

any potential concerns will be addressed through on-going consultation with NMFS. The NMFS concluded that Islander East did not need to seek authorization for a "take" of marine mammals.

Islander East is committed to avoiding level B harassment of seals (defined by the Marine Mammals Protection Act as activities having the potential "to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding or sheltering") on or near the Thimble Islands. Islander East has stated that it will continue to consult with the NMFS to avoid harassment of harbor and grey seals near the project area. If the consultations between Islander East and NMFS conclude that a harassment situation may occur, then Islander East may seek Marine Mammal Protection Act Incidental Harassment Authorization for the extreme isolated incident where a harassment situation may occur. Section 3.4.2 of the Final EIS includes a discussion of this issue.

3.7 WETLANDS

3.7.1 Existing Environment

Wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of wetland vegetation typically adapted for life in saturated soil conditions (COE 1987). Islander East used the 1987 COE Wetlands Delineation Manual to identify and delineate wetlands in New York and Connecticut that would be crossed by the project. Table 3.7.1-1 lists each wetland that would be crossed by the proposed project by milepost, wetland type, length of crossing, and acreage affected by construction and operation. Islander East has stated that access permission was requested for all portions of the project on land, and that permission was granted for approximately 25 miles (90 percent). Islander East has also stated that it is in the process of evaluating additional temporary workspaces for the project to determine if they are located within 50 feet of delineated wetlands. We would review all proposed workspaces for placement in relation to wetlands, prior to construction.

Based on the COE wetland delineation and an evaluation of National Wetland Inventory (NWI) maps, aerial photography, and NYSDEC-regulated freshwater wetland maps, the pipeline would cross a total of ~~41~~⁴⁴ wetlands for a total crossing length of ~~3.5~~^{2.2} miles, or ~~12.5~~^{13.2} percent of the total length of the pipeline on land (see table 3.7.1-1). These wetlands include ~~40~~⁴³ wetlands in Connecticut totaling ~~3.4~~^{2.2} miles and one wetland in New York which would not be disturbed due to the use of the HDD crossing method. No wetlands would be affected by the proposed aboveground facilities.

The majority of wetlands that would be crossed by the pipeline are freshwater palustrine wetland types, including palustrine forested wetlands (PFO), palustrine scrub-shrub wetlands (PSS), and palustrine emergent wetlands (PEM). Palustrine wetlands systems include all nontidal wetlands that are dominated by trees, shrubs, emergent herbaceous plants, and emergent mosses or lichens (Cowardin et al. 1979).

In Connecticut, about ~~2.9~~^{2.9} miles (80 percent) of the affected freshwater wetlands are forested wetlands or mixtures of forest and other wetland types. Forested wetlands in Connecticut include floodplain forests and lowland wet forests. Floodplain and lowland wet forests are dominated by deciduous hardwood trees, including green ash, American elm, and red maple, with occasional species of oaks and yellow birch. The shrub layer is typically sparse, but may contain dogwoods, spicebush, sweet pepperbush, winterberry, northern arrowwood, speckled alder, and saplings of tree

TABLE 3.7.1-1
Wetland Crossings

Milepost	Wetland ID	Cowardin Classification ^{a/}	Crossing Length (ft)	Acreage Affected by Construction (acres) ^{b/}	Acreage Affected by Operation (acres) ^{c/}
ALGONQUIN FACILITIES					
3.7	CT-A42 ^{d/}	PEM/PFO	422	0.73	0.10
8.9	CT-A4 ^{e/}	PEM	317	0.55	0.07
ISLANDER EAST FACILITIES					
Islander East Pipeline - Connecticut					
0	CT-A1	PEM/PSS	11	0.02	0.01
0.1	CT-A2	PEM/PFO	211	0.36	0.05
0.5	CT-A3	PSS/PEM	406	0.70	0.10
0.6	CT-A43	PEM/PFO	106	0.18	0.02
1	CT-A4	PSS	53	0.09	0.01
1.1	CT-A5	PEM/PFO	317	0.55	0.07
1.3	CT-A6	PEM/PFO	370	0.64	0.08
1.5	CT-A12	PEM/PFO	106	0.18	0.02
1.6	CT-A7	PEM/PSS	264	0.45	0.06
1.8	CT-A8		106	0.18	0.02
		PEM/PFO/PSS			
2.1	CT-A46	PEM/PFO	686	1.18	0.16
2.7	CT-A47	PEM/PSS	53	0.09	0.01
2.7	CT-A48	PEM	53	0.09	0.00
3.1	CT-A49	PEM	898	1.55	0.00
4.1	CT-A9	PEM/PFO	264	0.45	0.06
4.2	CT-A10	PEM/PFO	317	0.54	0.07
4.5	CT-A39 ^{f/}	PEM	10	0.01	0.00
4.8	CT-A11	PEM/PFO	1478	2.55	0.35
5.2	CT-A13	PEM/PFO	158	0.27	0.04
5.5	CT-A15	PEM/PFO	211	0.36	0.05
5.8	CT-A17	PEM/PFO	898	1.55	0.21
6.4	CT-A18/A19	PEM/PFO	581	1.00	0.13
6.6	CT-A25	PFO	528	0.91	0.12
6.7	CT-A26	PFO	898	1.54	0.20
7.1	CT-A27	PFO	211	0.36	0.05
7.4	CT-A28	PEM	53	0.09	0.00
7.5	CT-A29	PFO	53	0.09	0.01
7.5	CT-A30		686	1.18	0.16
		PFO/PEM/PSS			
7.8	CT-A31	PFO	1426	2.45	0.33
8.1	CT-A23	PFO	370	0.64	0.08
8.2	CT-A33	PFO/PSS	1,267	2.18	0.29
8.7	CT-A32	PFO	1,214	2.09	0.28
8.9	CT-A24		211	0.36	0.05
		PFO/PSS/PEM			
9	CT-A34	PFO	1,742	3.00	0.40
9.4	CT-A35	PEM/PFO	53	0.09	0.01
9.5	CT-A36	PFO	264	0.45	0.06
9.6	CT-A37	PEM	475	0.82	0.00
10.2	CT-A38	PEM	53	0.09	0.01

TABLE 3.7.1-1 (continued)
Wetland Crossings

Milepost	Wetland ID	Cowardin Classification ^{a/}	Crossing Length (ft)	Acreage Affected by Construction (acres) ^{b/}	Acreage Affected by Operation (acres) ^{c/}
Islander East Pipeline - New York					
43.1	NY-B3-X ₂ ^{d/}	PFO/PEM	930	0.00	0.00
Calverton Lateral - New York					
No wetlands will be crossed by the Calverton Lateral					
TOTALS					
Connecticut			17,800	30.61	3.66
New York			930	0.00	0.00
			18,730	30.61	3.66

Note: some calculation differences may occur due to rounding.

a/ Classification of Wetlands and Deepwater Habitats (Cowardin *et al.*, 1979)

PEM = Palustrine Emergent

PSS = Palustrine Scrub/Shrub

PFO = Palustrine Forested

b/ Acreages include temporary workspaces.

c/ Acreage based on GIS polygons within the construction work area and permanent right-of-way. Acreages reflect a maintained permanent right-of-way width of 30 feet centered over the pipeline in forested wetlands and 10 feet centered over the pipeline in scrub-shrub wetlands. Emergent wetlands would not be affected during operation.

d/ Located along a temporary access road located in extra workspace for Algonquin inspection and repair.

e/ Proposed hydrostatic test water location.

f/ Located along a temporary access road at MP 4.4.

g/ HDD will be used to cross wetland. This wetland will not be disturbed.

species in pockets where the canopy has opened up, or where inundation levels prevent establishment of mature trees (Branford Land Trust, Inc. 2001). The herbaceous understory is commonly composed of woodland horsetail, sensitive fern, cinnamon fern, skunk cabbage, jewelweed, sedges, and joe-pye weed. The boundary between forested wetlands and uplands, or between forest and scrub shrub openings, often contain buckthorn, highbush blueberry, and greenbriar.

In Connecticut, about 0.5 mile of the affected freshwater wetlands are emergent wetlands or mixtures of emergent and scrub-shrub wetlands. Open wetland areas along the pipeline route are commonly mixed emergent marshes in lowlands with poorly drained soils. In some emergent wetlands, small areas are dominated by broad-leaved cattail or common reed. Mixed emergent marshes commonly contain reed canary grass, giant reed, woolgrass, Lady's thumb, soft rush, blue vervain, sedges, rushes, and arrowhead. Reed canary grass, which often forms dense monocultures, is a common dominant species in wet meadows along the pipeline route where it is aligned with the existing Algonquin C-5 pipeline. Emergent wetlands exist as complexes with scrub-shrub wetlands or forested wetlands with the less flood tolerant species located on the periphery of the wetland or on higher hummocks within the wetland.

No freshwater wetlands in New York would be affected by the proposed Islander East Pipeline Project. One tidal wetland listed on New York's Tidal Wetland Inventory (TWI) would be crossed by the project between MP 32.7 and 32.9. This wetland is a littoral zone wetland and is crossed in waters adjacent to Long Island that are less than 5 feet deep. Littoral zone wetlands include all lands under tidal waters that are not included in any other category. Although crossing this wetland would require a Tidal Wetland permit from the NYSDEC, it does not contain vegetation and therefore is not considered a wetland, but rather open water in this section and section 3.8, Land Use, Recreation, and Visual Resources.

In New York, freshwater wetlands are forested wetlands or mixtures of forest and other wetland types. Forested wetlands on Long Island are typically dominated by red maple with blackgum, willow, and sweetgum as other possible canopy species. The shrub understory contains species such as sweet pepperbush, spicebush, highbush blueberry, and catbrier. The herbaceous layer, though variable with canopy density, generally includes one or more of skunk cabbage, jack-in-the-pulpit, jewelweed, and ferns (Stewart and Springer-Rushia 1998). Emergent wetlands occurring in the vicinity of the Islander East Pipeline Project typically consist of herbaceous species such as cattail, purple loosestrife, arrowhead, common reed, bur-reed, pickerel-weed, wild rice, bulrush, and arrow-arum.

A vernal pool is a basin or a depression that holds water either permanently or temporarily, but lacks a permanent above ground outlet typical of ponds. They contain water for a few months in the spring and early summer. By late summer, a vernal pool is generally (but not always) dry. Vernal pools often serve as breeding sites for several amphibian species and generally are void of fish. Vernal pools exist along the pipeline corridor in New York and Connecticut. In Connecticut, vernal pools are regulated as wetlands by the CTDEP. If a vernal pool is present within a currently delineated wetland then it will receive regulatory review by the CTDEP. An evaluation of vernal pools in New York was part of the Phase I and Phase II survey for the tiger salamander because this species uses these areas in the spring. Results of Islander East's surveys are discussed in section 3.6.4.2.

Near the Connecticut-Long Island shoreline, the pipeline corridor is adjacent to a portion of the saltmarsh. This emergent wetland is dominated by common reed along the wetland edges and saltmeadow cordgrass and smooth cordgrass dominate the interior area.

3.7.2 Environmental Consequences General Construction and Operation Impacts

Several commentors requested that Islander East and Algonquin present their wetland construction and restoration procedures and evaluate impacts to wetlands. Wetlands perform a number of important functions, including water quality improvement, flood and stormwater control, and erosion control. They also provide recreational opportunities and excellent habitat for fish and wildlife. Wetlands help to maintain water quality through the removal and retention of nutrient and the reduction of sediment loads. In their natural undisturbed condition, wetlands act as a temporary storage area for flood waters and reduce the speed of water flow by spreading flow energy over wide areas. Flow velocity and energy generally decrease as water enters wetland systems and sediments which fall out are deposited and retained by vegetation in the wetland.

The primary impact of pipeline construction and right-of-way maintenance activities on wetlands would be the temporary alteration of wetland vegetation and permanent conversion of forested wetland to scrub-shrub or emergent wetlands. Construction would also temporarily diminish the recreational and aesthetic value of the wetlands crossed. These effects would be greatest during and immediately following construction. In emergent wetlands, the impact of construction would be relatively brief because the herbaceous vegetation would regenerate quickly. In forested and scrub-shrub wetlands, the impact would be of longer duration due to the longer regeneration period of these vegetative types, and clearing of wetland vegetation would result in temporary and permanent loss or alteration of wetland wildlife habitat and some wetland functions.

Other impacts associated with construction of the pipeline could include temporary changes to wetland hydrology and water quality. Compaction and rutting of wetland soils could result from

the temporary stockpiling of soil and the movement of heavy machinery. Surface drainage patterns and hydrology could be temporarily altered during construction and there could be an increased potential for the trench to act as a drainage channel. Increased siltation and turbidity may result from trenching activities. However, Islander East would use trench breakers and other erosion control measures as proposed in its ESC Plan to prevent wetland drainage along the pipeline, and increased sedimentation and turbidity as a result of trenching activities. Disturbance of wetlands also could affect the wetland's capacity to control erosion. General construction methods that are used to mitigate for impacts to wetland soils are discussed in section 3.2.2 under "Hydric Soils and Drainage" and "Muck Soils".

Wetland Construction and Mitigation Procedures

Several commentors requested that Islander East and Algonquin develop and implement procedures to minimize and mitigate potential project impacts in the wetlands. To minimize the potential environmental impact of construction in wetlands, Islander East and Algonquin would implement avoidance, minimization, and mitigation measures contained in the ESC Plan. These measures include most of our Procedures regarding pipeline related construction, restoration, and maintenance. However, one exception specifically regarding forested wetland revegetation was identified by Islander East as a deviation from our Procedures. The following is a discussion (by section of the Procedures) of the measure for which Islander East proposed an alternative.

Section VI.D.5 for all forested wetlands affected:

- a. plant native trees to ultimately restore the temporary right-of-way and the non-maintained portion of the permanent right-of-way to its preconstruction state;
- b. plant native shrub and herbaceous species to revegetate the 30-foot-wide portion of the permanent right-of-way; and
- c. consult with the FWS, EPA, COE, and the appropriate state agency to determine the density for planting the native trees and shrubs.

Islander East stated that reestablishment of native species on temporary and permanent rights-of-way would occur naturally from seed stock and that planting programs would not be necessary or cost effective. We have seen successful wetland restoration from native seed stock, and we concur that Islander East's and Algonquin's plan to allow natural revegetation is a reasonable approach to achieve revegetation of forested wetlands given that the original surface elevation is restored and tree stump-root complexes are preserved. However, in the event a permitting agency identifies the need for a site-specific forested wetlands revegetation plan, Islander East stated it would develop such a plan and consult with regional agencies for pertinent recommendations.

Islander East has developed a draft Construction, Restoration, and Invasive Species Control Plan for the Branford Land Trust properties and Central Pine Barrens. These plans would identify species of concern, procedures to prevent the spread of invasive plant species, restoration seed mixtures and procedures, and monitoring procedures. Islander East provided the respective site specific plan to the Branford Land Trust for review and comment on May 16, 2002 and has submitted the Central Pine Barrens Plan to the Central Pine Barrens Commission on June 10, 2002. We have recommended consultations with FWS, EPA, and COE to be incorporated into these plans. See section 3.5.2 for the status and further discussion of these plans and filing conditions.

The wetland crossing procedures in the ESC Plan would be implemented in all jurisdictional wetlands, unless the wetland is used for agriculture, and agricultural procedures apply. Construction through wetlands would also comply at a minimum with individual Section 404 permit conditions as administered by the COE for all discharges of dredged or fill material or mechanical land clearing and excavation in waters of the United States including wetlands, streams, and navigable waterways.

At present, the post-construction vegetation maintenance guidelines set forth in the FERC Procedures and adopted by Algonquin and Islander East in the ESC Plan, are not only conducive for the quick reestablishment of a scrub-shrub wetland cover type, but also allow for the redevelopment of a forested component along the edge of the disturbed right-of-way. During maintenance of the right-of-way, the ESC Plan indicates that mowing activities in forested wetlands would be limited to a corridor up to 10 feet wide centered over the pipeline. However, trees within 15 feet of the new pipeline that are greater than 15 feet in height may be selectively cut and removed from the permanent right-of-way.

When wetland impacts are proposed, the COE would require that all appropriate and practicable action be taken to avoid or mitigate those impacts. Islander East and Algonquin would obtain state and Federal permits regarding construction in wetlands and would comply with any mitigation measures required by the permits. We believe that Islander East and Algonquin have minimized wetland impacts through the proposed route, and the use of its ESC Plan and other proposed impact mitigation measures would avoid or minimize potential impacts on wetlands.

Site-Specific Wetland Impacts

Several commentators requested that Islander East evaluate impacts to specific wetlands, including salt marsh, tidal wetlands, and wetlands associated with the Peconic River, Carmans River, and Branford Land Trust Property.

Only one tidal wetland will be crossed by the Islander East Pipeline in New York. Islander East has stated that this wetland is unvegetated and is considered open water that does not meet the Federal regulatory definition of a wetland. Islander East stated that it would obtain a NYSDEC Tidal Wetland Permit before construction begins across this area. Salt marsh habitat is found adjacent to the pipeline corridor in Connecticut and would not be directly impacted by construction or operation.

The Islander East Pipeline would cross the headwaters of the Peconic River and associated wetlands at MP 38.3 and MP 38.4. However, these wetlands occur outside of the construction right-of-way and therefore would not be affected. Within the Southaven County Park, the pipeline would cross the Carmans River and associated wetland at MP 43.1. This wetland would not be affected by the project because Islander East proposes to use the HDD method to cross the Carmans River and the HDD would include the extent of this wetland.

Several wetlands will be crossed within the Branford Land Trust Property. Islander East is attempting to work with the Branford Land Trust and other land trusts crossed by the project to identify and address specific concerns prior to construction (see section 3.8.3.2).

Two of Algonquin's proposed access roads would unavoidably cross wetlands, resulting in temporary impacts during anomaly repair activities. An access road at Algonquin MP 3.8 would affect emergent wetland areas in two locations for a total of about 0.02 acre, and an access road at

Algonquin MP 3.8 would affect about 0.20 acre of another emergent wetland. Impacts would be limited to the period of anomaly repair and restoration, and would consist of heavy equipment and vehicles traveling over the wetlands, supported by equipment mats or other support measures. Following construction, the wetlands would be restored and allowed to revert to their previous emergent vegetative stage.

Overall, construction of the Islander East and Algonquin project facilities would temporarily disturb about 30.6 acres associated with the construction right-of-way and temporary extra workspace, and through routine vegetation maintenance, Islander East and Algonquin would maintain about 3.7 acres of wetland as an emergent plant community (see table 3.7.1-1). No wetlands would be affected by construction or operation of above ground facilities.

About 24.4 acres (80 percent) of impacted wetlands are classified as forested wetlands or other wetlands with a major forest component (i.e., PFO, PFO/PSS, PFO/PEM, PEM/PFO). Forested wetlands would be crossed adjacent to existing rights-of-way, where actual forest clearing would be less than 75 feet because of the partial use for construction of 25 to 50 feet of the previously cleared right-of-way for construction. An estimated 3.7 acres of PFO would be permanently converted to PEM (see table 3.7.1-1) due to the maintenance of a 10-foot-wide right-of-way in the herbaceous state. The remaining 6.3 acres (20 percent) of the wetlands affected by construction are classified as non-forested wetlands and include emergent wetlands (3.2 acres), scrub-shrub wetlands (0.1 acre), or mixed (3.0 acres).

The Tilcon marsh is located adjacent to the proposed construction corridor, but would not be affected by construction of the Islander East Pipeline Project. This marsh at its closest point is 50 feet from the proposed route. However, the Branford Steam Railroad runs in between the proposed route and the Tilcon marsh along the entire length of the marsh. The release of water and sediments into the marsh as a result of construction activities would be hindered by the raised railroad bed. This hindrance of brackish water movement from the marsh through the railroad bed is supported by the presence a freshwater pond on the proposed route side of the railroad.

In response to several commentors' request to further reduce impacts to wetland resources within the boundaries of the Branford Land Trust properties, Islander East revised its originally proposed crossing lengths and area impacts through these areas and submitted them to the Branford Land Trust on April 17, 2002. These revised crossing lengths and area impacts reduced the crossing length by 170 feet, reduced the area impacts by 49 percent, and reduced wetland area impacts by 25 percent.

In response to several commentors' requests to further reduce impacts to wetland resources in the Central Pine Barrens, Islander East has proposed construction modifications within the boundaries of the Central Pine Barrens that include a reduced construction right-of-way configuration, alignment change, and the use of the HDD method. As a result of these proposal modifications impacts to New York wetlands would be avoided.

Islander East and Algonquin have stated in the ESC Plan that wetlands would be seeded with annual ryegrass at a rate of 40 pounds per acre or with a seed mixture developed in consultation with the COE, NRCS, and state agencies. We agree that this measure would be acceptable in the absence of a detailed revegetation plan or until the appropriate seeding season. Seeding with a fast-growing species is useful in mitigating against erosion until the native species become reestablished. As also

stated in the ESC Plan, Islander East and Algonquin would monitor wetlands for 3 to 5 years post construction or until successful revegetation. Revegetation would be considered successful when the native herbaceous and/or woody cover is at least 80 percent of the total cover and native species diversity is at least 50 percent of the diversity originally found in the wetland. See section 3.5.2 for the discussion of site specific revegetation and invasive species control plans. The COE may develop additional requirements for wetland restoration or mitigation during its Section 404 permit review process. Several commentors, including the U.S. Department of the Interior, suggested that Islander East and Algonquin monitor restoration for greater than 5 years. We require monitoring until revegetation is successful regardless of the time it may take to successfully restore impacted areas. If revegetation is not successful at the end of 3 years, Islander East would develop and implement (in consultation with a professional wetland ecologist) a remedial revegetation plan to actively revegetate the wetland with native vegetation. Therefore, we recommend that:

- **Islander East and Algonquin should file with the Secretary an annual summary monitoring report documenting the revegetation status of each wetland affected by construction.**

Post-construction reports should be filed for each of the first three years, at a minimum, or until each wetland is successfully revegetated. The reports should include an inventory of exotic nuisance plant species present on the construction right-of-way. For any wetlands that have not been restored by the third growing season, Islander East and Algonquin should file with the Secretary a site-specific plan to restore these problem areas, for review and written approval by the Director of OEP.

The CTDEP and NYSDEC requested information on potential vernal pools that are not part of any existing delineated wetlands within and immediately adjacent to proposed pipeline construction right-of-way. Islander East does not know of any vernal pools that are outside the boundaries of already identified wetlands within the proposed right-of-way. Two vernal pools were identified by the CTDEP as occurring in the construction corridor. One is on the west side of the railroad tracks just south of a sewerline right-of-way at Hubbard Road. The other lies on the east side of the railroad tracks just south of Interstate 95. Islander East has determined that these vernal pools occur within previously identified wetland boundaries and therefore will receive regulatory review by the CTDEP. In New York, Islander East has provided the results of the tiger salamander Phase I and Phase II surveys, which identifies vernal pools, to the NYSDEC to facilitate the protection of vernal pools in New York. See section 3.6.4.2 for further discussion of the tiger salamander surveys.

3.8 LAND USE, RECREATION, AND VISUAL RESOURCES

3.8.1 Land Use

3.8.1.1 Existing Environment

The Islander East Pipeline Project would involve construction of a total of 50.7 miles of pipeline, including 21.5 miles in New Haven County, Connecticut, and 29.2 miles (including the 5.6-mile Calverton Lateral) in Suffolk County, New York. Of this total, about 22.6 miles of pipeline would be constructed on the sea floor of the Sound. In addition, aboveground facilities would include a new compressor station in Cheshire, New Haven County, Connecticut, three meter stations,

and five mainline valves. The project also includes excavation, investigation of anomalies, and possible replacement of existing pipeline in two areas in New Haven County. In addition, about 27.4 miles of existing pipeline in New Haven County would be tested in-place to verify it can sustain gas transmission at a higher pressure, requiring minimal ground disturbance or construction work.

