the Contract as required.

44 T The length of the alternating one-way traffic operation shall not exceed 300 feet. Please include this requirement in the transmission line contract. Please identify any locations where this maximum length will be exceeded because the allowable work period may have to be reduced based on the traffic volumes.
Response: The alternating one-way traffic operation requirement will be included in the Contract specifications as required and locations where the length will be exceeded will be identified.

45 T Please include a requirement in the transmission line contract that if there is more than one alternating one-way traffic operation at one time, then there shall be at least one mile between signing patterns.
Response: The alternating one-way traffic operation requirement will be included in the Contract specifications as required.

46 T Please refer to the sample Prosecution and Progress specification and Maintenance and Protection of Traffic specifications that are available on the DOT web site for applicable requirements that should be included in the transmission line contract.
Response: The applicable Prosecution and Progress specification and Maintenance and Protection of Traffic specifications will be included in the Contract as required.

47 T The Towns should be contacted for an opportunity to review and for their concurrence with the proposed lane closures, detours, and hourly restrictions.
Response: The Towns will be given the opportunity to review and comment on the proposed lane closures, detours, and hourly restrictions.

48 T Work that affects state roads shall be in accordance with the Standard Specifications Form 816 and the latest Supplemental Specifications.
Response: Please see response to comment 34T.

Transmission Line Plans

General

49 T Please identify any locations in which the Contractor will not be able to perform the construction using the typical traffic control plans within the allowable work periods.
Response: These locations will be identified as required.

50 T It would be beneficial to show dimensions for the location of the transmission line in relation to the edge of road at intervals along the proposed route or show typical sections.
Response: For detail design we intend to identify the route with Point of Intersections (including curve data) which will give the surveyor enough information to lay out the line in the field. In addition we can supply physical dimensions to curbs etc.

51 T It would be beneficial to show other existing utilities and guide rail on the plans in addition to the drainage.
Response: Guide rail will be shown and identified on the plans. Utility information, where available, is shown on the plans.

Route 130

52 T On Drawing No. 713, vault nos. SC-2A and SC-2B are located in front of the Railroad Station. How will this access to the Railroad Station be maintained? Can the vaults be located further to the south? Coordination with the Railroad Station and the Town is necessary. How will Water Street northbound traffic be maintained during the installation of the vaults?
Response: Please see the response to comment 3DC regarding the feasibility of moving SC-2A and SC-2B. The issue of access to the Railroad Station and maintenance of northbound traffic is addressed in the proposed Maintenance and Protection of Traffic Plan included with the D&M Plan.

53 T In reference to Drawing No. 713, there is a traffic signal at the intersection of Route 130 at Water Street (Intersection No. 15-259). It appears that some of the traffic signal equipment will be disturbed during the installation of the transmission line. Please identify all equipment that will be impacted and include the necessary items in the transmission line contract.
Response: All disturbed traffic equipment will be identified with restoration requirements included in the Contract.

54 T Will the construction of the transmission line affect the foundations of the traffic signal equipment, such as the mast arms, due to the proximity?
Response: Please specify any specific locations of concern and we will review. There should not be many cases that would affect signal equipment and/or foundations.

When/if the route does come close to any of these locations, accommodations would be provided to insure foundation and equipment integrity.

55 T There are existing sidewalks and crosswalks on Route 130. How will pedestrian traffic be maintained?
Response: Please see response to comment 28T.

56 T On Drawing No. 713 and on Drawing No. 714 (south of John Street), the transmission line appears to be in the middle of the Route 130 southbound roadway. How will traffic be maintained during the installation and future maintenance?
Response: A proposed Maintenance and Protection of Traffic (M&PT) plan has been created to show how traffic will be managed at locations where the construction may be in the middle of the roadway. The plan follows the ConnDOT standard M&PT plates and is included for review in the D&M Plan.

57 T On Drawing No. 714, there are existing traffic signals at the intersection of Route 130 at John Street (Intersection No. 15-258) and at the intersection of Route 130 at S.R. 700 (Intersection No. 15-260). Please identify the signal equipment that will be affected and include the necessary items in the transmission line contract.
Response: Please see response to comment 53T.

58 T It appears that there are some areas that have on-street parking. How will this be addressed during construction?
Response: All areas where on-street parking would be impacted will be identified. The need and ways to mitigate the parking loss will be discussed with the Towns and included in the Contract.