The principal land use category that would be crossed by the pipeline is open water (44.6 percent) associated with the Sound crossing. Of the remaining 28.1 miles on land, the predominant land use is forest (25.4 percent), followed by open land (18.3 percent), agricultural land (4.9 percent), residential areas (3.4 percent) and commercial/industrial areas (3.2 percent). About 23.4 miles (83 percent) of the 28.1 miles of pipeline on land would be constructed adjacent to or overlapping with existing rights-of-way. Table 3.8.1-1 summarizes the land uses and open water crossed by the proposed pipeline.

The Cheshire Compressor Station would be located in a forested and agricultural area, and the three meter stations would occupy lands that are currently commercial/industrial, forested, and open, respectively. The five mainline valves would be constructed within the permanent right-of-way, or within the compressor and meter station sites. Table 3.8.1-2 identifies land uses affected by the aboveground facilities.

Islander East and Algonquin would use existing roads along the route for construction access, and proposes to construct new and improve existing roads for temporary and permanent use. In addition to using public roads, Islander East has identified a total of 22 private access roads, including 14 existing roads for temporary use during construction and 8 roads for use as permanent access to the compressor station, meter stations, and mainline valves. These roads would be in commercial/industrial areas, existing utility rights-of-ways, agricultural lands, and minor amounts of residential and forested areas (see table 3.8.1-3). In addition, Islander East would temporarily use six areas for pipe storage, railyard, and contractor staging totaling about 85.1 acres as listed in table 3.8.1-4. Islander East also would use the Gateway Terminal in New Haven, Connecticut to stage construction for the offshore portion of the project. This facility is an existing commercial port used by marine vessels.

The open water category of land use consists of the 22.6-mile Sound crossing. Affected forest land consists mainly of non-agricultural wooded uplands and wetlands dominated by mixed hardwood communities in Connecticut, and pitch pine and oak scrub communities in New York. Open lands, defined as non-agricultural open fields and scrub-shrub uplands and wetlands include pastures, fallow croplands, and cleared areas such as existing rights-of-way. No lands managed under the USDA, Farm Service Agency Conservation Reserve Program (CRP) would be crossed by the project.

In New Haven County, Connecticut, affected agricultural lands include cultivated corn and forage crops for dairy cattle feed, as well as nursery and greenhouse stocks. In Suffolk County, New York, agricultural cultivated areas are primarily used to grow potatoes, with smaller amounts of vegetables, orchard products, and corn and oats for feed grain. The Calverton Lateral would cross one tree farm used to grow commercial nursery stock between MPs CA 2.4 and 2.7. Islander East is consulting with landowners to identify other specialty crops along the route.

TABLE 3.8.1-1

Land Uses Crossed by the Existing and Proposed Pipeline (in miles)

Facility/State	Open Water ^{a/}		Forested ^{b/}		Open ^{c/}		Agricultural ^{d/}		Com./Ind. ^{e/}		Residential ^{f/}		Total	
	(mi)	(%)	(mi)	(%)	(mi)	(%)	(mi)	(%)	(mi)	(%)	(mi)	(%)	(mi)	(%)
ALGONQUIN FACILITIES														
Anomaly Investigations Connecticut	0.0	0.0	0.0	0.0	0.1	100	0.0	0.0	0.0	0.0	0.0	0.0	0.1	100.0
AGT Pipelines Retest ^{g/} Connecticut	0.0	0.0	0.0	0.0	0.1	66.7	0.0	0.0	0.0	0.0	0.1	33.3	0.2	100.0
TOTAL	0.0	0.0	0.0	0.0	0.2	66.7	0.0	0.0	0.0	0.0	0.1	33.3	0.3	100.0
ISLANDER EAST FACILITIES														
Islander East Pipeline														
Connecticut	11.0	51.9	2.9	13.6	3.2	14.9	1.4	6.4	1.5	7.1	1.3	6.0	21.2	100.0
New York	11.6	49.2	7.7	32.7	3.5	14.8	0.6	2.7	0.1	0.5	0.0	0.0	23.6	100.0
Subtotal	22.6	50.5	10.6	23.7	6.7	14.8	2.0	4.5	1.6	3.6	1.3	2.9	44.8	100.0
Calverton Lateral														
New York	0.0	0.0	2.3	40.6	2.4	43.7	0.5	8.9	0.0	0.0	0.4	7.1	5.6	100.0
TOTAL	22.6	44.9	12.9	25.6	9.1	18.0	2.5	5.0	1.6	3.2	1.7	3.3	50.4	100.0
Connecticut	11.0	51.2	2.9	13.5	3.4	15.8	1.4	6.5	1.5	7.0	1.3	6.0	21.5	100.0
New York	11.6	39.7	10.0	34.2	5.9	20.2	1.1	3.8	0.1	0.3	0.4	1.4	29.2	100.0
GRAND TOTAL	22.6	44.6	12.9	25.4	9.3	18.3	2.5	4.9	1.6	3.2	1.7	3.4	50.7	100.0

^{a/} Open Water – surface water crossings greater than 100 feet.

^{b/} Forested – non-agricultural wooded uplands and forested wetlands. Forested distance traversed includes forested areas in the Central Pine Barrens where clearing/surface disturbances would be avoided by use of Islander East's newly proposed HDD construction techniques (see section 3.8.3 for more detail).

^{c/} Open – non-agricultural open and scrub-shrub fields and emergent wetlands.

^{d/} Agricultural – actively cultivated uplands, farmed wetlands, hay fields, tree farms, orchards, and nurseries. Also includes fence lines, windbreaks, and shelter belts within agricultural areas.

^{e/} Com./Ind. – existing commercial and industrial developments including retail stores, office buildings, manufacturing plants, utility stations, and associated with rock quarries, and shipping terminals. Also includes existing access roads, railroad crossings, and road crossings greater than 50 feet wide.

^{f/} Residential – existing rural, suburban, and urban residential developments.

^{g/} Includes only those areas where ground disturbance work is required.

Note: Land uses were assigned based on the predominant use across the proposed right-of-way. Some calculation differences may occur due to rounding.

Commercial/industrial lands include existing or planned commercial and industrial developments, such as retail stores, office buildings, manufacturing plants, utility stations, and land associated with rock quarries and shipping terminals, as well as road and railroad crossings greater than 50 feet wide. See section 3.8.2 for more detail regarding commercial/industrial areas crossed by the project.

Residential lands crossed include existing and planned rural and suburban residential developments. See section 3.8.2 for more details regarding residential areas crossed by the project.

TABLE 3.8.1-2
Land Uses at New Aboveground Facilities ^{a/}

Facility	MP	County, State	Land Use	Acres to be Affected	
				Construction	Operation
ALGONQUIN FACILITIES					
Cheshire Compressor Station	0.0	New Haven, CT	Agricultural Forested	6.0 and 4.0 ^{b/}	3.2 and 4.0 ^{b/}
Launcher Removal	0.6	New Haven, CT	Com./Ind. ^{c/}	0.5	0.0
ISLANDER EAST FACILITIES					
North Haven Meter Station	0.0	New Haven, CT	Com./Ind. ^{c/}	0.8	0.8
Brookhaven Meter Station	44.8	Suffolk, NY	Forested	2.4	1.2
AES Calverton Meter Station	5.6	Suffolk, NY	Open	1.8	0.3
GRAND TOTAL				15.5	9.5
Forested				6.4	5.2
Agricultural				6.0	3.2
Open				1.8	0.3
Commercial/Industrial				1.3	0.8

^{a/} Land use requirements for mainline valves are not included in this table because they would be located within compressor or meter station properties or the permanent right-of-way.
^{b/} Does not include acreage associated with the compressor station access road; access road acreages are included in table 3.8.1-3.
^{c/} Com./Ind. = Commercial/Industrial

3.8.1.2 Environmental Consequences

Temporary and permanent land use impacts would generally result from the clearing of land for installation of the pipeline and aboveground facilities, construction across the Sound, and the operation and maintenance of the pipeline right-of-way and aboveground facilities. Table 3.8.1-3 presents the land use acreage impacts associated with construction and operation of the pipeline, aboveground facilities, and access roads.

Construction of the Algonquin and Islander East pipelines and aboveground facilities would disturb about 590.4 acres, including 567.5 acres for workspace associated with pipeline construction, anomaly repair, and testing; 15.5 acres for construction of aboveground facilities, and 7.4 acres for access roads. See table 3.8.1-3 for a detailed breakdown of these totals by project component. In addition, a total of about 85.1 acres would be used temporarily for pipe storage, railyards, and contractor staging areas during construction (Table 3.8.1-4).

Algonquin would purchase a 61-acre site for the Cheshire Compressor Station, of which about 10 acres (6 acres of agricultural and 4 acres of forested land) would be disturbed during construction. Following construction, 7.2 acres (3.2 acres of the agricultural land and 4 acres of forest) would be permanently converted to industrial use associated with compressor station operations. The remainder of land at this site would remain essentially in its present state and be used as a forested visual and noise buffer to surrounding uses.

Construction of the North Haven Meter Station would require 0.8 acre of commercial-industrial land, the Brookhaven Meter Station would require 2.4 acres in forest land, and the AES Calverton Meter Station would require 1.8 acres in an open area. Operation of these areas would require 0.8, 1.2, and 0.3 acres, respectively.

TABLE 3.8.1-3

Acres Affected by Construction and Operation

	Open Water ^{a/}		Forested ^{b/}		Open ^{c/}		Agricultural ^{d/}		Com./Ind. ^{e/}		Residential ^{f/}		Total	
	Con. ^{g/}	Op. ^{h/}	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.
ALGONQUIN FACILITIES														
Connecticut														
Work Area ^{i/}	0.0	0.0	0.3	0.1	1.4	0.9	0.0	0.0	0.0	0.0	1.0	0.6	2.7	1.6
Access Roads	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5	0.6	0.1	0.0	0.0	2.1	1.6
Aboveground Facilities	0.0	0.0	4.0	4.0	0.0	0.0	6.0	3.2	0.5	0.0	0.0	0.0	10.5	7.2
TOTAL	0.0	0.0	4.3	4.1	1.4	0.9	7.5	4.7	1.1	0.1	1.0	0.6	15.3	10.4
ISLANDER EAST FACILITIES														
Islander East Pipeline														
Connecticut														
Work Area ^{i/}	195.1	13.3	32.1	16.4	30.6	18.7	16.3	8.3	21.1	10.2	13.3	7.6	308.5	74.5
Access Roads	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	3.3	1.0	0.1	0.0	3.5	1.0
Aboveground Facilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.0	0.0	0.8	0.8
Subtotal	195.1	13.3	32.1	16.4	30.7	18.7	16.3	8.3	25.2	12.0	13.4	7.6	312.8	76.3
New York														
Work Area ^{i/}	103.5	14.1	65.2	41.7	27.0	16.4	7.0	3.9	3.3	0.7	0.0	0.0	217.1	76.8
Access Roads	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0	1.7	1.7
Aboveground Facilities	0.0	0.0	2.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	1.2
Subtotal	103.5	14.1	68.1	43.4	27.0	16.4	7.0	3.9	4.5	1.9	0.0	0.0	221.2	79.7
Calverton Lateral														
New York														
Work Area ^{i/}	0.0	0.0	21.0	13.5	22.2	14.6	5.5	2.9	0.0	0.0	4.2	2.3	53.0	33.4
Access Roads	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0
Aboveground Facilities	0.0	0.0	0.0	0.0	1.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.3
Subtotal	0.0	0.0	21.0	13.5	24.0	14.9	5.5	2.9	0.1	0.0	4.2	2.3	54.9	33.7
TOTAL ISLANDER EAST														
Work Area ^{i/}	298.6	27.4	118.3	71.6	39.8	49.7	28.8	15.1	24.4	10.9	17.5	9.9	567.5	184.7
Access Roads	0.0	0.0	0.5	0.5	0.1	0.0	0.0	0.0	4.6	2.2	0.1	0.0	5.3	2.7
Aboveground Facilities	0.0	0.0	2.4	1.2	1.8	0.3	0.0	0.0	0.8	0.8	0.0	0.0	5.0	2.3
Total	298.6	27.4	21.2	73.3	81.7	50.0	28.8	15.1	29.8	13.9	17.6	9.9	577.8	189.7
TOTAL BY STATE														
Connecticut														
Work Area ^{i/}	195.1	13.3	32.4	16.5	32.0	19.6	16.3	8.3	21.1	10.2	14.3	8.2	311.2	76.1
Access Roads	0.0	0.0	0.0	0.0	0.1	0.0	1.5	1.5	3.9	1.1	0.1	0.0	5.6	2.6
Aboveground Facilities	0.0	0.0	4.0	4.0	0.0	0.0	6.0	3.2	1.3	0.8	0.0	0.0	11.3	8.0
Subtotal	195.1	13.3	36.4	20.5	32.1	19.6	23.8	13.0	26.3	12.1	14.4	8.2	328.1	86.7
New York														
Work Area ^{i/}	103.5	14.1	86.2	55.2	49.2	31.0	12.5	6.8	3.3	0.7	4.2	2.3	259.0	110.2
Access Roads	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	1.3	1.2	0.0	0.0	1.8	1.7
Aboveground Facilities	0.0	0.0	2.4	1.2	1.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	4.2	1.5
Subtotal	103.5	14.1	89.1	56.9	51.0	31.3	12.5	6.8	4.6	1.9	4.2	2.3	265.0	113.4
GRAND TOTAL														
Work Area ^{i/}	298.6	27.4	118.6	71.7	81.2	30.6	28.8	15.1	24.4	10.9	18.5	10.5	567.5	186.3
Access Roads	0.0	0.0	0.5	0.5	0.1	0.0	1.5	1.5	5.2	2.3	0.1	0.0	7.4	4.3
Aboveground Facilities	0.0	0.0	6.4	5.2	1.8	0.3	6.0	3.2	1.3	0.8	0.0	0.0	15.5	9.5
	298.6	27.4	125.5	77.4	83.1	50.9	36.3	19.8	30.9	14.0	18.6	10.5	590.4	200.1

a/ Open Water – surface water crossings greater than 100 feet. The construction right-of-way is assumed to be 80-foot-wide and the total acreage does not include the estimated 2,807 acres outside of the construction right-of-way affected by cable sweep.

b/ Forested – non-agricultural wooded uplands and forested wetlands.

c/ Open – non-agricultural open and scrub-shrub fields and emergent wetlands (including existing rights-of-way).

d/ Agricultural – actively cultivated uplands, farmed wetlands, hay fields, tree farms, orchards, and nurseries. Also includes fence lines, windbreaks, and shelter belts within agricultural areas.

e/ Com./Ind. – existing commercial and industrial developments including retail stores, office buildings, manufacturing plants, utility stations, and associated with rock quarries, and shipping terminals. Also includes existing access roads, railroad crossings, and road crossings greater than 50 feet wide.

f/ Residential – existing rural, suburban, and urban residential developments.

g/ Con. = Construction

h/ Op. = Operation

i/ Construction work area includes construction right-of-way and additional temporary workspace areas. Operation work area is the permanent right-of-way, which was assumed to be generally 50 feet wide. Some areas would have less than a 50-foot-wide permanent right-of-way so actual operational area may be less than shown.

TABLE 3.8.1-4
Acres Affected by Use of Temporary Pipe Storage/Contractor Yards and Port Facilities

Facility/County/State	Yard	Acres	Existing Land Use
Islander East			
Hartford County, CT	Cheshire Compressor Station Pipe Yard	5.7	Agricultural Land
New Haven County, CT	Anastasio Pipe Yard	41.0	Industrial (rail line switch yard)
New Haven County, CT	Guilford Pipe Yard	13.9	Previously disturbed open land
New Haven County, CT	Branford Pipe Yard	7.2	Previously disturbed open land
New Haven County, CT	Gateway Marine Terminal (port facilities supporting the Long Island Sound crossing)	lease amount to be determined	Industrial (existing marine terminal)
Suffolk County, NY	Brookhaven Rail Yard	5.9	Existing rail yard within Brookhaven National Laboratory
Calverton Lateral			
Suffolk County, NY	Calverton Pipe Yard	11.4	Open/old field (former agricultural land)
Total:		85.1	
(plus lease amount to be determined at Gateway Marine Terminal)			

Right-of-Way Easements

An easement would be used to convey both temporary (for construction) and permanent rights-of-way to the pipeline company. The easement gives the company the right to construct, operate, and maintain the pipeline, and establish a permanent right-of-way. In return, the company compensates the landowner for the use of the land. The easement negotiations between the company and the landowner typically specifies compensation for loss of use during construction, loss of non-renewable or other resources, and allowable uses of the right-of-way after construction.

If an easement cannot be negotiated with the landowner and the project has been certificated by the Commission, the company may use the right of eminent domain granted to it under section 7(h) of the NGA and the procedure set forth under the Federal Rules of Civil Procedure (Rule 71A) to obtain the right-of-way and extra workspace areas. The company would still be required to compensate the landowner for the right-of-way, and for any damages incurred during construction. However, the level of compensation would be determined by a court according to state law once Islander East is issued a certificate. In either case, Islander East would compensate landowners for the use of the land. Permits and approvals would be obtained, as needed, for pipeline crossings of roads, railroads, and waterbodies. Algonquin would purchase land for the compressor station and

would conduct its other proposed activities on land previously acquired in fee or by executing easements.

Open Water Impacts and Mitigation Measures

Pipeline construction across the Sound would result in short-term impacts on water-related uses. Impacts would be limited to the duration of construction and include potential disruption of commercial fishing, vessel traffic, and navigation buoys. Islander East proposes to reduce these impacts primarily by constructing the pipeline during the winter when commercial and recreational fishing, recreational boating and boat tour traffic and use is reduced. In addition, Islander East expects pipe laying to proceed at about 3,500 to 4,000 feet per day. The pipe would be buried 3 feet below the sea floor in off-shore areas, thereby eliminating the risk associated with catching on underwater obstructions such as fishing gear. During operation, no impacts on fishing operations, ship movement, or boating are expected.

Commercial Fishing

Commercial fishing, including shellfishing, is an important industry in this region. The Sound pipeline segment would cross seven shellfish lease areas used for clams and/or oysters (included in table 3.8.3-1). However, two of these lease areas have been unlisted by the State of Connecticut and are currently not in commercial use; therefore, the pipeline crossing would not significantly affect shellfishing in these areas. Islander East would avoid four of these areas by using the HDD crossing methods at the Connecticut shore. One shellfish lease area (lease L-555 at MP 12.6, leased by Nicholas J. Crismale) would be directly disturbed by trench excavation for 2,216 linear feet. In addition, three other lease areas (L-473 near MP 11.7, L-572 near MP 12.2, and L-559 near MP 13.6) would not be crossed by the pipeline, but are located in the anchor corridor associated with the construction barges. The area of these three leased shellfish bed areas that would be subjected to potential anchor disturbance is 1.3, 14.7, and 4.5 acres, respectively. Potential impacts of pipeline construction on shellfish areas are described in section 3.4.1.2.

Islander East has been negotiating with shellfish bed leaseholders regarding crossing agreements to compensate the leaseholders for potential damage to their business and shellfish that they own, similar to payments made to farmers for crop damages. As of early July 2002, Islander East has executed these crossing/settlement agreements with the leaseholders of the area L-555 traversed by the pipeline, and areas L-473, L-572 and L-559 in the anchor corridor. The agreements specify payments for (1) pre-construction harvesting of shellfish within the affected area, (2) coordination of shellfish harvesting activities in anchor corridor area during pipeline construction, (3) damages during and immediately following construction, and (4) reseeded the beds with seed shellfish following construction (if desired by leaseholder). Shellfish harvested before construction can be either relocated to other areas or sent to market at the discretion of the leaseholders.

Islander East identified 25 shellfish lease areas that would not be traversed by the pipeline, but are located within 0.25 mile of the pipeline route. To define potential areas and quantities of project-induced sediment resuspension, transport, and deposition, and to assess the significance of impacts on commercial fishing and shellfish lease areas, Islander East conducted sediment deposition modeling studies, as described in section 3.3.3.

Islander East consulted with pertinent commercial fishing resource management and regulatory agencies to identify measures to avoid or minimize impacts on commercial fishing.

3.0 ENVIRONMENTAL ANALYSIS

Specifically, Islander East consulted with representatives of the State of Connecticut Department of Agriculture, Division of Aquaculture, Connecticut and Long Island Oystermen's Association, and Long Island Lobstermen's Association. Based on these consultations, Islander East proposed and is implementing the following mitigation procedures:

- Prior to construction, notify impacted groups of the exact location of the proposed pipeline prior to construction using Loran coordinates;
- Prior to construction, advise the Lobstermen's Associations of the size of the lay barge and support vessels;
- Prior to construction, notify the Lobstermen's Associations of the construction schedule to facilitate removal of fixed fishing gear, including lobster pots;
- Construct the offshore pipeline during winter months and adhere to specific construction timing restrictions established by state and Federal authorities;
- Enlist lobstermen to act as spotters during construction to identify and move fishing gear within the construction area; and
- Establish the Islander East Connecticut Lobstermen's Gear Compensation Fund and the Islander East Long Island Lobstermen's Gear Compensation Fund, administered by the respective local lobster organizations, to reimburse lobstermen for lost fishing gear due to Islander East's survey or construction activities. The funds are established in the amount of \$25,000 each, and any unused funds will remain with the associations as a donation.

Additionally, Islander East has proposed and is implementing further consultation with the representatives of impacted commercial fishery groups to:

- Coordinate and communicate with impacted groups to identify the optimal construction period to avoid or minimize potential impacts on commercial fishery operations; and
- Evaluate potential construction methods to minimize disruption to shellfish harvesting. As a result, Islander East proposes to fully bury the pipeline across the Sound and to use a combination of HDD, mechanical dredging, and subsea plowing for pipeline installation, as described in section 3.4.1.

We agree that these proposed notification and coordination measures would reduce potential impacts to commercial fishery operations.

The Town of Branford raised a concern that the proposed Islander East Pipeline Project crossing of the Sound could result in irreversible impacts to active, leased shellfish beds, and estimates that the annual cash flow value potentially affected is \$8.7 million. As stated in section 3.4.1.2, we believe that Islander East's use of the proposed HDD methods, the ESC Plan, and other proposed mitigation measures would avoid or minimize potential impacts on known shellfish beds. However, Islander East is responsible, both onshore and offshore for any damages caused by

construction activities. Islander East could be taken to court for damages, including loss of productivity to shellfish beds. If evidence is given that proves that Islander East is responsible for causing the damage, the courts would determine the proper compensation.

The CTDEP expressed concerns that project construction could conflict with commercial lobster industry activities. It notes that, although many licensed commercial lobstermen have already been contacted, it would be important to reexamine the list of potentially affected fishers if the project is not implemented in the near future. In addition, the NYSDEC expressed similar concerns.

Therefore, in accordance with our recommendation in the DEIS, Islander East has updated the list of commercial lobster and trawling license holders for the 2002 season in both Connecticut and Long Island, New York, and has provided a construction notification, project locations information, and contract information in the event of questions to these license holders (totaling about 890) in April and May 2002.

Commercial/Recreational Vessel Navigation

Minor short-term impacts to commercial and recreational vessel traffic on the Sound would result during construction, when construction barges, boats, and tender vessels would be working in the Sound. Potential impacts include increased potential for vessel collisions, harbor congestion, and disturbance from noise or vessel wakes. The proposed project avoids designated anchorage and lightening areas, and Islander East would coordinate with the U.S. Coast Guard and comply with navigation regulations and precautions throughout the construction period to minimize traffic and safety impacts. Islander East would also ensure that a Notice to Mariners was issued with installation details, and ongoing communication would be maintained with vessels in the vicinity of the project.

No significant impact on commercial shipping is expected during construction during normal conditions, as construction would move relatively quickly and sufficient clearance exists in shipping lanes to allow movement of commercial vessels around the construction areas. Impacts to recreational vessel traffic would be minimal because the planned construction of the project during the winter season would coincide with the least active season for recreational boating (including tour boats and fishing charters). In addition, Islander East would work with the U.S. Coast Guard to avoid or minimize impacts on several navigational buoys that are located along and near the pipeline route across the Sound. No significant impacts regarding these issues would result from operation of the pipeline because the pipeline would be buried in the sea floor, and the pipeline will be noted on navigational charts for added protection/safety.

It is possible that construction of the Sound portion of the pipeline could encounter severe winter storms which could affect the navigation and harbor safety of construction vessels and other vessels unrelated to construction. In preparation for potential severe winter storms during construction, a contingency plan should be developed. Therefore, **we recommend that:**

- **Prior to construction, Islander East should develop a storm contingency and harbor of refuge plans for use during construction of its offshore facilities.**

Forest Land

Forest clearing during construction would convert forested areas to cleared, open land, representing a long-term impact. Although forest cleared within the temporary construction right-of-way would be allowed to revegetate, reestablishment of preconstruction conditions could take several to many years depending on the type of forest cleared. The pipeline would be located adjacent to existing rights-of-way for 83 percent of its length (about 23.4 miles) on land, and would overlap these existing cleared areas by 5 to 50 feet, thereby minimizing forest clearing. See section 3.5.2 for more details on impacts and mitigation in forested areas.

Agricultural Land

Short-term impacts to agricultural areas could include the loss of standing crops within the construction work areas and disruption of farm operations in the vicinity of construction for one growing season during the year of construction. Potential long-term impacts include the loss of future crop productivity as a result of soil disturbance. Approximately 3.2 acres of agricultural area within the Cheshire Compressor Station property would be permanently converted to uses associated with the industrial station use. Of this, 0.2 acre is prime farmland soil.

Islander East would compensate landowners for crop loss and documented damages, and monitor crop growth for 2 years to determine the need for corrective measures regarding drainage and/or irrigation systems, or other additional restoration measures. See section 3.2.2 for more details on impacts and mitigation for actively cultivated soils.

We received comments from the landowners at MP 5.8 (Rose family) in North Branford, Connecticut, who are concerned that the project would require clearing maple trees that the family uses to make maple syrup, and fruit trees. In response to this concern and our recommendation in the DEIS, Islander East has offered a minor route modification as an alternative that would shift the pipeline 10 feet to the north after crossing Cedar Lake Road, reducing the separation between the existing AGT pipeline and the proposed pipeline, which would avoid clearing several fruit and sugar maple trees in the Rose property (tract NHV-133). This route variation is discussed in section 4.4.

Open Land

Effects of the project on open land use would be minor and short term. These undeveloped areas and existing rights-of-way with herbaceous and shrub communities would become reestablished, and the previous use would be allowed to continue within the temporary and permanent rights-of-way, after construction.

Following construction, all open land used for the temporary construction right-of-way and extra work areas would revert entirely to prior use, and the permanent upland right-of-way would be maintained in a generally grassy condition.

Although most land uses would be allowed to continue within the permanent right-of-way, certain types of uses, such as construction of permanent structures (e.g., house additions, garages, barns, pools) would be prohibited. In addition, nursery tree farms and orchards would be allowed to establish trees in the 50-foot-wide permanent right-of-way, except within a 10-foot-wide

herbaceous strip centered over the pipeline, and no trees greater than 15 feet in height would be allowed within a 30-foot-wide strip centered over the pipeline. Specific impacts to residential and commercial/industrial areas are discussed in section 3.8.2.2.

3.8.2 Residential and Commercial/Industrial Areas

3.8.2.1 Existing Environment

A total of about 1.7 miles and 18.6 acres of land associated with residences would be affected during construction of the project. During operation of the pipeline, 10.5 acres of residential land would be used for new permanent easements. Islander East identified 41 existing residences within 50 feet of the construction work areas, primarily in Connecticut (see table 3.8.2-1). Approximately 20 of these are located within 25 feet of the construction work areas, including 4 residences within or adjacent to the proposed work area. There are no residences located within 50 feet of Algonquin's proposed construction work areas for the pipeline re-test and anomaly investigations.

Two planned and/or under construction residential developments have been identified along the project, and both are located along the Calverton Lateral: The Meadowcrest subdivision (formerly known as the Mays Farm property) in the Town of Riverhead, New York and the proposed Spring Meadow subdivision in the Town of Brookhaven, New York.

The Calverton Lateral would cross the Meadowcrest subdivision, a 47-lot development featuring residential plots averaging 0.7 acre in size, from MP CA 2.0 to MP CA 2.35. During the course of our review of the Islander East project, residential construction in this development has commenced, and has been completed for approximately 13 of the residences (as of early May, 2002), and is currently ongoing. As it traverses this development, the Calverton Lateral would be routed generally along the subdivided property boundaries between approximately 12 residential properties, on which, five homes have been completed and construction of one home has been initiated (as of early May 2002).

As proposed, the Calverton Lateral would cross the proposed Spring Meadow subdivision, consisting of 50 to 75 proposed home sites, between MPs CA1.5 and CA1.7. Based on review of a conceptual site map showing proposed roads of this subdivision, it is possible that the Calverton Lateral would cross 6 to 12 homes sites. However, since issuance of the draft EIS, Islander East has proposed a route variation that would avoid crossing this subdivision (see section 4.4).

A total of about 1.6 miles and 29.4 acres of commercial/industrial lands would be affected during construction of the project. The construction right-of-way would overlap with existing rights-of-way, between 0 and 40 feet in these areas, depending on the location. During operation, 14.1 acres of commercial/industrial land would be used for new permanent easements or meter station use. The permanent right-of-way would overlap with existing rights-of-way between 0 and 50 feet in these areas. Islander East identified 15 existing commercial/industrial buildings within 50 feet of the construction work areas (see table 3.8.2-2). Twelve of these are within 25 feet of the construction work areas, including seven buildings within the proposed work area.

TABLE 3.8.2-1
Residences Within 50 Feet of the Construction Work Area

Facility/State	MP	Approximate Distance from Construction Work Area (feet) ^{a/}	Approximate Distance from Pipeline Centerline (feet)	Direction from Pipeline Centerline
ALGONQUIN FACILITIES				
Anomaly Investigations				
Connecticut	N/A	N/A	N/A	N/A
AGT Pipelines Retest Connecticut	N/A	N/A	N/A	N/A
ISLANDER EAST FACILITIES				
Islander East Pipeline				
Connecticut	0.1	10	20	West
	0.1	45	80	East
	0.1	40	75	East
	0.2	15	30	West
	0.2	10	80	East
	0.2	15	85	East
	0.3	15	50	East
	0.5	50	90	West
	0.9	15	35	West
	0.9	15	50	East
	0.9	10	110	West
	1.1	45	70	West
	3.7	15	40	East
	3.7	10	15	West
	3.7	15	40	East
	3.8	10	45	West
	3.9	35	60	East
	4.2	30	105	North
	4.2	30	110	North
	4.2	35	85	South
	4.4	10	40	South
	5.1	45	55	North
	5.1	30	75	South
	5.1	40	85	North
	5.2	0 ^{b/}	10	South
	5.2	20	55	West
	5.3	50	100	East
	5.3	10	60	West
	5.3	50	100	West
	5.4	25	75	West
	5.4	0 ^{b/}	30	West
	6.4	0 ^{b/}	35	West
	6.4	15	50	West
	6.7	50	75	East
	9.0	0	35	East
New York	37.2	>50 ft due to HDD ^{c/}	89	East
	37.2	>50 ft due to HDD ^{c/}	79	East
	37.3	>50 ft due to HDD ^{c/}	94	East
	37.9	>50 ft due to HDD ^{c/}	83	East
	38.1	>50 ft due to HDD ^{c/}	50	East
	38.2	>50 ft due to HDD ^{c/}	99	East

TABLE 3.8.2-1
Residences Within 50 Feet of the Construction Work Area (continued)

Facility/State	MP	Approximate Distance from Construction Work Area (feet) ^{a/}	Approximate Distance from Pipeline Centerline (feet)	Direction from Pipeline Centerline
Calverton Lateral	2.0 ^{d/}	N/A	N/A	N/A
	2.0 ^{d/}	N/A	N/A	N/A
	2.0 ^{d/}	N/A	N/A	N/A
	2.0 ^{d/}	N/A	N/A	N/A
	2.1 ^{d/}	N/A	N/A	N/A
	2.1 ^{d/}	N/A	N/A	N/A
	2.1 ^{d/}	N/A	N/A	N/A
	2.2 ^{d/}	N/A	N/A	N/A
	2.2 ^{d/}	N/A	N/A	N/A
	2.2 ^{d/}	N/A	N/A	N/A
	2.2 ^{d/}	N/A	N/A	N/A
	2.3 ^{d/}	N/A	N/A	N/A

a/ Includes construction right-of-way and additional temporary workspaces.
b/ Occurs adjacent to or within the construction work area.
c/ In New York, construction impacts to six residences located within 50 feet of the original proposed workspaces would be avoided through use of the HDD construction method, which avoids surface disturbance through these areas.
d/ Residential tracts are part of the Meadowcrest subdivision and are crossed by construction right-of-way. Residences not yet built, but may be within 50 feet when built (if built prior to pipeline construction).
N/A Not available

In addition, two planned commercial developments would be crossed by the pipeline route. At MP 7.30, DeMaio Realty proposes to build a new commercial development along Thompson Road. The proposed pipeline would be situated along the eastern edge of this property, along the Branford Steam Railroad. However, Islander East has offered a minor route revision that would relocate the proposed pipeline crossing the railroad about 120 feet north of the originally proposed location, which would reduce or eliminate impacts to this planned development. Section 4.4 describes this route variation in more detail.

Owners of the Roselin property (parcel number SUF-056A and 057) are seeking approval from the Town of Brookhaven for an approximately 24-acre shopping center located at approximate MPs 42.0 to 42.6, near the northwest intersection of the Long Island Expressway and the William Floyd Parkway. Islander East has reviewed the proposed site plan for the shopping center and in late May 2002 offered a route revision between MPs 41.40 and 42.37 to reduce impacts to this proposed commercial development. Section 4.4 describes this proposed route variation in more detail. The landowner has not granted Islander East survey permission for these parcels as of that time, but Islander East stated it is continuing to work with the landowner/developer to avoid/minimize impacts to this planned development.

TABLE 3.8.2-2
Commercial/Industrial Buildings Within 50 Feet of the Construction Work Area

Facility/State	MP	Approximate Distance from Construction Work Area (feet) ^{a/}	Approximate Distance from Pipeline Centerline (feet)	Direction from Pipeline Centerline
ALGONQUIN FACILITIES				
Connecticut	N/A	N/A	N/A	N/A
ISLANDER EAST FACILITIES				
Islander East Pipeline Connecticut	5.5	10	35	East
	5.7	0 ^{b/}	50	West
	6.1	15	55	North
	6.2	0 ^{b/}	30	West
	6.8	48	73	East
	7.3	0 ^{b/}	55	East
	7.8	30	60	West
	7.9	0 ^{b/}	15	East
	8.0	0 ^{b/}	15	East
	8.0	0 ^{b/}	10	East
	8.0	5	45	East
	10.1	0 ^{b/}	25	East
New York Calverton Lateral	33.6	10	40	West
New York	2.3	15	40	North
	2.4	35	50	North

^{a/} Includes construction right-of-way and additional temporary workspaces.

^{b/} Occurs within or adjacent to the construction work area.

N/A Not applicable; no commercial/industrial buildings are located within 50 feet.

3.8.2.2 Environmental Consequences

In residential areas, the two primary impacts associated with construction and operation of a pipeline are disturbance during construction and the limitation on development of future buildings or structures on the permanent right-of-way. Temporary construction impacts could include inconvenience caused by noise and dust generated by construction equipment, personnel, and trenching of roads and driveways; ground disturbance of lawns; removal of trees, landscaped shrubs, or other vegetative screening between residences and/or adjacent rights-of-way; potential damage to existing septic systems or wells; and removal of structures such as sheds or trailers, from the right-of-way. In addition, the presence of open trenches can pose a safety hazard to residents. Permanent impacts would result from the prohibition of future development within the 50-foot-wide permanent right-of-way, where structures (e.g., house additions, garages, barns, pools) and large, deep-rooted landscaping would be prohibited. However, Islander East states that it would allow fences, driveways, roads, parking lots, and shrubs less than 4 feet in height spaced more than 10 feet from the pipeline to be placed on the permanent right-of-way.

Impacts to commercial/industrial land could include temporary disruptions, inconvenience, and loss of potential revenues due to construction activities. In particular, these impacts could result from construction noise during business hours, increased dust and movement of soil particles in air, slow-moving traffic resulting from moving construction equipment and materials and/or road or lane closures during installation of the pipeline across roads. In addition, construction equipment may track soil or mud onto roadways, and heavy equipment may damage roadways.

The proposed Cheshire Compressor Station would generate increased levels of noise on a long-term, permanent basis. A detailed assessment of the existing noise environment and noise impacts and mitigation measures associated with the compressor station is provided in section 3.11.2. Based on Algonquin's plans to leave the forested buffer in place around the majority of the compressor station property, and the nature of the existing land uses in the vicinity of the property, we believe that this compressor station has been appropriately sited.

To address and reduce construction-related impacts to residential and commercial areas, Islander East proposes to:

- Avoid removal of trees and landscaping unless necessary to construct the pipeline or for the safe operation of equipment;
- For all residences within 50 feet of the construction work area, develop site-specific residential construction plans identifying mitigation measures Islander East would implement to promote safe and efficient installation with minimal residential impact;

For all residences within 50 feet of the construction work area, restore all lawns and landscaping within the construction work area within 10 days after backfilling the trench;

- Compensate the landowner for damages to landscaping and other property as necessary, in a fair and reasonable manner;
- Install and maintain construction fencing at the edge of the construction work area in residential areas for a distance of 100 feet on either side of the residence during the open trench phase to ensure that construction equipment and materials remain in the work area;
- Control fugitive dust by applying dust suppressants such as water or calcium chloride as needed to dry, exposed soils on the right-of-way or to public/private roads;
- Coordinate any required road closures with nearby businesses and local law enforcement agencies, limit road closures to 72 hours or less, and attempt to complete pipeline installation across closed roads within 24 hours, if possible;
- Establish a temporary bridge or by-pass on small roads and driveways where requested by landowners/local authorities to facilitate traffic flow during open trench phase;
- Remove excess mud and soil tracked onto roadways as soon as practicable;

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- Prevent damage to roads from tracked vehicles by placing rubber mats, tires, and/or plywood sheet under equipment while on roads; and
- Coordinate with appropriate transportation authorities regarding the need for road repairs following construction.

Islander East has not yet submitted to the Commission site-specific residential construction plans for our review. Therefore, we recommend that:

- **For any residence closer than 25 feet to the construction work area, Islander East should file a site-specific plan with the Secretary for the review and written approval of the Director of OEP before construction. The plan should include:**
 - a. **a description of construction techniques to be used (such as reduced pipeline separation, centerline adjustment, use of stove-pipe or drag-section techniques, working over existing pipelines, pipeline crossover, bore, etc.), and include a dimensioned site plan that shows:**
 - (1) **the location of the residence in relation to the new pipeline and, where appropriate, the existing pipelines;**
 - (2) **the edge of the construction work area;**
 - (3) **the edge of the new permanent right-of-way; and**
 - (4) **other nearby residences, structures, roads, or waterbodies.**
 - b. **a description of how Islander East will ensure the trench is not excavated until the pipe is ready for installation and the trench is backfilled immediately after pipe installation; and**
 - c. **evidence of landowner concurrence if the construction work area and fencing will be located within 10 feet of a residence.**

We believe that Islander East's proposed measures to reduce impacts are adequate to address the major impact issues typically associated with construction in residential areas. However, due to the high level of sensitivity of residential areas and the potential for daily construction and construction-related activities to create an inconvenience or nuisance in these areas, specific landowner issues arise often which are difficult to anticipate during preconstruction planning. Further, these impacts can often be easily resolved if lines of communication are open between the landowners and the pipeline company, and the company establishes a procedure for receiving and addressing landowner complaints. Therefore, we recommend that:

- **Islander East and Algonquin should develop and implement an environmental complaint resolution procedure. The procedure should provide landowners with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the project and restoration of the right-of-way, prior to construction. Islander East and Algonquin should mail the complaint procedures to each landowner whose property would be crossed by the project. In a letter to affected landowners, Islander East and Algonquin should:**

- a. provide a local contact that the landowner should call first with their concerns, the letter should indicate how soon a landowner should expect a response;
- b. instruct the landowner that if they are not satisfied with the response to call Islander East and Algonquin's Hotline, the letter should indicate how soon a landowner should expect a response; and
- c. instruct the landowner that if they are still not satisfied with the response from Islander East and Algonquin's Hotline, they should contact the Commission's Enforcement Hotline at (877) 303-4340.

In addition, Islander East and Algonquin should include in weekly/bi-weekly status reports a copy of a table that contains the following information for each problem/concern:

- the date of the call;
- the identification number from the certified alignment sheets of the affected property;
- the description of the concern/problem; and
- an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved.

Site-Specific Issues

One commentor near MP 5.5 was concerned that pipeline construction and operation would limit her ability to farm along the full permanent right-of-way. Once construction is complete, farming (including the use of farm equipment) would be allowed on the full right-of-way. However, as mentioned in section 3.8.1.2 under "open land," nursery tree farms and orchards would be allowed to establish trees in the 50-foot-wide permanent right-of-way, except within a 10-foot-wide herbaceous strip center over the pipeline, and not trees greater than 15 feet in height would be allowed within a 30-foot-wide strip centered over the pipeline. We believe that strict implementation of Islander East's ESC Plan would mitigate impacts to this agricultural land and that impacts to soil productivity would be short-term and temporary in nature.

One commentor was concerned that pipeline construction may damage his septic field and that Islander East would not be able to repair it to be in compliance with the local codes. Because public sewer is not available in this area, that is not a feasible option. In response to this concern, Islander East stated during the site visit on October 16, 2001 that during construction it would provide a disposal service as necessary to empty the septic tank in the event that the field is inoperable, or provide alternate lodging. In addition, Islander East has offered to employ a qualified engineer to design and install a replacement septic system that they guarantee would meet applicable codes, if pipeline construction damages the existing septic system. However, Islander East has not gained access to the property to determine if rebuilding this septic system to code is feasible. Therefore, we recommend that:

- Before construction, Islander East should inspect Mr. Nargi's property at MP 8.9 to determine the feasibility of reconstructing this septic system to code on the land available outside of the proposed pipeline right-of-way and file this information with the Secretary.

Near MP 7.2, the route crosses a long, narrow piece of land owned by Mr. Ghiroli and used for his landscaping business. Mr. Ghiroli has stated that construction of the pipeline would limit his business' use of the property and put him out of business. The property is bounded on the west by a stream and wetlands and on the east by the Branford Steam Railroad and a concrete plant. Islander East proposes to place the pipeline in an erosion control berm on the west side of the property to avoid conflicts with Mr. Ghiroli's operation.

In response to our recommendation, Islander East has reconsidered its proposed routing in this area to reduce impacts to Mr. Ghiroli's property, and has proposed a route variation between MPs 6.95 and 7.31 that would relocate the pipeline to the west side of the property. In addition, Islander East has agreed to install the pipeline with a minimum of 5 feet of cover between MPs 6.99 and 7.02 of the route variation to safety allow Mr. Ghiroli's operation of heavy equipment over the pipeline, and would install additional protective devices to prevent excavation over the pipeline. Although the proposed route involves greater wetlands impacts than the original route through this area, Islander East has proposed to reduce its construction right-of-way on Mr. Ghiroli's property to 75 feet to reduce wetland impacts. Islander East stated it would continue working with Mr. Ghiroli to develop procedures to minimize impacts on his operations during construction. Section 4.4 describes Islander East's proposed route variation in more detail.

Mr. Edward Avery (MP 38.2) expressed concerns that construction would disturb or harm his preserve for exotic parrots located near the proposed project along the William Floyd Parkway. Although construction activities would cause increased noise periodically and may endure for a number of days at a time, we believe that the parrots are likely adapted to a certain level of prolonged noise disturbance due to the preserve's location next to the heavily used highway. Moreover, Islander East has offered alternative construction methods through the Central Pine Barrens area, including a HDD segment that would eliminate construction within 350 feet of Mr. Avery's property. This alternative is discussed in more detail in section 3.8.3.2, under the Central Pine Barrens. We believe that this alternative construction technique would minimize impacts to Mr. Avery's parrots.

Some commentors were concerned about the removal of trees in the Central Pine Barrens that currently provide screening between residences and the Williams Floyd Parkway between MPs 36.5 and 38.5. Islander East has recently offered HDD as an alternative construction method through this area, which would eliminate the need for tree clearing along much of the proposed route through this area. See section 3.8.3.2 for further discussion of HDD construction methods in the Central Pine Barrens.

New Subdivisions

Two new residential subdivisions, the Meadowcrest and Spring Meadow developments, would be crossed by the Calverton Lateral between MPs CA2.0 to CA2.35 and MPs CA1.5 to CA1.7, respectively. The Meadowcrest development is currently under construction and at least one residence is now located within 50 feet of the pipeline construction workspace, and the pipeline would be routed near the boundaries of 9 to 11 other residential parcels. Construction of the Spring Meadow subdivision has not yet commenced, but it is possible that the pipeline would cross 6 to 12 future residential parcels. Depending on construction timing, residents could be impacted by noise, dust, increased traffic levels, and or traffic delays during construction of the pipeline.

Islander East stated it has explored alternative routing to entirely avoid the Meadowcrest development, but has not discovered any acceptable routes, as any reasonable alternatives would require locating the pipeline in order and more developed residential communities where space is limited by existing development and damage to more established trees and landscaping would be greater. Islander East has identified a potential alternative route through the Meadowcrest subdivision which would reduce impacts to individual development sites by routing along the roads of the community, reducing the number of development sites traversed from 12 to two, and would also avoid impacts to lots number 5, 10, and 11, which have already been developed. However, Islander East has not yet been granted permission to conduct detailed surveys through the Meadowcrest subdivision or have productive discussions with the developer.

Islander East met with the site developer for Spring Meadow in May 2002 and learned that a portion of this originally proposed development will not be constructed because it was deeded to Suffolk County, New York as open space. Islander East has offered a route variation from MPs 1.45 to 1.81 which would avoid crossing the Spring Meadows subdivision. This route variation is discussed in detail on section 4.4.

Due to the ongoing status of construction in the Meadowcrest subdivision and the potential construction of the Spring Meadows subdivision before Islander East's project is constructed, we recommend that:

- **Prior to construction, Islander East should file with the Secretary an updated list of residences within 50 feet of the construction workspace areas in the Meadowcrest subdivision (MPs CA2.0 to CA2.35) and the Spring Meadow subdivision (MPs CA1.5 to CA1.7). Islander East should include any newly-identified residences within 25 feet of construction in its requirement for preparation of site-specific plans.**

All-Terrain Vehicle (ATV) Use of Right-Of-Way

We received some comments from residents along the pipeline route who were concerned about increased use of the right-of-way by ATVs as a result of the project. This occurrence has been observed on numerous other utility line projects, where vegetation clearing and grading/restoration from construction activities opens a new or more easily navigable existing corridor. The Islander East right-of-way would still be owned by private landowners (Islander East would purchase easements rather than purchasing the land outright), and therefore, the new right-of-way is not public land. Accordingly, ATV use of the right-of-way without landowner permission may be trespassing (subject to state law). Adverse effects of ATV use on utility rights-of-way include soil and vegetation disturbance increasing the potential for erosion; damage to stream banks and other natural resources; and noise, soil rutting, and general nuisance to landowners. In general, the level of increased ATV use varies depending on the popularity of this sport in the area, the accessibility or number of access points to the right-of-way, and the availability of alternate trails for ATV recreationalists. Because the majority (83 percent) of the project route on land is aligned parallel and adjacent to maintained existing rights-of-way that may already be subject to ATV use, the increase in use by ATVs as a result of the project should be less since it is not creating new right-of-way. However, based on experience with other projects, we believe that some level of additional ATV use could occur on the new right-of-way. In addition, increased ATV use may occur on the new right-of-way that parallels existing roads, and could create new entries to public lands adjacent

to the pipeline right-of-way. Many pipeline companies attempt to reduce this occurrence through installation of substantial barriers (such as earthen berms, boulders, gates, or fences) at right-of-way access points (e.g., road crossings), and through public outreach/education. To address this issue, we recommend that:

- **Prior to construction, Islander East should develop, with affected landowners or land managers, if requested, and file with the Secretary, a description of how it would control or limit potential all-terrain vehicle use and damage on its right-of-way. Installation of barriers such as gated fences or other obstructions or devices should be considered.**

Future Utility Development

A few commentors were concerned about the new pipeline creating potential for future additional utility development in the same right-of-way and the resulting further encroachment on their properties. Although utility line planners do attempt to align linear projects along existing utility or other transportation corridors to the extent possible, the mere presence of an existing corridor does not by itself determine future utility line routes. Many other factors influence the design of utility projects, including market demand which determines the commodity origination and delivery (customers and potential customers) points; availability of other corridors; and engineering, environmental, landowner, land use, and regulatory constraints. Due to the unpredictability of these factors working together, we believe it is not practicable to predict the outcome or evaluate the potential for future additional utility line development in any one corridor since this would be speculative.