59 T How will access to drives be maintained?
Response: A Maintenance and Protection of Traffic (M&PT) plan has been created to show how access to drives will be maintained. This M&PT is included in the D&M Plan.

60 T On Drawing No. 714, how will traffic be maintained during the installation of the transmission line on Route 130 Northbound?
Response: Please see response to comment 24 T.

61 T For Drawing Nos. 713 and 714, based on 24 hour traffic volumes, the Contractor's typical allowable work period for Route 130 is between 7:00 p.m. and 6:00 a.m. on Monday through Thursday. This allowable work period must be reviewed by District 3 Maintenance and District 3 Construction.
Response: The City of Bridgeport has an ordnance banning night construction. UI intends to apply for a variance to this ordnance for the construction of the duct line and splicing chambers in this area. This issue is addressed in the proposed Maintenance and Protection of Traffic Plan included in the D&M Plan.

62 T On Drawing No. 718, the proposed transmission line crosses Route 127 (East Main Street). In addition, the locations of vaults SC-5A and SC-5B are very close to the

intersection with Route 127. How will Route 127 traffic be maintained during construction?
Response: We will revise the locations approximately 100' west of the current location to allow for less interference into the intersection. Traffic control layout will be completed before construction activities and submitted to CDOT for review/acceptance.

Route 1

63 T There are existing sidewalks and crosswalks on Route 1. How will pedestrian traffic be maintained?
Response: Please see response to comment 28T.

64 T It appears that there are some areas that have on-street parking. How will this be addressed during construction?
Response: Please see response to comment 58T.

65 T How will access to drives be maintained?
Response: Please see response to comment 59T.

66 T There are several traffic signals on Route 1 along the proposed route of the transmission line. Please identify the signal equipment that will be affected and include the necessary items in the contract. How will the traffic signals be maintained during construction?
Response: Please see response to comment 29T.

67 T On Route 1 south (or west) of Route 108, based on 24 hour traffic counts, it is recommended that the Contractor's typical allowable work period should be as follows: between 9:00 p.m. and 6:00 a.m. on Monday through Thursday. On Route 1 north (or east) of Route 108, based on 24 hour traffic counts, it is recommended that the Contractor's typical allowable work period be as follows: between 10:00 p.m. and 6:00 a.m. on Monday through Thursday. On Route 1 north (or east) of Longbrook Avenue, it is recommended that the Contractor's typical allowable work period should be as follows: between 8:30 p.m. and 6:00 a.m. on Monday through Thursday. These hours must be reviewed by the Office of Maintenance, District 3 Maintenance – Permits, and District 3 Construction.
Response: This issue is addressed in the proposed Maintenance and Protection of Traffic Plan included in the D&M Plan.

68 T How will traffic be maintained during the installation and future maintenance of the transmission line?
Response: A proposed Maintenance and Protection of Traffic (M&PT) plan has been created to show how traffic will be maintained during the installation. The plan will follow the ConnDOT standard M&PT plates and will be submitted for review as part of the D&M Plan.

69 T How will traffic be maintained during the installation and future maintenance of the vaults?
Response: Please see response to comment 68T.

70 T Some of the vaults are located at driveways. How will the driveways be maintained during the installation and future maintenance of the vaults?
Response: Currently there is only one location (SC 15A/15B) that is within a driveway; at this point there are multiple entrances to the area. If there are other locations that CDOT views are in a driveway please identify and UI will review. Other locations such as SC 8 & 11 that are in front or near driveways, simple traffic accommodations can be made to allow for traffic during installation and maintenance. This will be identified with the Company's proposed Maintenance and Protection of Traffic Plan included in the D&M Plan.

71 T Please refer to the attached traffic counts from the Department's Planning, Inventory & Data unit.
Response: To the best of our knowledge, the traffic counts did not come with the information submitted to UI. UI has obtained them from the ConnDOT and incorporated them in the proposed M&PT Plan.

72 T On Drawing No. 736, please ensure that the installation of the transmission line will not impact the I-95 ramps.
Response: The transmission line work would be staged such that one lane of traffic would be maintained at all times.

73 U Communication and coordination with the utilities is essential and incumbent upon UI and NU to avoid construction delays and negative impact to the traveling public.
Response: All potentially affected utilities have received the 60% design drawings. UI has scheduled a meeting of these utilities for Thursday, October 27 to go over the project. UI will incorporate the comments received from these utilities in its final design. Construction is currently scheduled to start in the third or fourth quarter of 2006, but the sequence of construction has not been established. As the start of construction draws nearer, and throughout the construction period UI will hold frequent, periodic coordination meetings with all affected parties.