3.8.3 Recreational and Public Interest Areas

3.8.3.1 Existing Environment

The Algonquin and Islander East project facilities would not cross any Native American reservations, national forests, national natural landmarks, nationally designated wild and scenic rivers, wildlife management areas, or registered national landmarks. The project would, however, cross several recreational and public interest areas, as identified in table 3.8.3-1.

TABLE 3.8.3-1
Special Use Areas Crossed by or in the Vicinity of the Islander East Pipeline Project

Special Use Area	MP	Distance Crossed	Landowner/ Manager	Description of Area	Potential Impact and Applicant's Proposed Mitigation
New Haven County, Connecticut					
AGT Pipelines ReTest					
Quinnipiac River State Park	8.9	N/A (work at existing valve site only)	CTDEP, Bureau of Outdoor Recreation	State park along Quinnipiac River corridor	Proposed test manifold location #3 and fill site located at existing tap valve site along existing pipeline ROW in state park, adjacent to Wilbur Cross Parkway. Workspace limited to open areas along existing pipeline and tap facility adjacent to Wilbur Cross Parkway, negligible to no impact to recreation use expected. No special mitigation measures have been proposed.
Islander East Pipeline					
Land Trust	0.3	320 ft	North Haven Land Trust, Inc.	Dedicated open space for preservation	No conservation easements specifically prohibiting pipeline installation have been identified by Islander East for the land trusts. Pipeline would be aligned parallel to, and would partly overlap, the existing AGT right-of-way through property.
All Saints Cemetery	0.5	900 ft	Catholic Cemeteries Association of the Archdiocese of Hartford	Burial grounds	About 450 ft would be adjacent to Velvet Dr. and 450 ft would cross cemetery. As a result of Islander East's evaluation for unmarked graves, a minor route variation that would avoid existing cemetery plots was considered (see section 4.4)

TABLE 3.8.3-1
Special Use Areas Crossed by or in the Vicinity of the Islander East Pipeline Project (continued)

Special Use Area	MP	Distance Crossed	Landowner/ Manager	Description of Area	Potential Impact and Applicant's Proposed Mitigation
Land Trust	4.2, 4.3	340 ft	North Branford Land Trust	Dedicated open space for preservation	No conservation easements specifically prohibiting pipeline installation have been identified for the land trusts. Pipeline would be aligned parallel to, and would partly overlap the existing AGT right-of-way through these properties. A minor route variation that would reduce the separation between the proposed and existing pipelines on the land trust property at MP 4.3 was considered (see section 4.4). Islander East is developing a construction, restoration and invasive species control plan for Branford Land Trust Properties that can be applied to other land trusts if requested.
Branford Steam Railroad	Adjacent to 6.1-10.1	Adjacent for 4 mi	Tilcon Minerals, Inc.	Transport from Tilcon Quarry (private tap rock quarry 600+ ft. north of MPs 4.8 to 6.0) to barge terminal	Pipeline is routed adjacent to railroad, with a minimum separation of 25 feet between the proposed pipeline and the nearest rail. Islander East intends to work with Tilcon to minimize disruptions and interference with railroad operations during construction.
Land Trust	8.1 8.5 8.9 9.7	400 ft 35 ft 200 ft 880 ft	Branford Land Trust, Inc.	Dedicated open space for preservation	Islander East believes a buried pipeline is not inconsistent with the open space use of this property and would continue to consult Branford Land Trust, Inc. regarding the most appropriate ways to avoid or minimize impacts on these areas, including a trail crossed at MP 10. (See section 4.4 for alternative route variations considered on Branford Land Trust parcels).
Wightwood School	8.9	Adjacent for 250 ft		Private, progressive education facility for pre-kindergarten through 8 th grade.	Pipeline would be constructed about 160 ft from school building, and workspace would be located within 100 ft of building, within 70 ft of school parking area, and adjacent to school yard. Pipeline would be adjacent to, and on the opposite side of, Branford Steam Railroad through this area. A minor route variation was considered that would result in crossing over to the other side of the railroad further from the school (see section 4.4).

TABLE 3.8.3-1
Special Use Areas Crossed by or in the Vicinity of the Islander East Pipeline Project (continued)

Special Use Area	MP	Distance Crossed	Landowner/Manager	Description of Area	Potential Impact and Applicant's Proposed Mitigation
Highway 146	8.9	50 ft	Connecticut Department of Transportation	State-designated scenic road	Pipeline is routed adjacent to Branford Steam Railroad at point of crossing. Construction workspace would be a total of 100 ft. wide on north side of crossing, 50 ft. on south side.
Tilcon Barge Terminal	10.1-10.2	500 ft	Tilcon Minerals, Inc.	Marine shipping terminal	Minimal impact is expected during construction. Islander East intends to work with Tilcon to minimize disruptions.
Long Island Sound					
Thimble Islands	10.3 - ~12.0	(not crossed, but nearby)	Public and Private Ownership	Group of 32 habitable and up to 365 total islands of pink granite off Connecticut shore. Valued for tourism, cultural and historic aspects, waterfowl habitat, and shellfishing areas.	Pipeline would not cross any island, but would be located within 1 mile of several islands, including Andrews, Lewis, and Rogers Islands which are within 60 to 650 ft. Potential impacts would be short-term and consist primarily of suspended sediments and noise/nuisance associated with construction and associated boat traffic. Islander East proposes to use a combination of HDD, mechanical dredging, and subsea plowing for pipeline installation, as described in section 3.4.1.
Commercial Fishing	10.4 10.4 10.5 10.6	200 ft 413 ft 519 ft 890 ft	Town of Branford Jurisdiction, Lessee: Edward P. Lang	Shellfish Bed Lease Area #168 Shellfish Bed Lease Area #169 Shellfish Bed Lease Area #161 Shellfish Bed Lease Area #170	Direct impacts would be avoided through use of HDD construction methods. Islander East proposes to construct the offshore pipeline during winter months and has also: - Notified impacted groups of the exact location of the pipeline; - Coordinated and communicated with impacted groups on timing of construction; - Evaluated potential construction methods to minimize disruption to shellfish harvesting; and - Conducted sediment deposition studies to define potential areas of impact.

TABLE 3.8.3-1
Special Use Areas Crossed by or in the Vicinity of the Islander East Pipeline Project (continued)

Special Use Area	MP	Distance Crossed	Landowner/ Manager	Description of Area	Potential Impact and Applicant's Proposed Mitigation
Commercial Fishing	11.9	1,059 ft	State of CT	Shellfish Bed Lease Areas (Unlisted #1) (Unlisted #2)	Beds were unlisted by the state and are not under commercial production. Islander East proposes to construct the offshore pipeline during winter months and has also: - Notified impacted groups of the exact location of the proposed pipeline; - Coordinated and communicated with impacted groups on timing of construction; - Evaluated potential construction methods to minimize disruption to shellfish harvesting; and - Conducted sediment deposition studies to define potential areas of impact.
	12.1	2,866 ft	Jurisdiction, Lessee: NA		
Commercial Fishing	11.7	(not crossed; 1.31 acres within anchor corridor)	State of CT jurisdiction, Lessee: Riverpoint Shellfish	Shellfish Bed Lease Area L-473	Agreement is in place between Islander East and leaseholders, including provisions for: - preconstruction harvesting of clams within the affected area; - coordination of clam harvesting activities in the anchor corridor area; and - damages during and immediately following construction (Leaseholders did not elect to re-seed following construction).
	12.2	(not crossed; 14.7 acres within anchor corridor)	Lessee: Riverpoint Shellfish	Shellfish Bed Lease Area #L-572	

TABLE 3.8.3-1
Special Use Areas Crossed by or in the Vicinity of the Islander East Pipeline Project (continued)

Special Use Area	MP	Distance Crossed	Landowner/Manager	Description of Area	Potential Impact and Applicant's Proposed Mitigation
Commercial Fishing	12.6	2,216 ft	State of CT Jurisdiction, Lessee: Nicholas J. Crimsale/ Branford River Lobster Company	Shellfish Bed Lease Area #L-555	Actively cultivated shellfish bed. Crossing agreement is in place between Islander East and leaseholder, including provisions for: <ul style="list-style-type: none"> - pre-construction harvesting of clams within 100 feet of the proposed pipeline; - coordination of clam harvesting activities in anchor corridor during construction; - damages during and immediately following construction; and - reseeding the bed with seed clams following construction.
	13.6	(not crossed; 4.5 acres within anchor corridor)	State of CT jurisdiction; Lessee: Papa C.	Shellfish Bed Lease Area #L-559	Actively cultivated shellfish bed. Crossing agreement is in place between Islander East and leaseholder, including provisions for: <ul style="list-style-type: none"> - pre-construction harvesting of shellfish within the affected area of the leasebed - damages during and immediately following construction; and - reseeding the bed with clams and/or oysters outside of the work area.

TABLE 3.8.3-1
Special Use Areas Crossed by or in the Vicinity of the Islander East Pipeline Project (continued)

Special Use Area	MP	Distance Crossed	Landowner/ Manager	Description of Area	Potential Impact and Applicant's Proposed Mitigation
Commercial Fishing	10.2-32.8	22.6 mi	NA	Lobster Trapping	<p>Islander East proposes to construct the offshore pipeline during the winter months and have a lobsterman act as a spotter during construction to identify and move fishing gear within the construction area, and has also:</p> <ul style="list-style-type: none"> - Notified the Long Island and Connecticut lobstermen's associations of the exact location of the proposed pipeline prior to construction using the lotan coordinates; - Advised the Lobstermen's Associations of the size of the lay barge and support vessels; - Notified the Lobstermen's Associations of the construction schedule to facilitate removal of lobster pots prior to construction; - Established gear compensation funds to reimburse lobstermen for any fishing gear lost due to Islander East's survey or construction activities;
Recreational Fishing and Boating	10.2-32.8	22.6 mi	NA	Charter and recreational boats offshore open water	<p>Negligible to minor impacts during construction phase only. The offshore construction equipment would have limited presence in both space and duration at any one location. Also, size of channel is large enough that boats would have access to other parts of channel around construction path.</p> <p>Additionally, Islander East proposes to construct the offshore pipeline during winter months when recreational fishing and boating is reduced.</p>

TABLE 3.8.3-1
Special Use Areas Crossed by or in the Vicinity of the Islander East Pipeline Project (continued)

Special Use Area	MP	Distance Crossed	Landowner/ Manager	Description of Area	Potential Impact and Applicant's Proposed Mitigation
Vessel Traffic	10.2-32.8	22.6 mi	NA	Commercial shipping offshore shipping lanes	Minor impacts during construction phase only. The offshore construction equipment would have limited presence in both space and duration at any one location. Also, size of channel is large enough that vessels would have access to other parts of channel around construction path. Additionally, Islander East proposes to: - Comply with navigation regulations and precautions to avoid impeding vessel traffic; - Coordinate with the U.S. Coast Guard; - Issue a Notice to Mariners prior to construction; and - Construct the offshore pipeline during the winter months.
Vessel Traffic	10.2-32.8	22.6 mi	NA	Guided boat tours of Long Island Sound and the Thimble Islands	No impact is expected. Islander East proposes to construct offshore pipeline during winter months when tour boats are not active.
Mooring Fields	10.2-10.4	0.2 mi	NA	Small dolphin/boat mooring area	No impact expected due to proposed HDD in this area.
Lightering Fields (for fuel ship product transfer/unloading)	2,000 ft west of MP 19.3	NA	U.S. Coast Guard (USCG) Group/MISO Long Island Sound	Nearest lightering field is 2,000 ft west of pipeline	Field would not be directly impacted. Pipeline route was designed to avoid existing lightering field. Laws prohibit lightering fields to be above pipelines or cables.
Discontinued dumping ground	2,000 ft west of MP 19.3	NA	State of Connecticut	Discontinued dumping ground	Discontinued dumping ground would not be directly impacted. Pipeline passes 2,000 ft east of the discontinued dumping ground.

TABLE 3.8.3-1
Special Use Areas Crossed by or in the Vicinity of the Islander East Pipeline Project (continued)

Special Use Area	MP	Distance Crossed	Landowner/Manager	Description of Area	Potential Impact and Applicant's Proposed Mitigation
Navigation Buoy	10.2 - 32.8 (various locations in Long Island Sound)	NA	U.S. Coast Guard	Navigation buoys	Islander East proposes to work with the USCG to avoid or minimize impact to navigational aides during construction. No impact during operation.
Suffolk County, New York					
Wading River Marsh	Within 0.4 mile of 32.8-33.1	NA	New York State Department of State	Designated significant coastal fish and wildlife habitat, 200 acres of undeveloped salt marsh	Islander East proposes the landfall location on Long Island approximately 0.4 mile west of area, thereby avoiding this area. However, the pipeline would traverse land in this area that Suffolk County desires to purchase/acquire for preservation, known as the Spring Meadow tract.
Central Pine Barrens	34.4-42.6 42.9-43.3	8.2 mi 0.4 mi	Central Pine Barrens Joint Planning and Policy Commission	Region of forest dedicated for preservation, contains the largest protected remnant of a forest thought to have encompassed over a quarter million acres on Long Island. Compatible Growth Area (CGA) = 47,500 acres total, Core Preservation Area (CPA) = 55,000 acres total.	Pipeline would traverse 5.5 miles in CPA and 3.3 miles in CGA, aligned adjacent to existing ROWs (William Floyd Parkway, Long Island Expressway) and along the border of previously developed lands. Islander East has offered impact minimizing alternatives including HDD construction methods, reduced workspace, and route revisions to minimize clearing by 18.5 acres, compared to the original proposal. Islander East proposes to use native species for revegetation and is continuing its consultations with the Central Pine Barrens Joint Planning and Policy Commission to finalize its Central Pine Barrens Revegetation and Invasive Species Plan.

TABLE 3.8.3-1
Special Use Areas Crossed by or in the Vicinity of the Islander East Pipeline Project (continued)

Special Use Area	MP	Distance Crossed	Landowner/Manager	Description of Area	Potential Impact and Applicant's Proposed Mitigation
Brookhaven State Park	34.5-36.8	2.3 mi	State of New York, Office of Parks Recreation, and Historic Preservation	Undeveloped park within Central Pine Barrens	Pipeline route would be adjacent to William Floyd Parkway ROW. Pipeline itself would not enter park boundaries. However, a portion of the construction area would fall inside the boundaries. No recreational facilities are in proximity to pipeline route. Islander East has offered an alternative/modified construction right-of-way through this area to reduce tree clearing (see section 4.4).
Brookhaven National Laboratory (BNL)	38.2-41.7	3.5 mi	U.S. Department of Energy	Multidisciplinary research laboratory and grounds	Islander East would coordinate with BNL and obtain permission from U.S. Department of Energy to cross BNL grounds.
Peconic River	38.5	15 ft	State of New York	State-designated scenic river on Brookhaven National Laboratory property	Pipeline crosses river along roadside of Upton Boulevard, an existing ROW. Islander East expects that this intermittent stream would be dry at time of crossing, but if flowing, Islander East would cross using wet trench crossing method. Islander East would consult with state officials and implement ESC Plan to minimize disturbance. A revised construction method considered in section 3.3 would result in HDD crossing method for this river, which would avoid disturbance to the river and adjacent areas.
Southaven County Park	42.9-43.3	0.4 mi	County of Suffolk	1,350-acre recreational area with numerous recreational facilities	Proposed pipeline would parallel Long Island Expressway ROW. No recreational facilities are close to pipeline route. Islander East proposes to consult with county officials to minimize disturbance. An alternative involving HDD construction methods was considered and would be located in a portion of the pipeline segment crossing this park reducing the amount of tree clearing.

TABLE 3.8.3-1
Special Use Areas Crossed by or in the Vicinity of the Islander East Pipeline Project (continued)

Special Use Area	MP	Distance Crossed	Landowner/ Manager	Description of Area	Potential Impact and Applicant's Proposed Mitigation
Carmans River	43.2	20 ft	County of Suffolk/State of New York	State-designated scenic river in Southaven County Park	Pipeline route would be adjacent to relatively narrow (width) KeySpan Fiber Optic ROW in forested area, leaving an approximately 50-foot-wide forested buffer strip between the ROW and the Long Island Expressway. Islander East proposes to use HDD crossing method for this river, which if successful and feasible would minimize tree clearing at the river bank and minimize visual impacts. Large extra work space areas (two 50- by 100-foot areas) are proposed 50 feet back from banks to facilitate the HDD. In the event the HDD fails, conventional crossing methods would be used, requiring clearing up to and through the river banks. Islander East would consult with county and state officials to minimize disturbance in this area.
Country Home Cemetery	43.3	200 ft	Suffolk County Park District	Country Home Cemetery National Register of Historic Places	200 feet of pipeline crossing would be adjacent to existing fiber optic leases on northern portion, just south of Long Island Expressway exit ramp. Islander East is addressing this area in conjunction with its Cultural Resources investigation and consultations (see section 3.9).

TABLE 3.8.3-1
Special Use Areas Crossed by or in the Vicinity of the Islander East Pipeline Project (continued)

Special Use Area	MP	Distance Crossed	Landowner/Manager	Description of Area	Potential Impact and Applicant's Proposed Mitigation
Calverton Lateral					
Central Pine Barrens	CA 0.7- CA 5.6	4.9 mi	Central Pine Barrens Joint Planning and Policy Commission	Region of forest dedicated for preservation, contains the largest protected remnant of a forest thought to have encompassed over a quarter million acres on Long Island. CGA = 47,500 acres total, CPA = 55,000 acres total.	Lateral would traverse 1.0 mi. in CPA and 3.9 mi. in CGA, aligned adjacent to existing ROWs (Long Island Power Authority [LIPA], State Route 25A). Islander East proposes to use standard upland construction methods, to assess workspace needs to identify opportunities to minimize clearing, and to continue consulting with the Central Pine Barrens Joint Planning and Policy Commission. A route variation was considered that would reduce tree clearing for the Calverton Lateral in the CPA by 0.9 acre (see section 4.4 for a more detailed discussion).
Brookhaven State Park	CA 0.8- CA 1.2	0.4 mi	State of New York, Office of Parks Recreation, and Historic Preservation	Undeveloped park within Central Pine Barrens	Pipeline route, including construction and permanent right-of-way (with the exception of one extra workspace near road) would be adjacent to the west side of the LIPA power line, maximizing separation from existing residences, while not preventing creation of potential future park entrance. No recreational facilities are located in proximity to pipeline route.
Commercial Tree Nursery	CA 2.36	0.25 mi	Private owner	Commercial tree nursery	Pipeline route would follow boundaries, Islander East proposed a route variation that would shift the pipeline and reduce workspace to minimize impacts to nursery (see section 4.4).

TABLE 3.8.3-1
Special Use Areas Crossed by or in the Vicinity of the Islander East Pipeline Project (continued)

Special Use Area	MP	Distance Crossed	Landowner/Manager	Description of Area	Potential Impact and Applicant's Proposed Mitigation
Camp Wauwepex (Schiff Scout Reservation)	CA 2.8	2,580 ft	Boy Scouts of America/Theodore Roosevelt Council of Nassau County, New York	550-acre seasonal Boy Scout camp	Pipeline route would be adjacent and parallel to State Route 25A ROW, crossing the northern portion of camp property. The closest camp facility is 1,800 ft. south of pipeline. Islander East proposes to continue discussions with camp personnel regarding maintaining access to the camp/facilities during construction and planning appropriate safety measures, and has offered a route variation from MPs 2.72 to 5.13 (see section 4.4) to minimize impacts in this area.
Calverton National Cemetery	CA 3.3- CA 5.6	2.3 mi	U.S. Department of Veteran Affairs	National burial grounds (902-acre parcel)	Pipeline would not cross burial sites, but would cross area designated for future expansion. Islander East proposes to continue to coordinate with cemetery authorities to minimize disturbance such as through use of a route variation that would avoid the area.
Calverton Enterprise Park	CA 5.6	NA, at terminus of Calverton Lateral	Town of Riverhead Community Development Agency	Decommissioned national defense site (5.25 acres), currently zoned for commercial, recreational, and industrial development. Site/delivery point of AES Long Island Project, a proposed gas-fired electric generation plant.	Islander East proposes to consult with the Town of Riverhead to establish the proposed gas delivery point and minimize impact on this area.

ROW = right-of-way
NA = not applicable.
CT = Connecticut.
DEP = Department of Environmental Protection.

The majority (about 62 percent) of the land traversed by the project, including the submerged lands within the Sound, is owned by or under the jurisdiction of public entities. Overall, 11.4 percent is owned by Federal entities, 45.5 percent is owned by state entities, and 5.2 percent is owned by local public entities. The remaining 38 percent of all areas crossed is privately owned. All of the proposed aboveground facilities would be sited on private lands, and easements would be acquired from public and private landowners for installation of the pipeline. Table 3.8.3-2 summarizes the locations and crossing lengths of public lands along the project.

Hazardous Waste Sites

Islander East reviewed publicly available databases and identified a number of sites/areas having potential hazardous waste or contaminated soils or groundwater within 0.3 mile of the project (see table 3.8.3-3). Nine of these identified sites are located adjacent to the project area. As of July 2, 2002, Islander East stated that no confirmed contaminated sites have been identified within the proposed construction right-of-way.

3.8.3.2 Environmental Consequences

One of the primary concerns in crossing recreational and public use areas is the impact of pipeline construction and operation on recreational activities. Disruption and noise during construction could be a nuisance to recreationalists and cause disturbance to wildlife, especially in protected areas. Due to the practice of scheduling pipeline construction on land during the summer months when recreational use is at its peak, this impact can be to a large extent, unavoidable. However, the periods of any one phase of active construction (i.e., clearing, grading, trenching, etc.) in any one area are intermittent and relatively short (generally between 1 and 5 days), therefore the duration of disturbance is limited. In addition, Islander East has selected the pipeline route through most of these parks and recreational areas to avoid the actively used portions of land, therefore reducing the potential for impacts.

Following construction, the affected areas would be restored and seeded, and recreational activities could resume. Revegetation of the right-of-way is generally completed within one growing season, except in forested areas, where reforestation would take longer, depending on existing conditions.

Site-Specific Issues

Table 3.8.3-1 lists each identified recreation and public interest area, crossing distances, potential impacts, and mitigation measures proposed and/or implemented by Islander East for each crossing. In addition, we have noted below several specific areas identified during the public scoping and comment periods that may require additional mitigation measures.

Land Trusts

The project would cross several land parcels deeded for preservation or conservation as dedicated open space in the Towns of North Haven, North Branford, and Branford, Connecticut. As listed in table 3.8.3-1, these areas include one property administered by North Haven Land Trust (MP 0.3), two properties administered by North Branford Land Trust (MPs 4.2 and 4.3), and four properties administered by Branford Land Trust (MPs 8.1, 8.5, 8.9, and 9.7), for a total crossing distance of 0.6 mile. A town recreational trail would also be crossed at MP 10.0 on land trust

TABLE 3.8.3-2
Federal, State, and Locally Owned Land Crossed by the Pipeline Centerline

	Beginning MP	Approximate Crossing Length (feet)	Ownership Type	Description
ALGONQUIN FACILITIES				
Anomaly Investigations				
Connecticut	N/A	N/A	N/A	N/A
AGT Pipelines Retest ^{a/}				
Connecticut	N/A	N/A	N/A	N/A
ISLANDER EAST FACILITIES				
Islander East Pipeline				
Connecticut	0.5	75	Local	Town of North Haven
	4.3	325	Local	Town of North Branford
	4.4	260	Local	Town of North Branford
	4.6	100	Local	Town of North Branford
	4.8	190	Local	Town of Branford
	10.2	58,133	State	State of Connecticut ^{b/}
	Subtotal			
		59,083		
New York	21.2	61,354	State	State of New York ^{b/}
	37.4	110	State	State of New York (small parcel adjacent to William Floyd Parkway)
	37.6	40	Local	County of Suffolk (small parcel adjacent to William Floyd Parkway)
	38.2	18,480	Federal	U.S. Department of Energy Brookhaven National Laboratory
	42.4	1,360	Local	County of Suffolk-Southaven County Park
	42.6	1,000	Local	County of Suffolk-Southaven County Park
	42.8	2,370	Local	County of Suffolk-Southaven County Park
	43.3	1,500	Local	County of Suffolk (parcels include Suffolk County Cemetery)
	43.6	3,800	Local	County of Suffolk-Honor Farm (Suffolk County Home)
	Subtotal			
		90,014		
Calverton Lateral				
New York	0.7	2,050	State	State of New York-Brookhaven State Park
	1.2	1,300	Local	County of Suffolk
	1.7	780	Local	Town of Brookhaven (nature preserve)
	1.8	590	Local	County of Suffolk
	3.3	12,000	Federal	U.S. Dept. of Veteran's Affairs Calverton National Cemetery
	5.6	125	Local	Town of Riverhead, Calverton Enterprise Park
	Subtotal			
		16,845		
GRAND TOTAL				
Federal		30,480	= 5.8 miles	
State		121,647	= 23.0 miles	
Local		13,815	= 2.6 miles	
GRAND TOTAL				
		165,942	= 31.4 miles	

a/ Includes only those areas where ground disturbance work is required.

b/ Submerged lands within Long Island Sound are under the jurisdictions of the States of Connecticut and New York (limited areas are under the jurisdiction of towns as shellfish lease areas).

N/A Not applicable; no Federal, state, or locally owned lands are crossed.

TABLE 3.8.3-3
Contaminated Sites and Landfills Located Within 0.3 Mile of the Islander East Pipeline Project

Facility	Approximate MP	Type of Site	Name of Site	Distance and Orientation from Project
ALGONQUIN FACILITIES				
Cheshire Compressor Station				
Connecticut	0.6	SCL	Kuehl Line Marking, Inc.	0.1 mile southeast
	0.6	SCL/ CERCLIS	Alling Lander Company	0.2 mile east
	0.6	SWLF	A.J. Waste Systems	0.3 mile southeast
ISLANDER EAST FACILITIES				
Islander East Pipeline				
Connecticut	4.0	SCL	CT Auto Lift	0.3 mile west
	5.5	CERCLIS	Hartt Property	0.1 mile northeast
	6.2	SCL	Jason's Coin Laundry Dry Cleaners	0.1 mile east
	6.8	SCL	White Eagle Limited	0.1 mile east
	7.5	CERCLIS	Echlin Manufacturing	0.1 mile east
	7.5	SCL	Sandvik Milford, Corp.	Adjacent to the west
	7.8	SCL/ CERCLIS	East Main St. Disposal Area	0.1 mile west
New York	38.0	LUST	Amoco Oil	0.3 mile west
	38.5-41.7	NPL/SPL/ SWLF	BNL	Adjacent to the east
	44.7	LUST	Texaco	0.2 mile north
	44.7	SWLF	Oyster Bay LFGR	0.2 mile north
Calverton Lateral				
New York	3.4	LUST	Metro S/S	Adjacent
	5.0- 5.5	CERCLIS	Naval Weapons Industrial Reserve	Adjacent to the east and south
	5.0-5.5	CERCLIS	Grumman Aerospace	Adjacent to the east and south
	5.0-5.5	LUST	Grumman Calverton Fuel Area	Adjacent to the east and south
	5.0-5.5	LUST	Grumman Aerospace, Corp.	Adjacent to the east and south
	5.0-5.5	LUST	Grumman Swan Pond Road	Adjacent to the east and south
	5.0-5.5	LUST	NWIRP Calverton	Adjacent to the east and south

Notes:

CERCLIS = Comprehensive Environmental Response, Compensation and Liability Information System (U.S. EPA).
LUST = Leaking Underground Storage Tanks (States of Connecticut and New York).
NPL = National Priority List (U.S. EPA).
SCL = State Equivalent CERCLIS List (States of Connecticut and New York).
SPL = State Equivalent Priority List (States of Connecticut and New York).
SWLF = Solid Waste Landfills, Incinerators, or Transfer Stations (States of Connecticut and New York).

property. These organizations have expressed concern that routing the pipeline through these parcels would be contrary to the legal restrictions on use and development placed on these properties, and also have concerns regarding the environmental impacts of the project as proposed. In particular, the Branford Land Trust recommends that, if the pipeline cannot be re-routed to avoid these properties, construction workspace and tree clearing should be reduced in certain areas of crossing, large or unique trees should be protected from clearing, crossing of recreation trails should be

avoided, restoration measures should include planting trees and shrubs along the construction area, and a guaranteed income source or bond should be established to assure that removal of any invasive plant species can be accomplished when needed.

In late October 2001, Islander East provided information to the Branford Land Trust regarding three route variations through the Goss property (MP 9.7), and these and other alternatives to crossing land trust properties are evaluated in Chapter 4 of this EIS. In particular, the minor route variations would result in total avoidance of the Anderson-Wilcox-North property at MP 8.5; increase the distance traversed but reduced by 0.14 acre the wetland impacts on the Anderson-Wilcox-South property at MP 8.9; and reduce distance traversed by 170 feet and reduce total acres disturbed by 1.0 acre on the Goss property at MP 9.7. Islander East states that it would continue to work with the Branford Land Trust and the other land trusts crossed by the project to identify and process site-specific concerns prior to construction. Therefore, **we recommend that:**

- **Before construction, Islander East should file with the Secretary any revised construction and restoration plans for crossing the properties administered by North Haven Land Trust (MP 0.3), the North Branford Land Trust (MP 4.2, 4.3) and the Branford Land Trust (MPs 8.1, 8.9, and 9.7).**

Islander East also has developed a draft Construction, Restoration, and Invasive Species Control Plan for Branford Land Trust properties and provided the plan to the Branford Land Trust for review and comment on May 16, 2002. During a follow-up meeting on June 14, 2002, the Branford Land Trust requested Islander East to develop a more specific revegetation plan that includes planting low-growing shrubs along the permanent right-of-way and larger diameter trees in the construction right-of-way and additional temporary workspace areas. In addition, the Branford Land Trust asked Islander East to consider using construction mats in additional temporary workspace areas at MPs 8.62 and 9.68 to avoid potential soil compaction resulting from stockpiling stone from trench excavation. In response, Islander East stated it will develop a site-specific restoration plan and consider using construction mats in these areas. Finally, Branford Land Trust will provide Islander East with a list of seed and plant material distributors acceptable to the organization and will consult with professional foresters to obtain input to assist in successful restoration of the land trust's properties. Islander East stated it will continue to coordinate and meet with the Branford Land Trust to finalize its Construction, Restoration, and Invasive Species Control Plan for the land trust's properties. In addition, Islander East has agreed to work with the North Branford and North Haven land trusts to develop a similar restoration, maintenance, and invasive species control plan for the other land trust properties traversed by the project. Vegetation and invasive species are discussed further in section 3.5 of this EIS.

With regard to the trail crossed at MP 10.0 on land trust property and other trails that may be paralleled or crossed, construction will disrupt use of trails, but recreational trail use will be able to resume following restoration. The safety of recreationalists during construction and the restoration of this valuable recreational resource following construction should be the subject of advance planning. Therefore, **we recommend that:**

- **Prior to construction, Islander East, in consultation with the applicable land management agencies including the applicable land trusts, should develop site-specific construction plans describing the construction methods that would be**

used for crossing the trail at MP 10.0 and construction across or adjacent to any other actively used trails within the project area. Islander East should file the site-specific plans and documentation of consultation with the appropriate land management agencies with the Secretary, prior to construction.

At a minimum, the plan should include site-specific details on:

- a. construction and restoration timeframe, including any timing restrictions; and
- b. access for hikers.

With respect to concerns about the compatibility of pipeline development on land trust parcels intended to preserve open space uses, we note that the pipeline would be located parallel and adjacent to existing developed rights-of-way (either pipeline or railroad) through these parcels, and the proposed pipeline would be consistent with these particular existing uses. Moreover, the pipeline would be buried and incremental expansion of an existing cleared corridor would make the pipeline visually unintrusive alongside these existing developments. Following construction, these lands would be considered to remain "open land" in the sense that the pipeline would be buried, the right-of-way would be restored, and no above ground structures such as buildings would be constructed.

Finally, some commenters predict that if the pipeline was to be constructed on land trust properties, it would jeopardize the land trust programs as a whole by discouraging potential land and fund donors from participating in future land acquisition. Although it would be difficult to speculate (either allege or refute) that lessons learned from this experience would cause this effect, we believe that the overall benefits of donating land and funds to these types of programs will remain virtually unchanged, and the appeal of these programs to potential donors will continue as it has in the past.

Branford Steam Railroad

We received comments from Tilcon Railroad, the operators of the Branford Steam Railroad, concerned about the pipeline routing adjacent to the railroad right-of-way. Some of their issues were also reiterated by the Branford Blue Ribbon Committee. Issues included the level of detail in the alignment drawings Islander East submitted to the Commission for this review process, Tilcon's concern that the pipeline may restrict their ability to operate and maintain their railroad, insufficient coordination by Islander East with Tilcon, and clearing of existing vegetative screening between the railroad right-of-way and nearby residences.

At this time, we understand that Islander East has not yet conducted detailed civil surveys for portions of the route along the Tilcon Railroad due to the denial of permission granted by the owners. However, based on Islander East's evaluation of issues associated with routing along the Tilcon Railroad, which was conducted by a railroad engineer experienced in co-location of pipelines and railroad rights-of-way, the currently proposed 25-foot separation distance between the proposed pipeline and the nearest rail of the Branford Steam Railroad tracks is an appropriate distance to safely operate the pipeline construction equipment and allow for the safe, uninterrupted operation and maintenance activities of the railroad. In addition, we have not been informed of specific proposed improvements, expansions, and/or and maintenance activities for the railroad that require Tilcon to have the full and unfettered use of their right-of-way for operation of the railroad. With

respect to the drawings submitted to date by Islander East, the level of detail in the drawings meet the Commission's filing requirements, although we acknowledge that applicants sometimes prepare more detailed drawings to address additional requirements based on engineering needs and/or other permitting/approval processes. Finally, the only designated scenic area along the railroad is the Highway 146 crossing (discussed in section 3.8.5); however, we agree that there may be some visual impacts to residences resulting from vegetation clearing in three or four short segments along the railroad corridor. Finally, we believe that routine operation and maintenance needs of the railroad and the pipeline should be mutually coordinated between Islander East and Tilcon. Therefore, we **recommend that:**

- **Islander East should develop and file with the Secretary for review and written approval by the Director of OEP prior to construction, a site-specific plan for construction of the pipeline adjacent to the Branford Steam Railroad, including site-specific construction/restoration plans developed in coordination with affected adjacent residential landowners, addressing how Islander East will minimize visual impacts of vegetation clearing for those residences whose vegetative screening will be removed during construction.**

Wightwood School

At MP 8.9, the Islander East pipeline would be sited approximately 160 feet east of the Wightwood School, a private, progressive educational day school for students from pre-kindergarten through eighth grade. The pipeline construction workspace would be located adjacent to the school yard for approximately 250 feet, and would be located within 100 feet of the school building and within approximately 70 feet of the school parking area. The pipeline would be aligned adjacent to, and physically separated from the school grounds by, the Branford Steam Railroad through this area. We received comments expressing concern about the safety of locating the pipeline within this proximity to the school and its grounds, and construction noise interfering with the learning environment at the school. Because the school building itself is more than 50 feet away from the construction work areas and there is an active railroad between the pipeline and the school, a site-specific crossing plan has not been required for this area. Islander East has offered an alternative that would relocate the railroad cross-under location in this area to 70 feet north of the original proposed route, further from the school (see section 4.4).

Commercial Fishing

Islander East met with and held informational sessions on May 1, May 17, and September 25, 2001, for shellfishermen and lobstermen potentially affected by the project. Islander East discussed its offshore survey and sampling work, proposed pipeline and survey locations, schedule for surveys, general schedule for construction, and coordination/communication plans/needs. In addition, Islander East has updated its mailing list of commercial fishing license holders for the year 2000, and has sent project information, compensation information, and contact information in the event of questions to these license holders (about 890 in all) in April and May 2002. Islander East stated that it would continue to maintain dialogue with offshore interests, including the Branford Shellfish Commission, and commercial shellfishermen and lobstermen. See section 3.8.1.2 for more details on impacts and impact minimization measures for commercial fishing activities.

Central Pine Barrens of New York

The Central Pine Barrens of New York are crossed for approximately 13.7 miles, primarily along existing rights-of-way such as the William Floyd Parkway and the Long Island Expressway. The 102,500-acre Central Pine Barrens was established under the Long Island Pine Barrens Protection Act of 1993, an amendment of the New York State Environmental Conservation Law, Article 57. This area was created as a forest preservation area, and contains the largest remnant of forest thought to have encompassed over a quarter-million acres on Long Island. This area is administered by the Central Pine Barrens Joint Planning and Policy Commission (Pine Barrens Commission), a state agency that acts as a regional land use board to review and approve applications for development in the Central Pine Barrens. According to state law, all proposed development must be consistent with the Central Pine Barrens Comprehensive Land Use Plan, unless the Pine Barrens Commission grants an exemption for the development due to "hardship," a determination that the activity does not constitute "development," or the activity is determined to be necessary due to compelling public need.

The Central Pine Barrens Comprehensive Land Use Plan divides the land area into two designated areas for the purposes of managing development: a Core Preservation Area (CPA) encompassing 54 percent of the total land area of the Central Pine Barrens, and a Compatible Growth Area (CGA) encompassing 46 percent of the total land area. The allowable uses in the CPA are generally limited to those uses which do not constitute "development," and allowable uses in the CGA are defined to allow appropriate growth consistent with certain standards for protection of natural resources. The proposed project mainline and the Calverton Lateral would traverse a total of 6.5 miles in the CPA and 7.2 miles in the CGA.

The Pine Barrens Commission, the Long Island Pine Barrens Society, the FWS, The Nature Conservancy, the NYSDEC and other organizations have each expressed concerns regarding incompatibility of pipeline development in designated CPA and CGAs, and clearing and fragmentation of forested areas. They have also suggested alternative routes which avoid CPA. The Long Island Pine Barrens Society voiced numerous other concerns for the route through the Central Pine Barrens regarding other environmental resources, restoration measures, maintenance practices, safety, and procedural issues related to the permitting process established for proposed development in the Central Pine Barrens. See section 3.5.2 for a discussion of impacts related to forest clearing and fragmentation, and section 4 for a discussion on alternative routing.

With regard to the siting of the proposed project, we believe that the pipeline's location closely adjacent to these parkways, with its permanent right-of-way generally overlapping between 5 and 25 feet of the William Floyd Parkway right-of-way, Islander East maximizes the use of existing rights-of-way while minimizing construction-related traffic impacts. A few short areas of new right-of-way (totaling approximately 0.97 mile) would be created where the pipeline route would shift to avoid residences, interchanges, a proposed shopping center, and other features. In one area along the William Floyd Parkway, between MPs 40.4 and 41.3, the pipeline would be approximately 100 feet from the road. Islander East proposed this separation to avoid the need for extensive grading and disturbance of steep, sandy road banks, and the resulting traffic impacts, which would be required for the safe operation of construction equipment in this area. This area is not in the CPA, but rather in the CGA. However, Islander East has offered a variation in this area that would reduce the separation between the pipeline and the highway, as described in section 4.4). In

most areas, the pipeline through the Pine Barrens would be within or adjacent to an existing cleared right-of-way and would not add to forest fragmentation or create a new corridor.

Islander East has consulted with the Pine Barrens Commission regarding the project. Discussions have addressed the project's consistency with the Central Pine Barrens Comprehensive Plan, project eligibility for exemption under the process, issues with tree clearing, and other issues. Islander East has provided the Pine Barrens Commission with copies of the aerial photograph-based alignment sheets depicting the proposed project route, construction workspace, and permanent right-of-way boundaries. However, the Pine Barrens Commission has indicated that Islander East has not filed for a hardship permit. It is the Commission's policy to encourage cooperation between interstate pipelines and local authorities. Therefore, **we recommend that:**

- **Islander East should continue to consult with the Pine Barrens Commission concerning construction through the Central Pine Barrens. If mitigation is required by any agency for the construction in the Central Pine Barrens, Islander East should file copies of the final mitigation plan and any related correspondence prior to construction.**

Islander East reviewed potential alternative construction techniques that could be used to reduce the amount of workspace and clearing required to install the new pipeline through the Central Pine Barrens. As a result, Islander East has offered a number of measures, including modified route alignments, reduced/modified construction right-of-way, and an alternative construction method incorporating four HDD segments through certain areas of the Central Pine Barrens, with the objective of reducing impacts (disturbance and tree clearing) to Core Preservation Areas. Through adopting these modifications, the amount of forested areas affected in the Core Preservation Areas would be reduced by 96 percent, from 19.4 acres in the original route to 0.85 acres in the new HDD technique/route modification scenario. Forested acres affected in the CGA would increase by 1.4 acres (5 percent), mainly as a result of a route modification proposed by Islander East to avoid the proposed shopping center near MPs 42.0 to 42.6 (see section 3.8.2.2 for information on the shopping center; see section 4.4 for more details on the route variation). In addition, Islander East has offered a route variation along the Calverton Lateral between MPs 2.72 and 5.13 that would reduce tree clearing in the Central Pine Barrens CPA by about 0.9 acre, while minimizing impacts on a camp operated by the Boy Scouts of America. The variation shifts the pipeline centerline closer to state route 25A and reduces the construction right-of-way from 75 feet and to 60 feet. No new landowners or sensitive resources are affected by this variation.

Islander East has modified the proposed route between MPs 34.4 and 40.97 to minimize impacts on the Central Pine Barrens Region and undeveloped public lands associated with Brookhaven State Park and the Town of Brookhaven. The reduction in CPA impacts are shown in table 3.8.3-4. The modifications include:

- a reduced construction right-of-way configuration between MPs 34.39 and 36.77 to remain within the William Floyd Parkway right-of-way in order to avoid impacts to the Central Pine Barrens CPA and Brookhaven State Park;
- HDD between MPs 36.82 and 37.58 in order to eliminate impacts to residential properties and minimize impacts on the CPA;

- HDD between MPs 37.58 and 38.27 in order to reduce impacts to residential properties and the Route 25 cloverleaf interchange;
- revised alignment and a HDD between MPs 38.3 and 39.4 in order to reduce impacts to the CPA and Brookhaven National Laboratory property; and
- relocating the pipeline 30 feet from the travel lane on William Floyd Parkway to minimize forest clearing and fragmentation between MPs 40.46 and 40.97 of the proposed route.

TABLE 3.8.3-4
Comparison of the Modified Route to the Corresponding Segment of the Originally Filed Route (MPs 34.39 - 40.97)

Milepost Segment	Central Pine Barrens Region	Forested Acres Cleared Along the Preferred Route	Forested Acres Cleared Along the Original Route
34.39 - 36.77	CPA	0.0	5.1
	CGA	9.7	10.2
36.82 - 37.58	CPA	0.4	3.7
37.58 - 38.27	CGA	0.0	3.0
38.3 - 39.4	CPA	0.4	7.8
	CGA	10.7	12.6
40.46 - 40.97	CPA	0.05	2.8
Total Acres		21.25	45.2

In addition, Islander East is consulting with the Pine Barrens Commission and the Long Island Chapter/South Fork-Shelter Island Chapter of The Nature Conservancy for their recommendations regarding native plantings and grass seeding for restoration in the Pine Barrens region. Islander East has provided us with a draft Construction, Restoration, and Invasive Species Control Plan for the for the Central Pine Barrens Region. This draft plan identifies the measures Islander East used during pre-construction project planning, and measures Islander East would use during construction, restoration, post-construction monitoring and pipeline maintenance activities to identify, monitor, and control invasive species in the Central Pine Barrens region. In particular, the draft plan identifies the target species of invasive plants that are of concern and specific measures to control spreading of these species during construction. Measures include: topsoil/spoil management, minimizing use of seed straw bales and borrow materials, disposing of individual plants removed during clearing, diligent use of sediment barriers between disturbed and undisturbed portions of wetlands, using the minimum number of equipment necessary to complete construction in areas where invasive species occur, and using equipment mats where appropriate on areas of existing invasive species to minimize the amount of soil and vegetation that comes into contact with tracked and other equipment. In addition, the plan specifies native seed mixes and seeding procedures for restoration, and also includes provisions for three years of post-construction monitoring and invasive species control, consisting primarily of hand cutting of target species. In addition, the draft plan states that Islander East's operations/maintenance procedures in the Central Pine Barrens CPA areas would consist primarily of mowing the permanent right-of-way for 100 feet

at each end of the proposed HDD sections (where the pipeline is closer to the surface), and selective trimming of existing vegetation to maintain a line of sight along the portions of the pipeline installed using HDD techniques. Islander East would incorporate comments from the above-mentioned agencies and organizations prior to the completion of the final plan through this region. Therefore, **we recommend that:**

- **Prior to construction, Islander East should prepare and file with the Secretary a final site-specific Construction, Restoration and Invasive Species Control Plan for the Central Pine Barrens Region.**

For the forested areas where tree clearing is required in the Central Pine Barrens, provide a detailed vegetation map that shows the location and types of arboreal species that would be removed, including any Federal or state protected species or local species of concern.

We believe that the routing of the pipeline through this largely unavoidable geographic area was selected using a sound decision criteria (i.e., majority follows existing highway and utility rights-of-way), and that the most significant issues identified by agencies and organization for this area would be resolved satisfactorily through the use of Islander East's proposed HDD construction plan. However, we encourage continued cooperation and coordination between Islander East, the Pine Barrens Commission, Brookhaven National Laboratory, and other involved organizations to resolve the identified issues of concern.

We note that we and other agencies would have concerns in the event that one or more of the newly proposed HDD crossings through the Central Pine Barrens CPA were to fail, potentially resulting in a desire to revert to the conventional over-land pipeline construction methods (requiring tree clearing) through these areas to complete the pipeline. Based on past completion of other pipeline projects which involved successful completion of HDD crossings of some of the streams/rivers in the Central Pine Barrens region, we believe that the HDD construction technique would be feasible. However, we acknowledge that many factors, both predictable and unpredictable, influence the success of HDD construction efforts, and that, even with the best conditions for HDD, there is always a small possibility of failure. Therefore, **we recommend that:**

- **Before construction, Islander East should file with the Secretary a plan for the crossing of each segment of the Central Pine Barrens in the event one or more of the proposed HDD segments is unsuccessful. This should be a site-specific plan that includes scaled drawings identifying all areas that would be disturbed by construction. The Director of OEP must review and approve this plan in writing before an alternate construction methodology may be used in the Central Pine Barrens region.**

Other Site-Specific Issues

The New York State Office of Parks, Recreation, and Historic Preservation identified that the narrow portion of the Brookhaven State Park crossed by the Calverton Lateral (MPs CA0.8 to CA1.2, just south of the Route 25A crossing) was originally acquired with the intention of using it as a main entrance to the park, and are concerned that the pipeline's expansion of the existing right-

of-way in this area, would hinder the development of such an entrance of this narrow parcel. The proposed pipeline would be located adjacent to and partly overlapping the Long Island Power Authority (LIPA) right-of-way through this area, and the combined right-of-way, including clearing required for construction right-of-way, would be a total of about 130 feet through this parcel, and a 50-foot by 100-foot extra workspace area would be used for construction at the north end of this parcel for the Route 25A crossing. Based on the location of property lines shown on Islander East's construction drawings, we believe that the addition of the pipeline right-of-way would not prevent construction of a park entrance on the same land parcel.