74 U All work within the ConnDOT Right-of-Way shall be completed in accordance with the State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, and Incidental Construction, Form 816 and the Supplemental Specifications dated 2004 hereinafter referred to as 816.
Response: All restoration work within the ConnDOT Right-of-Way will comply with Form 816 and be according to the final Encroachment Permit conditions.

75 U Prior to the ConnDOT issuance of an encroachment permit, UI and ConnDOT shall enter into an Encroachment Agreement that will memorialize understandings relative to the installation of the proposed transmission system within the ConnDOT Right-of-Way.

Response: UI and ConnDOT are presently in the process of negotiating an Encroachment Agreement.

76 U All chambers, manholes and handholes shall be located outside of the paved area of the roadway. UI must provide sufficient area off of the pavement for all equipment necessary to install, splice and maintain the cables without impact to the traveling public. Any additional property rights that may be needed to comply, is the responsibility of UI. UI should investigate the possibility of utilizing a single vault structure to minimize required property by any means including the relocation of existing utilities.
Response: UI will make every reasonable effort, consistent with public safety, good utility practice and reliability, to design the project so as to minimize its effect on the public.

77 U In regards to construction methods for underground transmission lines, UI's contractors will work with ConnDOT to establish plating and patching requirements. The details of these matters must be addressed during the design phase of the project.
Response: UI and ConnDOT are presently in the process of negotiating an Encroachment Agreement that will address these issues among others.

78 U The labeling 'DOCKET 272' must be included on all plans, maps, memos, communiqués, etc, related to this project.
Response: UI will comply.

9 M (a) Obtain signal plans and show underground electrical equipment including RMC and loop detectors.
Response: All traffic RMC and loop detectors will be shown on the Contract drawings.

9 M (b) Submit shop drawing for temporary loop replacement. Temporary loops shall be microwave detectors placed on existing signal poles.
Response: The contractor shall submit shop drawings for review and approval for the temporary loop replacement. Either microwave or video detectors would be placed on existing signal poles.

9 M (c) Submit plans to DEP and EPA for the Stratford Route 1 area in front of Home Depot. This area of Route 1 was an environmental superfund cleanup site and is limited to excavations.
Response: UI has redesigned the project to avoid the cap in this area. UI has or will submit plans to all required state agencies.

9 M (d) The feasibility of getting the transmission line in between the numerous utilities at Sta. 46+50 (the Water Street-Stratford Avenue) is questionable.
Response: Please see the response to comment 12R.

9 M (e) Possible conflicts exist on Barnum Avenue, where catch basins on both sides of the road drain to a combined system in the middle of the road. Check Sta. 78+20, 79+50, 81+50. etc... Also, check town (city) roads for conflicts.

Response: These plans have been submitted to the City of Bridgeport and Town of Stratford for coordination with their existing storm and sanitary sewer pipelines. Efforts will be made to avoid conflicts with existing utilities, especially gravity lines, and provisions will be made to facilitate utility relocation where required.

9 M (f) At Sta. 2778+25, in Stratford, a catch basin drains into a small chamber out in the road, a few feet south then into the 15" line under the bridge. Show this on sheet No. 737 to avoid conflict.
Response: UI will obtain more details on the drainage/chamber system referenced and show it on the Plans.

19 R (a) Refer to plan sheet no. 701 "General Notes" - note #5 regarding temporary trench shoring needs to be revised to state that any trench shoring within the live load influence of the railroad must be designed to AREMA standards and for a Cooper E80 load.
Response: This identification will be added onto the drawings and in the specifications for areas around the railroad. Moreover, this will be discussed when UI coordinates design with Metro North railroad.

19 R (b) Refer to plan sheet no. 702 - 750 - with regard to the details for the various types of Duct Bank Sections. It is not possible to determine from the plans which Duct Bank Section applies to any given portion of the utility run. Sheet 702 has a table of Duct Bank Parameters referring to locations broken down by Zones but those zones are not identified within the "plan and profile" drawings and the table is incomplete.
Response: UI is currently developing the final design and will submit additional details/sections for CDOT review/acceptance.