The Calverton Lateral crosses a tree nursery along the Calverton Lateral, between MPs 2.36 and 2.61. Islander East has proposed a minor route variation to address landowner concerns at this tree nursery. This variation shifts the pipeline centerline approximately 10 feet north and reduces the construction right-of-way width from 90 feet to 65 feet. This route variation does not affect new landowners or sensitive resources and reduces construction impacts by approximately 0.8 acre.

Islander East would cross a portion of the Calverton National Cemetery that is not currently used, but is designated for future cemetery expansion. Islander East has proposed a route variation between MPs 5.13 and 5.56 that would avoid pipeline installation in this future expansion area. The route variation would follow the south side of existing Route 25A instead of creating new right-of-way for this distance. This route variation is discussed in detail in section 4.4

Hazardous Waste Sites

Based on Islander East's search of publicly available databases, nine sites having potential hazardous wastes and/or contaminated soils or groundwater are located adjacent to the project. The greatest density of sites potentially encountered during construction are on BNL property. Islander East has consulted with representatives of BNL, conducted field reviews of these areas, and has determined that construction and excavation activities are unlikely to encounter contaminated soil or groundwater in these areas. However, the potential for encountering unexpected contaminated areas exists during excavation in the vicinity of both known and unknown sites, as well as railroad areas such as the Branford Steam Railroad. Islander East and Algonquin have developed an Unexpected Contamination Encounter Plan that outlines procedures that will be implemented in the event unexpected contamination (such as stained soil, drums, or debris) is encountered during pipeline construction or re-test activities. This plan outlines procedures Islander East would follow in the event areas of contamination are encountered during construction, and covers topics including identification, team and agency notification, sampling/analysis, waste disposal, site re-entry protocol, and documentation/reporting. Islander East states that if contaminated areas are encountered during construction, notification requirements, sampling/characterization, and disposal will be completed in accordance with applicable federal and state rules and regulations.

We believe that implementation of Islander East's Unexpected Contamination Encounter Plan would adequately avoid or minimize potential contamination risks of human exposure and the spread of environmental contamination from hazardous wastes.

3.8.4 Coastal Zone Management

The state agencies responsible for administering the programs that regulate state shorelines for New York and Connecticut are the New York State Department of State, Division of Coastal Resources and Waterfront Revitalization Department, and the Connecticut Office of Sound Programs, respectively.

The Coastal Zone Management Program (CZMP) is authorized by the Coastal Zone Management Act of 1972 and administered at the Federal level by the Coastal Programs Division (CPD) within the National Oceanic and Atmospheric Administration's Office of Ocean and Coastal Resource Management. The consistency provisions of the Federal Coastal Zone Management Act of 1972 require activities to be consistent with each state's Federally approved Coastal Management Program (CMP). In New York, the Division of Coastal Resources reviews projects and activities for consistency with the policies of the New York State CMP and approved Local Waterfront Revitalization Programs. In Connecticut, the Office of Sound Programs administers and coordinates programs within the Department of Environmental Protection which have an impact on the Sound and related coastal lands and waters.

The counties crossed by the Islander East Pipeline Project are located within the coastal zone. These counties are Suffolk County, New York and New Haven County, Connecticut.

Activities and development affecting New York and Connecticut's coastal resources that involved a Federal permit or license are evaluated for compliance with the CZMP through a process called "Federal Consistency". The applicant for a Federal permit or license is responsible for determining whether or not the proposed activity may affect any land use, water use, or natural resource of the coastal zone must comply with the requirements of the CZMP. The applicant then prepares and submits a Certification of Consistency with the CZMP to the respective state departments. The two state agencies would then review this and either concur or deny the certification.

Islander East has not received concurrence from either the New York or Connecticut agencies for its Certification of Consistency with the New York and Connecticut CZMP. Concurrence from the two state agencies that the project is consistent with laws and rules of the state CZMP guidelines must be received prior to issuance of a Notice to Proceed. Therefore, **we recommend that:**

- **Islander East should file documentation of concurrence from the New York and Connecticut agencies for its Certification of Consistency with the New York and Connecticut CZMP with the Secretary, before construction.**

3.8.5 Visual Resources

3.8.5.1 Existing Environment

There are three formally designated visual resource areas along the Islander East Pipeline Project, and several other areas that are not officially designated, but possess visual/aesthetic value.

The pipeline would cross Connecticut Highway 146, a state-designated scenic road, at MP 8.9. Connecticut has authorized its State Commissioner of Transportation to designate areas of rural state highways as "scenic roads", defined as any state highway that: (1) passes through agricultural land or abuts land on which is located a historic building or structure listed on the National Register of Historic Places (NRHP) or the State Register of Historic Places; or (2) affords vistas of marshes, shorelines, forests with mature trees or notable geologic or other natural features. Among other things, this designation is established to help preserve these highways from DOT modifications, such as rerouting or widening, that would detract from their appearance. Where it crosses this two-lane scenic road, the project would be routed adjacent to Branford Steam Railroad and the proposed construction workspace would be a total of 100 feet wide on the north side of the road and 50 feet wide on the south side of the road, and some tree clearing would be required.

The pipeline would cross two New York State designated scenic rivers, the Peconic River (MP 38.5) and the Carmans River (MP 43.2). The scenic river designation is assigned to rivers that are "free of diversions or impoundments except for log dams, with limited road access and with river areas largely primitive and undeveloped or which are partially or predominantly used for agriculture, forest management, and other dispersed human activities which do not substantially interfere with public use and enjoyment of the rivers and their shores".

Additional areas that are considered scenic according to the Central Pine Barrens Comprehensive Land Use Plan's Scenic Resources Inventory include the William Floyd Parkway from State Route 25A to the northerly edge of the Brookhaven Laboratory (MPs 34.4 to 38.2), Brookhaven State Park (MPs 34.5 to 36.8), and Southaven County Park (MPs 42.9 to 43.3) (CPB, 1995). In addition, views of the Sound from land- and water-based viewpoints are considered scenic. None of the proposed aboveground facilities would be located near these official or unofficial scenic areas.

3.8.5.2 Environmental Consequences

Potential impact on visual resources resulting from construction and operation of the proposed facilities would be of two types: (1) impact from the alteration of terrain and vegetative patterns due to pipeline construction and right-of-way maintenance; and (2) impact from the construction of permanent new aboveground facilities such as the compressor station, meter stations, and mainline valves.

Pipeline Facilities

Generally, long-term and permanent visual impacts would result where a new right-of-way corridor would be introduced in forested areas. This impact would be reduced and less noticeable where the new right-of-way is aligned adjacent to and partly overlapping existing cleared corridors. Over time, trees and shrubs would regenerate outside the permanent right-of-way and the effects of clearing would become less obvious.

Visual impacts would be reduced along streams and rivers where, following construction, a 25-foot width of riparian vegetation would be allowed to become established across the right-of-way, and only a 10-foot-wide strip over the pipeline would be maintained in a cleared condition for the life of the project.

The Algonquin pipeline re-test and excavation/repair of anomalies would result in negligible to no visual impacts because of the very limited amount of tree clearing required and the minimal amount of proposed soil disturbance.

About 36.4 miles (72 percent) of the Islander East Pipeline would be located in open water, open land, agricultural, and commercial/industrial areas where visual impact would be confined to the construction period. Approximately 4.5 miles of the pipeline would require the creation of new rights-of-way on land. In the majority of these areas requiring new rights-of-way, visual impacts would be reduced because the rights-of-way would be in open or commercial/industrial areas, or in forested areas along the boundary of existing cleared areas, including the pipeline route in the areas of the William Floyd Parkway (MPs 34.4 to 38.2), Brookhaven State Park (MPs 34.5 to 36.8), and Southaven County Park (MPs 42.9 to 43.3).

We received a comment from the Branford Blue Ribbon Committee concerning visual impacts of clearing the wooded area along the Branford Steam Railroad. The pipeline would be aligned adjacent to the railroad for approximately 4 miles between MPs 6.1 and 10.1, where the railroad is a single track and tall trees create an almost closed canopy over the tracks. The land uses through this narrow area consist primarily of undeveloped woodlands and open land interspersed between densely developed commercial/industrial and residential areas. Although some of the area traversed is designated Open Space by the Town of Branford, the only designated scenic area along the route is Highway 146 (discussed below). The Blue Ribbon Committee suggested that one of Islander East's required conditions should be to replant all wooded areas cleared in the temporary work areas with trees of the same size removed, and to limit the permanent right-of-way along the Branford Steam Railroad to the width required for visual inspection from ground surveys, as opposed as aerial surveys. We believe that the proposed routing adjacent to the existing railroad corridor, limitation of construction workspace to only that required to construct the pipeline safely and effectively, and restoration and operations/maintenance measures proposed in the ESC Plan, are adequate for this area. We believe that the 50-foot-wide permanent right-of-way is a prudent width to allow for effective visual inspection for safety during operation, such that a reduction in permanent right-of-way width is not necessary. A forested buffer will still remain between the right-of-way and most of the residential areas, and woody vegetation will be allowed to return to the temporary workspace areas. We have recommended a condition for this area to mitigate for tree screening (see section 3.8.3.2).

Only temporary and minor impacts on scenic views of the Sound would result from construction, where aesthetics could be affected by the presence and visibility of construction equipment and possible presence of turbid water. These effects would generally be limited to the construction period, and after completion, the views of the Sound would be essentially the same as before construction.

As listed in table 3.8.3-1, Islander East proposes to cross the state-designated scenic Highway 146 along the existing Branford Steam Railroad corridor, requiring some tree clearing on the north side of the road crossing. This highway is designated scenic along its entire length in Connecticut. Although construction would require tree clearing and widening the existing corridor to accommodate pipeline construction, visual impact to travelers along the road would be negligible, due to the relatively short line of sight and time duration that automobile travelers would view this area.

As listed in table 3.8.3-1, Islander East proposes to cross the Peconic River adjacent to the west side of Upton Boulevard. Using Islander East's originally proposed conventional wet trench crossing technique, tree clearing would be required, resulting in a wider existing right-of-way across the river banks. However, Islander East revised its proposed construction techniques through this portion of the Central Pine Barrens resulting in a HDD crossing at this river, which would avoid disturbance to the river and river corridor.

Islander East proposes to cross to Carmans River using the HDD construction method, which, if successful, would avoid the need for forest clearing of a right-of-way along the river banks. This technique would allow forest clearing for construction right-of-way and two extra workspace areas (measuring about 50 feet by 100 feet) to end 50 feet back from the river banks on both sides, leaving intact a 50-foot-wide forested buffer adjacent to the river. This plan would conform to the recommendations we received from the NYSDEC, which stated that newly cleared areas must not be visible from viewpoints in the scenic rivers (Sanders, 2001). In the event that the HDD across Carmans River is not successful, Islander East would clear the construction right-of-way across this forested buffer and the river banks to complete the conventional crossing method Islander East proposes as a contingency to the HDD. This contingency plan would result in a new cleared corridor across Carmans River. The right-of-way would be parallel to, but would not abut, the Long Island Expressway. The right-of-way in this area would be located about 25 to 100 feet away from the road, and would be separated from the expressway by an existing forested strip about 25 to 100 feet wide. However, Islander East expects that the HDD crossing method would be feasible and successful at this river.

Aboveground Facilities

Aboveground facilities would be the most visible features constructed as part of the project and would result in a long-term visual impact on the landscape. The degree of impact depends on several factors, including the character of the existing landscape, the number of viewpoints from which to observe the facilities, and the number and type of viewers who would be able to view the facilities. Of the new facilities, the Cheshire Compressor Station would be the largest and would therefore have the most potential to be visually intrusive. The proposed meter stations and mainline valves would also result in visual impacts, but these facilities would be significantly smaller and therefore would be less visually intrusive.

The Cheshire Compressor Station would be located in a forested and agricultural area. Of the 61-acre parcel that Algonquin would purchase for the station, only 7.2 acres would be used for operation. Any views of the station would be seen in the context of existing industrial and commercial buildings, and existing transmission pipeline rights-of-way. Algonquin intends to keep the surrounding forested buffer intact. Therefore, the station would not be visible from nearby roads. Landscaping has been proposed by Algonquin, and includes placing shrubs at the entrance to the station access road and at the front gate, and planting trees in and around the operational portion of station property. No scenic resources have been identified in this area, and the station would be consistent with the context of the existing commercial and industrial development in the area.

The North Haven Meter Station would be constructed in an industrial area that is surrounded by residential areas. However, this station would be constructed within or adjacent to an existing

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meter station operated by Algonquin; accordingly, in the context of its surroundings, the station would not introduce a significant visual intrusion on the landscape.

The Brookhaven Meter Station (MP 44.8) would be located on forested land, adjacent to the Patchogue Yaphank Road, a divided highway. The Calverton Meter Station (CA MP 5.6) would be constructed on open land adjacent to SR 25/Middle Country Road, near the end of Grumman Peconic River Airport. The sites for these meter stations are not currently occupied by existing aboveground pipeline facilities, and therefore, the proposed facilities would be more conspicuous on the landscape. To reduce visual impacts, Islander East proposes to install screening, including landscaping, at these facilities. None of these areas for the meter stations has been identified as a designated scenic area.

The five proposed mainline valves would be located within the compressor or meter station properties or the permanent right-of-way. Mainline valves within the permanent right-of-way would be located in commercial/industrial, open, or forested lands near public roads, and would include a 6-foot-high aboveground valve, enclosed in a fenced area. A permanent access road would be constructed and stabilized with either gravel or pavement. The disturbed area within the fenced enclosure would be graveled, and outside the fence would be seeded. Mainline valves are relatively small and, based on their proposed locations, are not expected to present a significant change in the visual quality of areas surrounding the pipeline right-of-way. None of the areas for the mainline valves has been identified as a designated scenic area, and none of these valve sites are proposed near residences.

Based on Algonquin's and Islander East's selection of aboveground facility sites in areas previously used for utility or industrial use or where they would be visually unobtrusive, construction of the aboveground facilities would have minimal visual impact.

3.9 CULTURAL RESOURCES

Section 106 of the NHPA, as amended, requires the Commission to consider the effect of its undertakings (including issuance of certificates) on any properties that are listed in or eligible for listing in the NRHP and to afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. As an applicant, Islander East is gathering information necessary for us to comply with Section 106, in accordance with the ACHP's regulations at 36 CFR Part 800.

Islander East and Algonquin's cultural resources consultants performed archaeological and architectural investigations after consulting with the New York and Connecticut State Historic Preservation Officers (SHPOs). In addition to the pipeline right-of-way, the surveys included extra temporary workspaces, one compressor station, area for the removal of two launchers, five valve sites, two meter stations, five pipeyards, and access roads. Islander East's consultant identified six prehistoric archaeological and seven historic sites. Four of the prehistoric sites were found to be insignificant and investigations at the other two are pending. The status of sites scheduled for additional evaluation is listed in table 3.9-1.

Three of the historic sites are cemeteries. Two have been in use for less than 50 years and accordingly are not NRHP eligible. A treatment plan to minimize visual effect to the Suffolk County Home Cemetery (a 19th Century cemetery associated with the County home for the indigent) is being

developed in consultation with the SHPO. No known burial areas would be disturbed by construction at any of the cemeteries.

The pipeline is designed to share a portion of the Branford Steam Railroad's right-of-way. The Branford Steam Railroad, a "captive" railroad in operation since 1914, employs diesel locomotives to haul trap rock on a 6.2 mile route from a quarry to a barge depot on the Sound. The railroad is unique in part because its current operation reflects a survival from earlier periods of railroad history. Its equipment, rolling stock, engines, buildings, and track have been maintained and replaced over the years, however, and are not themselves historic. A section of the track follows the course of an early 1900s horse drawn trolley line from Pine Orchard to the site of the Branford Trotting Park. All that remains of the horse racing track is one of the field stone gate posts which formed its entranceway. The project has been designed to assure that the gate post is preserved in place.

Islander East conducted a study to identify and evaluate structures in the vicinity of the project which are more than 50 years old and thus potentially of NRHP significance. Eighteen structures were identified. None would be effected by the project.

The offshore proposed pipeline route intersects the northwestern corner of the Stony Creek/Thimble Islands National Register of Historic Places District. The District includes coastal portions of Branford and 33 of the Thimble Islands. The NRHP listing of the District includes 487 buildings constituting the area's largest collection of late 19th and early-20th century Stick-style homes and cottages. The Thimble Islands are a well known Long Island Sound landmark, were remarked on by early mariners, are a local tour boat destination, and are commonly listed on the itinerary of boating and sailing cruises of the Sound.

The portion of the proposed pipeline route which crosses the Stony Creek/Thimble Islands District would be part of the 4,000 foot-long segment which would be crossed by HDD from the Connecticut shore to an exit point out in the Sound. Thus the portion of pipeline within the District boundary would be about 80 feet below the floor of the Sound. The alignment would pass about 100 feet west of the shore of Andrew's Island. Andrew's Island is a listed component of the District, but is without any listed historic properties or structures. The presence of work vessels in the vicinity of the District would constitute a minor and temporary visual effect (see section 3.8.5). We have consulted with the Connecticut SHPO (Shannahan 2002a) and find that constructing the pipeline as proposed would not effect the Stony Creek/Thimble Islands National Register District.

In consultation with the New York and Connecticut SHPOs, Islander East developed a study to identify potential impacts on significant cultural resources from construction of the offshore portion of the project. Through background literature review, Islander East's contractor identified at least 11 vessel losses within the vicinity of the Islander East offshore corridor. This figure was estimated to be only a fraction of the actual total due to the high volume of vessel traffic and lack of early records. The archaeological remote sensing survey was separated into two phases. First, a 150-foot-wide central corridor and three alternate routes were surveyed and analyzed to determine if the pipeline route crosses any potential cultural resources. The second phase includes survey of the anchor-spread area to determine what locations need to be avoided during anchoring operations. During the field survey, instrumentation included a navigation system using a differential global positioning system, magnetometer, side-scan sonar, sub-bottom profiler, and depth sounder. Survey

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track lines were laid on the proposed location of the trench line with overlapping transects run on either side of the centerline to insure total coverage. All magnetic anomalies of 50 gamma deviation and 80 foot duration or more were considered to be potentially significant cultural resources. The plan also includes inspection of potential sites by qualified archaeologist divers if targets cannot be avoided. The New York and Connecticut SHPOs commented that the survey plan for this work is acceptable (Maddox, 2001; Pierpont, 2001).

Archaeological remote sensing surveys have been completed along the centerline of the Islander East offshore corridor. Islander East's surveys of the anchor spread area were in progress as of the time this FEIS was prepared (June and July 2002) and the results will be filed with the Commission. Analysis of the remote sensing data, followed by archaeological diver surveys (if necessary) are pending for the anchor spread area. To date, 13 sidescan sonar targets, and 65 magnetic anomalies have been recorded along the proposed centerline corridors. The centerline designated "Option 1" yielded two sidescan sites, SS-5 and SS-6 and 24 magnetic anomalies. Further evaluation of the data refined the signatures to seven potential historic -shipwreck sites. Diver surveys of the targets in the Fall of 2001 found that all were composed of modern debris or were geologic in nature. As a result, the targets were not recommended as significant by Islander East's cultural resource consultant. The Connecticut SHPO concurred with this assessment (Shannahan 2002b). We also concur.

In summary, construction and operation of the proposed pipelines and associated facilities could potentially affect historic properties. Project impacts could be direct or indirect. Direct impacts could include the physical destruction or damage to all or a portion of a site, or alteration or removal of a historic property. Indirect impacts could include the introduction of visual, atmospheric, or audible elements that diminish the integrity of the site or alter settings associated with historic properties.

Both direct and indirect project impacts on historic properties can usually be mitigated to less than significant levels. Mitigation measures range from data recovery, including the scientific excavation of archaeological sites; to detailed documentation, including architectural drawings of historic buildings. Other measures can include the use of landscaping techniques to screen visual intrusions and maintain site settings. We would require Islander East to produce treatment plans indicating how impacts on historic properties would be reduced or mitigated. We will consult with the New York and Connecticut SHPOs, the ACHP, and other parties, if appropriate, on the adequacy of these plans. After consultation, implementation of the treatment plan would occur only after the FERC issues a Certificate for the proposed project, and provides written notification to proceed.

TABLE 3.9-1
Cultural Resources-That May Be Affected by the Islander East Pipeline Project

Site Name	Site Type/ Description	Treatment ^{a/}	SHPO Comments ^{b/}	Status of Site Evaluation ^{c/}
CONNECTICUT SITES				
Stony Creek/ Thimble Island Historic District	Listed NRHP District	Avoid effect	No Effect (Shannahan 2002a)	Complete
Marine Survey Targets (7)	Magnetic Anomalies	Diver Inspection	Not eligible (Shannahan 2002b)	Complete
Farm River Site	Prehistoric	Evaluated for NRHP	Not eligible, (Shannahan 2002b)	Complete
Crave's Site	Prehistoric	Evaluated for NRHP	Not eligible, (Shannahan 2002b)	Complete
Cedar Lake Road Site	Prehistoric	Evaluate for NRHP	Pending	Landowner access denied
Greenhouse Complex	Historic	Evaluate for NRHP	Pending	Results submitted to the SHPO, June 4, 2002
Rolling Acres 1698 Farm	Historic NRHP eligible	Evaluate effect	Eligible	Complete
All Saints Cemetery	Modern	Avoid	None	Complete
Branford Railroad	Historic	Avoid effect	None	Affected portion not significant
Gould Lane Gatepost	Historic Feature	Avoid	Concurred with avoidance plan	Implement Avoidance plan during construction
14 Architectural Sites	Buildings 50+ years old	Assess project effect	Pending	Report pending, no effect anticipated
NEW YORK SITES				
Key Span Site	Prehistoric	Develop treatment plan to mitigate/avoid effect	Pending	Pending
Suffolk County Home Cemetery	Historic	Avoid effect	Pending	Pending
Calverton National Cemetery	Modern Veterans Cemetery	Avoid	None	Complete
4 Historic Structures	Buildings 50+ years old	Assess project effect	Pending	Report pending, no effect anticipated
^{a/}	As recommended by consultants.			
^{b/}	SHPO comments, FERC concurs with all of the SHPOs' assessments of eligibility and effect.			
^{c/}	Results have not been filed with the Commission.			

The fieldwork to assist with compliance with Section 106 of the NHPA has not been completed for all elements of the Algonquin and Islander East Pipeline Project. While the majority of the project area has been inventoried for cultural resources, there are still locations, such as where survey access has been denied, and the submerged anchor spread, that have not been surveyed, or where the SHPO has not yet commented about potential effects on historic properties. Table 3.9-2 lists the elements where studies or consultations still need to be completed.

**TABLE 3.9-2
Cultural Resources Investigations or Reviews Still Needed for the Islander East Pipeline Project**

Facility	Item Not Yet Completed	Status
Algonquin Retest Section	Survey not yet conducted.	Consultation meeting with the CT SHPO and state archaeologist scheduled for Spring 2002
Onshore segments	Survey of additional work areas and additional testing where preliminary access was restricted.	Surveys and testing in progress, fieldwork will be completed by Spring-Summer 2002.
Calverton Lateral	Survey report and SHPO consultation.	Fieldwork completed in June, 2002, no historic properties discovered.
Onshore segments	Evaluation reports for 6 sites.	Pending grant of access (3 sites), fieldwork completed in June, 2002 (3 sites).
Offshore segments	Anchor spread area survey, additional evaluations for site avoidance plans.	Fieldwork will be completed by Spring-Summer 2002.