APPENDIX K

Written Response to Stratford's 60% Design Comments

Response to the Town of Stratford's 60% Design Comments

The Town of Stratford has reviewed the 60% plans submitted by the UI for the Middletown to Norwalk Transmission Project. Please consider the following comments during the final design of the project.

Maintain at least two (2') foot clearance from the bottom of the existing storm and sanitary sewer crossings to the top of the conduit bank to allow for future sewer size increases except where larger crossings are contemplated as described below.
Response: UI will modify design as requested above. Please note some areas (by design or during construction) may not be feasible or practicable to construct to this tolerance. UI will discuss these crossings on case by case bases with Town Engineer.

The following drainage culvert improvements may be proposed in the future:
Sta 158+90 provide a parallel 84" x 78" culvert west of existing culvert
Sta 160+50 remove existing triple culvert and install a new twin 12'X4' box culvert
Sta 221+85 replace existing culvert with 3' x 6' culvert
Sta 223+70 replace existing culvert with 3' x 6' culvert
Maintain sufficient clearance to construct these projects in the future.
Response: UI will classify the above (UI is assuming inverts do not change) on the drawings (marked "FUTURE"), and design to avoid. UI will continue to correspond with Town Engineer regarding future projects.

Where splices are constructed off road, the sidewalks, curbs and landscaping restoration should be designed in accordance with the Town's streetscape master plan developed by the Town's consultant, STV, Inc., Stratford, CT.
Response: This issue has been addressed in Section 6.8.11 of the D&M Plan

A Traffic management plan should be prepared prior to final design, especially on how to deal with access to local businesses during construction.
Response: A proposed Maintenance and Protection of Traffic (M&PT) Plan is included as Appendices E and F of the D&M Plan.

An attempt to locate private utility service connections should be shown on the plan to determine if a conflict may exist, especially for the sanitary and storm sewer connections.
Response: UI will try to obtain available sewer service connection maps or records in an attempt to show these gravity systems. If more exact information is required, than UI will need the Town to perform field mark-out for test pit location. During prior Utility

coordination meetings, it was determined that a mapping/record search for small service lines for "pressure" utilities such as gas and water would not be required and that relocations would be performed during construction as necessary.

Sheet 725-6- The Town line is the centerline of the box culvert west of Sage Ave not the triple culverts on the east side of Sage Ave.
Response: Sheets 24214-725 and 24214-726 will be corrected to accurately reflect the Stratford/Bridgeport municipal boundary.

Sheet 726- The Town sanitary sewer crossing at station 163 is a 24" sewer, the invert of which is approximately elevation 13.4.
Response: Sheet 24214-726 will be revised to accurately reflect this information.

Sheet 729- The Department of Transportation has a proposed project to relocate the intersection of West Broad Street to align with Noble Ave. The conduit bank should be designed to accommodate any change in grades.
Response: UI will verify any proposed grade changes with CDOT and will design the depth of the duct line accordingly.

Sheet 730- The Street to the north at station 203 is Broadbridge Avenue. On the south side Broadbridge Ave turns the east and Rockwell Ave veers to the west (as shown). The storm sewer at station 206 is 24" and the invert is closer to 68.5 at the crossing.
Response: Sheet 24214-730 will be revised to accurately reflect this information.

Sheet 732- See comments number 2 & 3.
Response: Also see UI comments under number 2 & 3.

Sheet 733- The depth of the sanitary sewer at station 233+20 is approximately 14' deep.
Response: Sheet 24214-733 will be revised to accurately reflect this information and the duct line redesigned as required.

Sheet 735- The Street labeled as Longbrook Ave to the south is really the driveway to the shopping center. Veterans Boulevard is located to the south at approximately station 258+50.
Response: Sheet 24214-735 will be revised to accurately reflect this information.

Sheet 736-7- The DEP should be consulted as to the feasibility of excavation and soil stability within the vicinity of the former Raybestos plant site.
Response: As part of the design process, the duct line and SC 17A/17B were located as far from the cap as feasible. Additionally, UI conducted an environmental survey and excavated multiple test pits along that stretch of Route 1 and in the vicinity of SC 17A/17B. Also, UI will consult with the appropriate state agencies as required.

Sheet 739- An easement should be obtained for any work to be performed on private property.

Response: UI is in active negotiation with Urstadt Biddle Properties, Inc., the current owners of the Dock, for an easement across the property.