To ensure that all project components are properly studied for cultural resources, we **recommend that:**

- **Islander East and Algonquin should defer construction and use of the proposed project facilities together with the use of related ancillary areas for staging, storage, and temporary work areas and new or to-be-improved access roads, until:**
 - a. **Islander East and Algonquin file with the Secretary all additional required cultural resources inventory and evaluation reports, and any necessary treatment plans;**
 - b. **Islander East and Algonquin file the appropriate SHPO and any other appropriate parties' comments on all cultural resources investigation reports and plans;**
 - c. **The ACHP has been given an opportunity to comment if any historic properties would be affected; and**
 - d. **The Director of OEP reviews and approves all cultural resources reports and plans, and notifies Islander East and Algonquin in writing that they may proceed with mitigation programs or construction.**

All material filed with the Secretary containing location, character, and ownership information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: "CONTAINS PRIVILEGED INFORMATION - DO NOT RELEASE."

Islander East and Algonquin have filed acceptable plans for unanticipated discovery of archaeological materials or human remains during construction for both New York and Connecticut.

Native American Consultation

Section 101(d)(6) of the NHPA requires Federal agencies, as part of their responsibilities under Section 106, to consult with Indian tribes to identify properties of traditional religious and cultural importance which may be affected by a project. Islander East and Algonquin's consultant contacted the Indian Affairs Coordinator for the State of Connecticut, and initiated consultation with the Shinnecock Nation of New York. To date, the Native American representatives have not requested further consultation with Islander East and Algonquin's cultural resource consultants, and no traditional cultural properties have been identified.

3.10 SOCIOECONOMICS

3.10.1 Region of Influence

The Islander East Pipeline Project would involve the construction of about 10.2 miles of new pipeline in New Haven County, Connecticut, and 17.6 miles of new pipeline in Suffolk County, New York. Approximately 22.6 miles of new pipeline would be constructed offshore in Sound. About 11.0 miles would be in Connecticut waters and the other 11.6 would be in New York waters. An additional 27.5 miles of pipeline and pipeline loop in New Haven County would be retested and inspected. Three new meter stations, one compressor station, and five valves would also be constructed; the compressor station, one meter station, and two valves in New Haven County and two meter stations and three valves in Suffolk County. In addition, an existing set of launchers in New Haven County would be relocated to the new compressor station. Table 3.10.1-1 summarizes selected socioeconomic statistics for the project area.

TABLE 3.10.1-1
Existing Socioeconomic Conditions in the Project Area

State/County	Population 2000	Density (People/ Square Mile)	Per Capita Income 1999	Rental Vacancy Rate 1990	Civilian Labor Force July 2001	Unemployment Rate July 2001	Major Industry
CONNECTICUT	3,405,565 ^{d/}	702.9 ^{d/}	\$38,506 ^{b/}	6.9 ^{d/}	1,756,866 ^{d/}	3.4 ^{d/}	Services, Retail ^{d/}
New Haven	824,008 ^{d/}	1,359.7 ^{d/}	\$33,201 ^{f/}	7.5 ^{d/}	424,652 ^{d/}	3.9 ^{d/}	Services, Retail ^{d/}
NEW YORK	18,976,457 ^{b/}	401.9 ^{b/}	\$33,901 ^{f/}	4.9 ^{f/}	9,096,000 ^{k/}	4.5 ^{k/}	Services, Retail ^{d/}
Suffolk	1,419,369 ^{b/}	1,556.3 ^{b/}	\$33,803 ^{f/}	7.0 ^{d/}	747,300 ^{k/}	3.8 ^{k/}	Services, Retail ^{d/}

Sources:

a/	Census 2000a	d/	CTDOL 2001	h/	Census 2000b
b/	BEA 1999a	e/	BEA 1997	i/	NYDOL 2001a
c/	Census 1990a	f/	BEA 1999b	j/	Census 1990b
		g/	Duke 2001a	k/	NYDOL 2001b

3.10.2 Population and Housing

The population of New Haven and Suffolk Counties increased by 2.5 percent and 7.5 percent, respectively, over the past decade (Census, 2000a; Census, 2000b). Population density, an indicator of the extent of development, is very high in the project area, with both New Haven and Suffolk Counties having over 1,300 persons per square mile. The population density of each county is significantly higher than the population density of their respective states. Both counties are part of the greater New York City Metropolitan Area. The Islander East Pipeline Project would pass through highly developed areas of New Haven County but only moderate to low developed areas of Suffolk County. The more developed areas of Suffolk County are to the west of the project location.

A large supply of housing is available in the project area, as shown in Table 3.10.1-2. Though the rental vacancy rates for New Haven and Suffolk Counties are 7.5 percent and 7.0 percent respectively, a large number of rental units are available to provide temporary housing. Over 12,000 rental units are available in New Haven County and over 9,000 are available in Suffolk County. The tourist base of these two counties also contributes a large supply of hotel and motel rooms for temporary housing.

TABLE 3.10.1-2
Housing Characteristics of the Project Area

County	Total Number of Housing Units	Number of Owner-Occupied Units	Owner-Occupied Vacancy Rates	Median Value	Number of Occupied Rental Units	Rental Vacancy Rates	Median Monthly Contract Rent
New Haven	327,079	191,497	1.8	\$165,200	113,233	7.5	\$493
Suffolk	481,317	340,253	1.9	\$165,900	84,466	7.0	\$696

Source: Census, 1990c; Census, 1990d.

There are many communities in the vicinity of the pipeline route. These communities support government and public services such as police, fire protection, medical services, and schools (see table 3.10.1-3).

TABLE 3.10.1-3
Community Statistics of the Project Area

County	Health Services	1992 General Revenue Expenditures	Major Towns Near Pipeline Route	Total Square Miles in the County
New Haven	3,246 doctors 8 hospitals 2,268 hospital beds	\$1,715,100,000	New Haven, East Haven, Branford	606
Suffolk	3,649 doctors 13 hospitals 4,236 hospital beds	\$4,379,400,000	Brookhaven, Riverhead	912

Source: Duke, 2001a.

Construction of the Islander East Pipeline Project would result in a temporary increase in population within the project area. Construction personnel that would be hired from outside the

project area would include construction specialists, supervisory personnel, and inspectors, accounting for approximately 50 to 70 percent of the workforce. These individuals would need to move into the project area on a temporary basis. Non-local workers would generally reside in the vicinity of the project for relatively short periods of time and, typically, few workers are accompanied by family members.

Most non-local workers are likely to use temporary housing such as hotels, motels, and apartments within commuting distance of the project area. Temporary housing is typically used because the construction period for the project is relatively short, and because most non-local workers generally would not bring family members due to the relatively short-term nature of the relocations. Construction crews would not have difficulty locating temporary housing.

3.10.3 Employment and Income

Employment in the project area is concentrated in the service and retail sectors. Unemployment is relatively low in both counties. Of the two counties, Suffolk County has the large civilian labor force.

In 1999, the per capita income of New Haven and Suffolk Counties were almost equivalent. New Haven County was well below the average for Connecticut while Suffolk County was almost equivalent to the average for New York.

Employment and income impacts are addressed in terms of direct and indirect impacts. Direct impacts are those changes that can be directly attributed to the proposed project, such as changes in employment and expenditures from the construction and operation of the proposed compressor station. Indirect impacts to the project area occur based on the direct impacts from the proposed project. Two factors, (1) the changes in site purchase and non-payroll expenditures from the construction and operation phases of the project, and (2) the changes in payroll spending by construction employees, indirectly lead to changes in employment levels and income in other economic sectors throughout the project area (i.e., housing, entertainment). The total economic impact is the sum of the direct and indirect impacts. For this analysis, the term direct jobs refers to the employment created by the project and direct income refers to project workers' salaries. The term indirect jobs refers to the employment created in other economic sectors as an indirect result of new employment at the construction site, and indirect income refers to the income generated by the new indirect employment.

Table 3.10.2-1 shows the total employment and income effects from each facility of the Islander East Pipeline Project. The project would require 1,000 construction workers to build the facilities and would generate an additional 960 jobs in other employment sectors in New Haven and Suffolk Counties. The Islander East Pipeline Project would benefit the local economies of both counties by generating approximately \$55.5 million in new income during the 14-month construction period. Algonquin and Islander East, through their construction contractors and subcontractors, would attempt to hire local skilled construction workers. Approximately 30 to 50 percent of the construction workers per spread and for the construction of the compressor station would be local hires. The majority of inspectors would be non-local due to the specialized knowledge required for the position. Since the offshore and onshore construction would not happen concurrently, the majority of the 200 workers required for offshore construction could also work in the onshore spreads, thus filling approximately 25 percent of the 800 onshore construction jobs.

TABLE 3.10.2-1
Employment and Income Generated by the Islander East Pipeline Project

Facility	County, State	Duration (Months)	Estimated Workforce	Indirect Employment Generated	Total Employment Created	Direct Income Generated ^{a/}	Indirect Income Generated	Total Income Generated
Algonquin								
AGT Pipelines Retest, Anomaly Inspections, & Launcher Relocations	New Haven, CT	3	30	29	59	\$413,000	\$345,000	\$758,000
Cheshire Compressor Station	New Haven, CT	6	100	96	196	\$2,750,000	\$2,300,000	\$5,050,000
Islander East								
Connecticut Onshore	New Haven, CT	8	200	192	392	\$7,350,000	\$6,140,000	\$13,490,000
Connecticut Onshore to Offshore HDD	New Haven, CT	5	75	72	147	\$1,720,000	\$1,440,000	\$3,160,000
Islander East/North Haven Meter Station	New Haven, CT	5	45	43	88	\$1,030,000	\$864,000	\$1,894,000
Sound Offshore	New Haven, CT & Suffolk, NY	5	200	192	392	\$4,700,000	\$3,930,000	\$8,630,000
New York Onshore	Suffolk, NY	8	250	240	490	\$9,790,000	\$8,190,000	\$17,980,000
KeySpan Energy Delivery and ANP Brookhaven Meter Station	Suffolk, NY	5	55	53	108	\$1,350,000	\$1,130,000	\$2,480,000
AES Calverton Meter Station	Suffolk, NY	5	45	43	88	\$1,100,000	\$921,000	\$2,021,000
Total		14^{b/}	1,000	960	1,960	\$30,203,000	\$25,260,000	\$55,463,000

a/ Direct income was determined by using the average salary for Heavy Construction Workers as listed in the County Business Patterns.

b/ The total construction schedule is estimated at 14 months. Offshore construction would occur between November 2002 and April 2003 and all onshore construction would occur in various phases between April 2003 and December 2003.

Sources: Duke, 2001a; CBP, 1999a; CBP, 1999b.

Operation of the facilities would require minimal employment onsite as the aboveground facilities are designed for remote control operation. Two employees would staff the compressor station and inspectors and maintenance crews would be employed on an as-needed basis. The minor increase in employment during the operation of the proposed facilities would not lead to any significant employment or income effects.

Local Economy and Tax Revenues

During construction of the facilities, some portion of the direct income would be spent locally for the purchase of temporary housing, food, gasoline, entertainment, and luxury items. The amount spent in a given area would depend on the number of construction workers and the duration of their stay. Some portion of the construction materials would also be purchased locally. These expenditures would stimulate the growth of the indirect jobs detailed above. These expenditures would also generate revenue for state and county governments through the payment of sales taxes on the purchases.

The tax revenue impacts of operating the pipeline would be more long-term. During operation, the pipeline facilities would be subject to state, county, and local property taxes. State, county, and local governments would benefit from the increased revenue and their respective annual budgets would increase. Table 3.10.2-2 presents a breakdown of expenses and tax revenue for the first 3 years of facility operation. Approximately \$60 million in tax revenues, interest payments, and operation and maintenance costs would be generated during the first 3 years of operation of the facilities.

TABLE 3.10.2-2
Local Expenses and Tax Revenue for Facility Operation

Project Expense	2003	2004	2005
Operation and Maintenance	\$5,785,149	\$5,424,474	\$5,448,854
Taxes Other than Income	\$3,299,715	\$3,332,828	\$3,366,274
Total Operating Expense	\$9,084,864	\$8,757,302	\$8,815,128
Federal Income Tax	\$3,424,245	\$3,246,539	\$3,045,488
State Income Tax	\$825,375	\$782,541	\$734,080
Total Income Taxes	\$4,249,620	\$4,029,080	\$3,779,568
Interest Expense	\$8,378,720	\$7,820,139	\$7,261,557
Total Expenses and Tax Revenue	\$21,713,204	\$20,606,521	\$19,856,253

Source: Duke, 2001a.

Community Services

Given the relatively high population density of the project area, the socioeconomic impacts associated with incremental increases in demand for community services and facilities are not expected to be significant. Community services, such as police, fire protection, and medical facilities, would experience minor and short-term impacts. Demands for local government agency action would experience a short-term increase as permit applications are filed and permits are issued.

Police, fire, medical, and government services, as well as local schools, would benefit from the increased tax revenue and expenditures resulting from the Islander East Pipeline Project.

During operation, Algonquin and Islander East would be required by the DOT to establish and maintain communications with appropriate fire, police, and public officials. The company would institute procedures that would be followed to coordinate and respond to gas pipeline emergencies (see section 3.12, Safety and Reliability).

Transportation

Road and Rail Traffic

A highly developed system of local-, county-, and state-maintained roads exists in the project area. These roads would provide access to the project area. Major roads that would be crossed by the pipeline route in Connecticut include Highway 80, U.S. Route 1, and Interstate 95. Major roads that would be crossed by the pipeline route in New York include the Long Island Expressway (Interstate 495), State Route 25 and 25A, and the William Floyd Parkway (Suffolk County Route 46).

Short-term impacts on the transportation network would result from construction of the pipeline across roads, movement of construction equipment and material to and from work areas, and daily commuting of the construction workforce to the work area. The impacts would not be significant.

Islander East would install the pipeline under several high-volume paved roadways and railroads using the horizontal boring method, thereby avoiding disruption of traffic flows. Low-volume roads and unpaved roads would be crossed using conventional upland construction procedures with modifications as needed. These procedures would require closing the road or driveway and posting signs identifying construction areas and detours if they exist. Pipeline installation at road crossings would typically be completed in less than 24 hours and roads would be restored to a condition similar to preconstruction immediately following installation. In some cases, a temporary bridge or bypass may be established on small roads and driveways, or one lane may be closed at a time with traffic diverted to other lanes. Road closings during peak traffic hours would be avoided to the extent possible.

To maintain safe conditions, Algonquin and Islander East would require their construction contractors to comply with applicable vehicle weight and width restrictions, and to remove soil that is left on the road surface by the crossing of construction equipment. When it is necessary for equipment to move across paved roads, mats or other appropriate measures would be used to prevent damage to the road surface.

The transportation network would experience a short-term incremental increase due to the additional commute traffic from construction workers between home and work. Several construction-related trips may be made each day (to and from the job site) on each spread. This level of traffic will remain fairly constant throughout the construction period, and would typically occur at early morning hours and evening hours. Road congestion is common in New Haven and Suffolk Counties and the additional traffic from construction workers commuting to work would not significantly alter current conditions. Pipeline construction work is generally scheduled to take maximum advantage of daylight hours so that most workers would commute to and from the sites in off-peak hours. Construction workers typically leave a number of personal vehicles at a contractor yard and share rides with other workers or are bused to the construction right-of-way with other

workers, thereby reducing overall traffic. Furthermore, workers would be dispersed along the length of the construction spread, which tends to reduce the impact on traffic at any one location.

The movement of construction equipment and materials from contractor and pipe storage yards to the construction work area would result in an additional short-term impact on the transportation network. Truck traffic associated with transporting construction equipment and pipe to the pipeline route may increase the workload of local police due to monitoring of vehicle weight and width restrictions. Also, detours or obstructions in traffic flow due to the large vehicles or construction of pipeline road crossings may require short-term assistance from local police in limited instances. Project-related demands on local police workloads are not expected to be significant.

Vessel Traffic

Commercial shipping, ferry service, sightseeing tours, and recreational boating contribute to vessel traffic on the Sound. Construction of the offshore portion of the Islander East Pipeline Project would also generate marine vessel traffic. These vessels, when added to the existing vessel traffic, could increase competition for berth space and berthing costs and increase the potential for vessel collisions, harbor congestion, and disturbance from noise or vessel wakes. Navigation regulations and precautions would be followed so as not to impede vessel traffic during the period required for pipeline installation. Also, the large channel area of the Sound should provide adequate alternate routes for vessels.

In addition, Islander East would coordinate with the U.S. Coast Guard. Notice to Mariners would be issued with installation details. Communication would also be ongoing with vessels in the vicinity of the installation activities. The offshore areas allow for movement from one area to another so that the commercial shipping would continue as the project installation moves across the Sound. Neither of the two local ferry routes are in the vicinity of the proposed project location and no impact on service is expected.

A number of tour companies offer sightseeing tours in and around the Sound. A popular area for sightseeing in the vicinity of the pipeline route is the Thimble Islands on the Connecticut side of the Sound. Guided boat tours operate from mid-May through Columbus Day in October and depart from the Stony Creek town docks (approximately 0.6 mile east of the pipeline route). Although construction vessels would be visible from shore in this area, little or no impacts on the operations of sightseeing tours or recreational boating are expected during construction because construction would occur during winter, when tour boats are inactive.

Property Values and Land Issues

During scoping, a number of local residents expressed concern about the devaluation of their property once the property is encumbered by a pipeline easement. Appraisal methods used to estimate land values are based on objective characteristics of the property and any improvements. The impact that a pipeline or the presence of a nearby aboveground facility may have on the value of the land depends on many factors including size, existence of other pipelines, the current value of the land, its location, and current land use. A potential purchaser of a property would make a decision to purchase based on the planned use (such as agricultural, future subdivision, or home) of the property in question. If the presence of a pipeline renders the planned use infeasible, or if the

presence of an aboveground facility disrupts the visual aesthetics, a potential purchaser may decide not to purchase the property. However, each potential purchaser has a different goal and ability to purchase land.

The effects that a pipeline easement may have on property values could be negotiated between the parties during the easement acquisition process. The easement acquisition process is designed to provide fair compensation to the landowner for the right to use the property for pipeline construction and operation. The easement agreement between the company and the landowner typically specifies compensation for loss of use during construction, loss of non-renewable or other resources, and allowable uses of the permanent right-of-way after construction.

If an easement cannot be negotiated with the landowner and the project has been certificated by the Commission, the company may use the right of eminent domain granted to it under section 7(h) of the NGA and the procedure set forth under the Federal Rules of Civil Procedure (Rule 71A) to obtain the right-of-way and extra workspace areas. The company would still be required to compensate the landowner for the right-of-way, and for any damages incurred during construction. However, the level of compensation would be determined by a court according to state law once the FERC issues a certificate. In either case, Islander East would compensate landowners for the use of the land.

Property taxes for a parcel of land are generally based on the actual use of the land. The majority of the pipeline would follow existing rights-of-way to minimize impacts to land use and vegetation cover. Impacts to these resources would still occur, however, the majority of the impacts would be located along the Calverton Lateral. These impacts are addressed in sections 3.5, Vegetation, and 3.8, Land Use. Installation of the pipeline would preclude construction of aboveground structures on the permanent right-of-way for the life of the project. Any landowner who feels that the presence of the pipeline easement reduces the value of their land, resulting in an overpayment of property taxes, may appeal the assessment/taxation issue to the local property tax agency.

Residents were also concerned that the presence of the pipeline would lead to further utility construction, such as pipelines and transmission lines, on adjoining lands. They also felt that the presence of the right-of-way would lead to the increased use of off-road vehicles along the route. These issues are addressed in section 3.8.2.2. A number of residents in Suffolk County are also concerned about the proposed route passing through CPAs of the Pine Barrens Region. This issue is addressed in section 3.8.3.2.

Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." In addition to considering environmental effects, Federal agencies should identify mitigation measures that address significant and adverse environmental effects of proposed actions on minority populations, low-income populations, and Indian tribes as part of a NEPA analysis (CEQ, 1997).

Under Executive Order 12898, each Federal agency must ensure that public documents, notices, and hearings are readily available to the public. The mailing distribution list for this EIS was initiated when the NOI was first issued, and has been continuously updated during the EIS. The original mailing list included all affected property owners along the proposed route, as identified by Algonquin and Islander East, without any distinction based on minority or income status. The mailing list also included Native American groups identified as having an interest in the project area.

Since early 2001, Algonquin and Islander East have been in contact with Federal, state, and local officials, non-governmental groups, and landowners in each county traversed by the project to solicit input on the route and provide information on the project. Open houses, public scoping meetings, and the project site visit provided property owners, municipalities, counties, special interest groups, and state and Federal regulatory agencies an opportunity to comment on the project. Section 1.3 describes the public notification process and participation process, which includes interested parties without regard to minority status.

We require that an applicant initially identify all residences within 50 feet of the construction work area. From this information, we analyze the pipeline route with respect to: (1) how close in feet the proposed right-of-way is to the residence, and (2) other engineering constraints that may affect construction and the safety and welfare of residents. Special construction procedures, techniques, and/or site-specific mitigation measures are then identified to minimize impact on residences potentially affected by construction, regardless of the income or minority status of the resident. Algonquin and Islander East will prepare site specific plans and mitigation measures to minimize construction impact on any residential and commercial buildings located within 25 feet of the construction work area, prior to construction. The plans and mitigation measures are discussed in more detail in section 3.8.2.2.

We have not identified any disproportionately high and adverse human health or environmental effects on minority and low-income communities or Native American groups.

3.11 AIR QUALITY AND NOISE

3.11.1 Air Quality

Air quality can be affected by both pipeline construction and operation of compressor stations. Algonquin and Islander East propose to construct or uprate about 78 miles of natural gas pipeline in Connecticut and New York. In addition, Algonquin proposes to construct the Cheshire Compressor Station in Connecticut.

During operation, the compressor station would emit various quantities of regulated air pollutants, including carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOCs), sulfur dioxide (SO₂), and particulate matter. NO_x emissions are a combination of nitric oxide (NO) and nitrogen dioxide (NO₂). The pollutants emitted in greatest quantities would be CO and NO_x. Preliminary estimates indicate that all pollutant emissions from the proposed compressor station would be below Federal major source quantity thresholds.

Regulatory Requirements

The Federal CAA provides the basis for most Federal and state air quality management programs and regulations. The EPA has adopted National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants: CO, NO_x, SO₂, ozone (O₃), inhalable particulate matter (PM₁₀), and lead. Individual states can establish additional air quality standards or standards for criteria pollutants which are more stringent than the NAAQS, and also can establish standards for pollutants not covered by the NAAQS. The air pollutants of greatest concern in the project area are O₃, CO, and PM₁₀. Ozone is not emitted directly, but forms through chemical reactions in the atmosphere from emissions of VOCs and NO_x.

States and EPA classify areas as nonattainment (violating a NAAQS), attainment (better than a NAAQS), or unclassified. Unclassified areas are treated as attainment areas for most regulatory purposes. Areas that have been reclassified from nonattainment to attainment of Federal air quality standards are automatically considered "maintenance areas". States are required to develop and implement State Implementation Plans (SIPs) to achieve and maintain the NAAQS.

Emissions from stationary sources such as the proposed Cheshire Compressor Station are subject to state and Federal air quality permit program requirements. Federal preconstruction program requirements include new source review (NSR) for sources in nonattainment areas, prevention of significant deterioration (PSD) for sources in attainment areas, and new source performance standards (NSPS) for selected categories of industrial sources. In addition to preconstruction permit reviews, facility operating permits (Title V permits under 40 CFR part 70) are required if the annual potential to emit would exceed various thresholds for criteria and hazardous air pollutants. NSR permit requirements include requirements for best available control technology (BACT) and emission offsets. PSD permit requirements include BACT requirements, evaluation of emission impacts on vegetation and soils, and dispersion modeling analyses to demonstrate that facility emissions will not cause ambient NO_x, SO₂, or PM₁₀ increment limits to be exceeded. Additional modeling analyses may be required to assess impacts on visibility in certain national park and wilderness areas.

Federal NSPS emission limits have been established for stationary gas turbines in 40 CFR Part 60 Subpart GG. These regulations limit NO_x emissions in the exhaust from large stationary gas turbines. Most new gas turbine engines easily meet the prescribed emission limits.

In Connecticut, the major source thresholds that would trigger Federal NSR requirements are emissions of 50 tons per year or more of either VOC or NO_x. The major source thresholds for Federal PSD requirements are 100 tons per year or more of attainment pollutant emissions (CO, SO₂, NO_x, or PM₁₀). A PSD review also would be triggered if a new source would have annual emissions above the significant emission rate (SER) thresholds of 40 tons per year for NO_x and 100 tons per year for CO. CTDEP regulations (Section 22a-174-3[a] of the Regulations of Connecticut State Agencies) would require BACT for all pollutants emitted in amounts greater than 5 tons per year.

3.11.1.1 Existing Environment

The proposed project includes compressor station facilities in New Haven County, Connecticut plus pipeline facilities in New Haven County, Connecticut and Suffolk County, New

York. Ozone, CO, and PM₁₀ are the air pollutants of greatest concern in the project area. New Haven County, Connecticut is designated as a serious nonattainment area for O₃ and as a maintenance area for carbon monoxide. The city of New Haven, Connecticut is a nonattainment area for PM₁₀. Suffolk County, New York is designated as a severe nonattainment area for O₃. The project study area is an attainment area for all other criteria pollutants.

Emission thresholds that would trigger Federal NSR and PSD review of the Cheshire Compressor Station are 50 tons per year for VOC emissions, 50 tons per year for NO_x emissions, and 100 tons per year for any of the other pollutants (CO, SO_x, and PM₁₀). Although Federal NSR and PSD review of the compressor station is not anticipated, CTDEP regulations (Section 22a-174-3[a] of the Regulations of the Connecticut State Agencies) would require a state air quality permit for construction and operation of the facility.

3.11.1.2 Environmental Consequences

Pipeline and compressor station construction would occur over a period of about 1 year. Construction of the Cheshire Compressor Station would require about 6 months. Onshore pipeline construction would occur over a period of about 8 months. Pipeline construction across the Sound would require about 5 months. Installation of meter stations would require about 5 months.

Construction activity at the proposed compressor station site would require various bulldozers, trucks, cranes, forklifts, front-end loaders, concrete mixers, and other construction equipment. Onshore pipeline construction would require bulldozers or graders for corridor preparation; excavators or backhoes for excavation; front-end loaders for managing topsoil and spoil stockpiles; and trucks, forklifts, mobile cranes, and side-boom tractors for pipeline handling. Most ground disturbance would occur during clearing and trenching operations at the start of construction, and during backfilling operations at the end of construction. Less ground disturbance would occur during assembly, inspection, and installation of the pipeline. Offshore pipeline construction would require a directional drill rig on the Connecticut side of the pipeline corridor. Most of the offshore pipeline construction would be done from two barges assisted by tugboats. Other small boats would transport work crews and various supplies. Algonquin would be responsible for construction of the Cheshire Compressor Station and Islander East would be responsible for pipeline construction. In a comment from CTDEP, they recommend that best management practices be used to minimize air quality impacts, specifically monitoring that diesel construction equipment should be fitted with emission control equipment such as oxidation catalysts and particulate matter filters. Therefore, we recommend that:

- **Before construction Algonquin and Islander East should prepare a plan to minimize impacts to air quality, including fugitive dust and vehicle emissions, and submit this to the CTDEP and for the review and written approval of the Director of OEP.**

The Cheshire Compressor Station would have a gas turbine compressor system, a small boiler, and a back-up power generator. Although equipment selection has not yet been finalized, preliminary emission estimates have assumed a 12,028 hp Solar Taurus Model 70-T100302S gas turbine, a 1.7 million British thermal units (MMBTU)/hr boiler, and a 200kW Waukesha F18GL generator with a fuel consumption rate of 3.22 MMBTU/HR. The estimated annual emissions from

3.0 ENVIRONMENTAL ANALYSIS

this equipment, assuming continuous operation of the compressor and boiler and 500 hours per year of generator use, are shown in table 3.11.1-1. To confirm the results of our preliminary analysis, we recommend that:

- **Before construction, Algonquin should file the following information with the Secretary:**
 - a. **Make and Model number of the turbine or compression to be installed at the Cheshire Compressor Station, and**
 - b. **The manufacturer's emission estimates in tons per year for NO_x, CO, VOC, PM₁₀, and SO₂ for the selected turbine unit.**

State permit review will ensure that the Cheshire Compressor Station meets BACT requirements. Greenhouse gas emissions from the Cheshire Compressor Station are estimated to be 43,544 tons per year of carbon dioxide (CO₂), 5.20 tons per year of methane (CH₄), and 1.18 tons per year of nitrous oxide (N₂O). No Federal or state emission limits would be exceeded by these emissions, and no significant ambient air quality impacts are anticipated. Consequently, operation of the Cheshire Compressor Station would not have a significant impact on air quality.

**TABLE 3.11.1-1
Estimated Annual Emissions for the Cheshire Compressor Station**

Item	Model	Size rating		Hours per year	Annual emissions, tons per year				
		Value	Units		VOC	NO _x	CO	SO ₂	PM ₁₀
Turbine	Solar Taurus 70-T10302S	12,028.00	Horsepower	8,760	2.00	35.68	40.6 ^w	1.32	2.56
Boiler	not identified	1.7	MMBTU/HR	8,760	0.04	0.715	0.601	0.004	0.05
Generator	Waukesha F18GL	3.22	MMBTU/HR	500	0.103	1.83	2.83	0.0005	0.008
TOTALS					2.14	38.22	44.03	1.32	2.62
					(50)*	(50)*			

* Major source thresholds are shown in parentheses for comparison. Standard for CO, SO_x and PM₁₀ is 100 tons per year combined.
 Note: MMBTU/HR = Million British thermal units per hour; VOC = Volatile organic compound; NO_x = nitrogen oxides; CO = carbon monoxide; SO_x = sulfur oxides; and PM₁₀ = particulate matter (<10 microns).
^w May 24, 2002 amended filing, Algonquin modified co-emission estimate.

3.11.2 Noise

Noise conditions can be affected during construction and operation of pipeline facilities. The ambient sound level of a region is defined by the total noise generated within the specific environment, and is usually comprised of sounds emanating from natural and artificial sources. At any location, both the magnitude and frequency of environmental noise may vary considerably over the course of a day and throughout the week. This variation is caused by changes in noise source activity, changing weather conditions, and the effect of seasonal vegetative cover.

Two measurements commonly used by Federal agencies to relate the time-varying quality of environmental noise to its known effects on people are the equivalent sound level (L_{eq}) and the

average day-night sound level (L_{dn}). The L_{eq} is an average A-weighted sound level containing the same sound energy as the varying sound levels measured over a specific period of time. Annoyance from noise levels varies depending on the length of exposure and the time of day. The L_{dn} takes into account the duration and time the noise is encountered. Late night and early morning (10:00 p.m. to 7:00 a.m.) noise exposures are penalized +10 composite decibels (dB) to account for people's greater sensitivity to sound during the nighttime hours. Daytime noise levels (7:00 a.m. to 10:00 p.m.) are not adjusted when computing the 24-hour average L_{dn} value.

In 1974, the EPA published "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety." This publication evaluates the effects of environmental noise with respect to health and safety. The document provides information for state and local governments to use in developing their own ambient noise standards. The EPA recommended that noise levels should not exceed an L_{dn} of 55 decibels on the A-weighted scale (dBA), the level which protects the public from indoor and outdoor activity interference. An L_{dn} of 55 dBA is equivalent to a continuous noise level of 48.6 dBA. FERC regulations specify a maximum of 55 dBA.

The State of Connecticut has established noise standards that set property line noise limits based on three general land use categories (Class A for noise sensitive uses, Class B for commercial uses, and Class C for industrial uses). Daytime and nighttime noise limits are set based on the land use category for the noise source and the land use category for the area affected by the noise source. For an industrial (Class C) noise source affecting a residential (Class A) land use, the noise limits are 61 dBA during daytime hours and 51 dBA during nighttime hours (Section 22a-69 of the Regulations of Connecticut State Agencies).

New York does not have any state noise standards that would apply to pipeline construction activities. The Town of Brookhaven has a noise standard (Chapter 50 of the Brookhaven Code). Noise levels due to construction activities are exempt, but the standard prohibits construction activity between the hours of 10:00 p.m. and 7:00 a.m. on weekdays, and all hours on weekends and legal holidays. The Town of Riverhead has a noise ordinance which prohibits construction activities before 7:00 a.m. and after 8:00 p.m.

3.11.2.1 Existing Environment

Rural and agricultural areas typically have background noise conditions with an L_{dn} of 40 to 45 dBA. Background L_{dn} levels are often 45-55 dBA near roadways with moderate traffic volumes, but often exceed an L_{dn} of 60 dBA near major highways and interstates.

A noise monitoring study was conducted in the vicinity of the Cheshire Compressor Station on April 26 and April 27, 2001. Daytime and nighttime noise measurements were conducted for 20-minute periods at five noise sensitive areas (NSAs) near the compressor station site. Traffic noise from Interstate 691 and Route 84 were the dominant sources of ambient noise. Noise levels near the Cheshire Compressor Station during April 2001 are summarized in table 3.11.2-1.

Because minor revisions to planned facility layouts were made, Algonquin conducted a second noise survey for the Cheshire Compressor Station on November 28, 2001. Noise

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measurements were made at four locations near residences close to the proposed compressor station. Table 3.11.2-2 summarizes the results of that noise survey.

As can be seen by comparison of tables 3.11.2-1 and 3.11.2-2, the results of the November 2001 noise survey were similar to the results of the April 2001 noise survey, although somewhat different locations were monitored during the two surveys.

**TABLE 3.11.2-1
Initial Ambient Noise Levels (April 2001) Near the Proposed Cheshire Compressor Station**

Noise Sensitive Area (NSA)	Distance/Direction To NSA	Daytime Noise (L _{eq}) dBA	Nighttime Noise (L _{eq}) dBA	Estimated Noise (L _{dn}) dBA
1. Diana Court	1,400 feet S	61	50	61
2. Johnson Avenue, SE of Site	1,200 feet SE	49	45	52
3. Brownstone Drive	4,200 feet SE	54	54	60
4. Birch Road	1,200 feet N	56	49	57
5. Route 10, NW of Site	2,500 feet NW	66	55	66
6. Route 10 & Johnson Avenue, SW of Site	2,400 feet SW	61	50	61

Notes: noise conditions at location 6 assumed to be the same as at location 1.
 N = North; S = South; SE = Southeast; SW = Southwest; NW = Northwest
 Source: Islander East Pipeline Company. 2001. Cheshire Compressor Station Noise Technical Report. Prepared By TRC Environmental Corporation.

**TABLE 3.11.2-2
Ambient Noise Levels (November 2001) Near the Proposed Cheshire Compressor Station**

NSA	Distance/Direction To NSA	Daytime Noise (L _{eq}) dBA	Nighttime Noise (L _{eq}) dBA	Estimated Noise (L _{dn}) dBA
1. Birch Road	750 feet NNE	63.4	57.6	65.4
2. Birch Road	1,300 feet N	46.6	40.5	48.5
3. E. Johnson Ave.	1,000 feet SE	50.6	43.4	51.9
4. E. Johnson Ave.	1,050 feet SW	45.6	40.8	48.3

Notes: distances and directions are relative to the proposed compressor building location. Location 2 is close to location 4 in table 3.11-2. Location 3 is close to location 2 in table 3.11-2. Location 4 is close to location 1 in table 3.11-2.
 N = North; S = South; SE = Southeast; SW = Southwest; NW = Northwest
 Source: Algonquin Gas Transmission Company. 2002. Cheshire Compressor Station: Results of an Ambient Site Sound Survey and Noise Impact Analysis of a Proposed New Compressor Station Associated With the Islander East Pipeline Project. Prepared by Hoover & Keith Inc.

An ambient noise survey in the vicinity of the HDD site near Juniper Point was conducted on November 28, 2001. The ambient monitoring was conducted by measuring noise levels for several 5-10 minute periods at each monitoring position. The measured daytime noise levels were considered representative of nighttime noise levels. Table 3.11.2-3 summarizes the results of the noise monitoring survey at Juniper Point.

TABLE 3.11.2-3
November 2001 Existing Ambient Noise Levels Near the Proposed Juniper Point HDD Site

NSA	Distance/Direction To NSA	Daytime Noise (L_{eq}) dBA	Nighttime Noise (L_{eq}) dBA	Estimated Noise (L_{dn}) dBA
1. End of Pleasant Point Road	1,600 feet E	40.9	40.9	47.3
2. Juniper Point Road	220-280 feet W	43.2	43.2	49.6
3. Gaylea Drive	800 feet NW	40.1	40.1	46.5

Notes: distances and directions are relative to the estimated location for the drilling rig.
N = North; S = South; SE = Southeast; SW = Southwest; NW = Northwest
Source: Islander East Pipeline Company, 2002. Horizontal Directional Drilling Site: Results of an Ambient Site Sound Survey and Noise Impact Assessment of a Proposed Horizontal Directional Drilling Site Associated with the Islander East Pipeline Project. Prepared by Hoover & Keith Inc.

3.11.2.2 Environmental Consequences

Compressor Station

Construction activity at the proposed Cheshire Compressor Station would last about 6 months. The noise level could vary considerably, depending upon the components being worked on. However, assuming a typical mix of construction equipment, onsite construction noise levels would be expected to vary between 80 and 90 dBA about 50 feet from the primary construction activity. The closest noise-sensitive area is about 750 feet from the compressor station site. At that distance, construction site noise levels would be reduced to about 63 dBA. This noise level would be about the same as existing daytime ambient noise levels. Construction activity would be limited to daytime periods, further reducing the disturbance potential from station construction. Compressor station construction noise impacts are not considered significant.

The Cheshire Compressor Station would be designed to minimize noise impacts on nearby properties. The gas turbine and compressor equipment would be housed in an acoustically treated structure, with noise silencers provided on both the exhaust stack and the air inlet. Operation of the Cheshire Compressor Station would produce small noise level increases at some of the closest NSAs. Table 3.11.2-4 summarizes the expected impact on noise levels near the Cheshire Compressor Station.

As indicated in table 3.11.2-4, NSA 4 would experience a 3 dBA increase in L_{dn} levels, NSA 2 and NSA 3 would experience approximately a 2 dBA increase in noise levels. There would be no noticeable increase in noise levels at the other NSA. In all cases, the incremental L_{dn} level attributable to the Cheshire Compressor Station would be less than the FERC guideline of 55 dBA.

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In addition, the hourly average noise levels produced by the Cheshire Compressor Station would be less than the 51 dBA limit set by the state noise standards. Consequently, noise impacts from operation of the Cheshire Compressor Station are not considered significant.

TABLE 3.11.2-4
Projected Ambient Noise Levels Near the Proposed Cheshire Compressor Station

NSA	Distance/Direction To NSA	Existing Ambient Noise, L_{dn} (dBA)	Estimated Station Noise, L_{dn} (dBA)	Total Noise, L_{dn} (dBA)	Increase in Noise L_{dn} (dBA)
1. Birch Road	750 feet NNE	65.4	52.0	65.6	0.2
2. Birch Road	1,300 feet N	48.5	47.0	50.8	2.3
3. E. Johnson Ave.	1,000 feet SE	51.9	49.0	53.7	1.8
4. E. Johnson Ave.	1,050 feet SW	48.3	49.0	51.7	3.4

Note: N=North, S=South, SE=Southeast, SW=Southwest, NW=Northwest

Source: Islander East Pipeline Company, 2001; Cheshire Compressor Station Noise Technical Report, Prepared by TRC Environmental Corporation; Algonquin Gas Transmission Company, 2002; Cheshire Compressor Station: Results of an Ambient Site Sound survey and Noise Impact Analysis of a Proposed New Compressor Station Associated with the Islander East Pipeline Project, prepared by Keith, Inc.

However, in order to verify that noise levels from operation of the Cheshire Compressor Station are within our guidelines, **we recommend that:**

- **Algonquin should file a noise survey with the Secretary no later than 60 days after placing the Cheshire Compressor Station in service. If the noise attributable to the operation of the station at full load exceeds an L_{dn} of 55 dBA at any nearby NSAs, Algonquin should install additional noise controls to meet the level within 1 year of the in-service date. Algonquin should confirm compliance with this requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.**

Meter stations and other aboveground facilities would be located at the Cheshire Compressor Station of in areas of open space and forested land use. Consequently, no significant noise impacts would be attributable to these facilities.

Pipeline Construction

Pipeline construction would cause temporary increases in local noise levels due to equipment operation and pipeline testing activities. Noise from pipeline construction activity has been evaluated as a sequence of four stages: right-of-way clearing and grading, trenching activities, pipeline installation, and backfilling operations. Depending on terrain and vegetation conditions, construction activity noise levels may be highest during clearing and grading operations. Where minimal clearing and grading activities are required, noise levels would be similar during all stages of pipeline construction.

Given an 8-month pipeline construction period and overall pipeline lengths, each stage of pipeline construction would proceed at an overall average rate of about 500 linear feet per day.

Overall construction activity would probably last a few weeks at most near any given area. Different numbers and types of construction equipment would be used during different stages of construction. In general, from 7 to 10 major equipment items could be operating in the same general area on a given day. Depending on construction stage, the equipment would include tracked dozers, wheeled dozers, wheeled loaders, motor graders, wood chippers, power shovels or excavators, forklifts, side-boom tractors, heavy trucks, and water trucks. The construction noise analysis assumed that most equipment items would be used 8 hours per day, with actual operation occurring during 65 percent to 85 percent of any active hour. Water trucks would typically be used only 1 hour per day.

Noise generated by pipeline construction would be highest during right-of-way clearing and grading if significant vegetation removal or grading were required. For the other phases of pipeline construction activity, average daytime noise levels would be lower. Estimated noise levels at varying distances from pipeline construction activity are shown in table 3.11.2-5.

TABLE 3.11.2-5
Estimated Noise Levels from Pipeline Construction

Distance (ft)	Average Daytime Noise (dBA)	
	ROW Clearing	Other Construction Phases
50	92.4	87.3-88.3
100	86.3	81.3-82.2
300	76.4	71.5-72.3
600	69.7	65.1-65.8
1,000	64.5	59.9-60.7

Surveys by Islander East identified 41 residential buildings and 15 commercial buildings within 50 feet of the pipeline construction work areas.

Pipeline construction would result in short periods of high daytime noise levels at these properties. Because of the short duration of construction activities at any one location and because construction plans would be coordinated with individual property owners, pipeline construction noise impacts are not considered significant.

It is not yet clear whether any construction blasting would be required for pipeline construction in Connecticut. Some portions of the proposed pipeline corridor have rock outcrops or a shallow depth to bedrock. If normal construction equipment cannot clear, grade, and trench in these areas, then limited construction blasting may be necessary. Any blasting activity would adhere to all local, state, and Federal regulations, including noise requirements. Because the blasts would be small charges placed in drilled holes in the sub surface (i.e. bedrock), it is expected that noise generation from blasting would be minimal. Other potential impacts from blasting are discussed in section 3.1.1.2.

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The horizontal directional drilling operation at Juniper Point would require a drilling rig, a power unit for the drilling rig, electric mud pumps, portable generators, mud mixing and cleaning equipment, mobile cranes, forklifts, loaders, trucks, and portable light sets. These equipment items have the potential for generating relatively high noise levels. The noise study for the directional drilling operation recommends implementation of a "high performance" noise control program including the following elements:

- total enclosure of the drilling rig power unit
- partial enclosures or noise barriers around other parts of the drilling rig
- upgraded silencers on drilling rig engines
- partial or total enclosure of mud pumps and associated engines
- upgraded silencers for mud pump engines
- total enclosure of generator sets or use of acoustically packaged generator sets
- upgraded silencers for generator set engines
- partial enclosures or noise barriers around mud mixing and cleaning equipment
- upgraded engine silencers for mobile cranes, forklifts, loaders, and trucks
- engine compartment treatments for mobile cranes and boom trucks
- modifications to backup alarms on mobile equipment
- orientation of loading bins to minimize noise impacts on adjacent areas
- usage restrictions on mobile equipment
- total enclosure of engines for light sets
- temporary noise barrier constructed of hay bales and placement of on-site tanks along the west side ridge and along the east side of the drilling site

The estimated noise impact from HDD operations using the high performance noise control program is shown in table 3.11.2-6. The high performance noise mitigation measures assume that drilling operations would be continuous (i.e., a 24-hour work day). Less stringent noise control measures would be required if drilling operations were restricted to a 12-hour work day. The noise study for the horizontal directional drilling operation concludes that successful implementation of the high performance mitigation measures would reduce drilling operation noise impacts at the closest noise sensitive area to an L_{dn} of less than 55 dBA. Therefore, **we recommend that:**

- **Algonquin should incorporate the high performance noise control measures identified in the February 18, 2002 horizontal directional drilling site noise study into bid requirements and contract specifications for the Juniper Point horizontal directional drilling operation.**

TABLE 3.11.2-6
Estimated Noise Impact Near Juniper Point HDD Site Using a High Performance Noise Control Program

NSA	Approximate Distance/Direction To NSA	Existing Ambient Noise Levels, L_{dn} (dBA)	Noise Impact Due to HDD, L_{dn} (dBA)	Total Noise, L_{dn} (dBA)	Increase in Noise L_{dn} (dBA)
1. End of Pleasant Point Road	1,600 feet E	47.3	41-46	48-50	1-3
2. Juniper Point Road	220-280 feet W	49.6	51-56	53-57	3-7
3. Gaylea Road	800 feet NW	46.5	48-54	50-55	3-8

3.12 RELIABILITY AND SAFETY

The transportation of natural gas by pipeline involves some risk to the public in the event of an accident and subsequent release of gas. The greatest hazard is a fire or explosion following a major pipeline rupture.

Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death. Mercaptan is added to natural gas for safety so that it can be detected by smell.

Methane has an ignition temperature of 1,000 degrees Fahrenheit and is flammable at concentrations between 5.0 percent and 15.0 percent in air. Unconfined mixtures of methane in air are not explosive. However, a flammable concentration within an enclosed space in the presence of an ignition source can explode. It is buoyant at atmospheric temperatures and disperses rapidly in air.

3.12.1 Safety Standards

The DOT is mandated to provide pipeline safety under Title 49, USC Chapter 601. The Research and Special Programs Administration's, Office of Pipeline Safety, administers the national regulatory program to ensure the safe transportation of natural gas and other hazardous materials by pipeline. It develops safety regulations and other approaches to risk management that ensure safety in the design, construction, testing, operation, maintenance, and emergency response of pipeline facilities. Many of the regulations are written as performance standards which set the level of safety to be attained and allow the pipeline operator to use various technologies to achieve safety. Research and Special Programs Administration ensures that people and the environment are protected from the risk of pipeline incidents. This work is shared with state agency partners and others at the Federal, state, and local level. Section 5(a) of the Natural Gas Pipeline Safety Act provides for a state agency to assume all aspects of the safety program for intrastate facilities by adopting and enforcing the Federal standards, while section 5(b) permits a state agency that does not qualify under section 5(a) to perform certain inspection and monitoring functions. A state may also act as DOT's agent to inspect interstate facilities within its boundaries; however, the DOT is responsible for

enforcement action. The majority of the states have either 5(a) certifications or 5(b) agreements, while nine states act as interstate agents.

The DOT pipeline standards are published in Parts 190-199 of Title 49 of the CFR. Part 192 of 49 CFR specifically addresses natural gas pipeline safety issues. It does not, however, address other issues like siting and routing, bond issues, etc. These items, in part, are a matter of private negotiation between pipeline companies, landowners, and/or local government zoning boards. The Federal statutes which govern DOT's authority do not authorize DOT to regulate those activities. The FERC takes the Federal lead on issues regarding environmental impacts (which often affect siting and routing), financing, tariffs, etc.

Under a Memorandum of Understanding on Natural Gas Transportation Facilities (Memorandum) dated January 15, 1993 between the DOT and the FERC, the DOT has the exclusive authority to promulgate Federal safety standards used in the transportation of natural gas. Section 157.14(a)(9)(vi) of the FERC's regulations require that an applicant certify that it will design, install, inspect, test, construct, operate, replace, and maintain the facility for which a certificate is requested in accordance with Federal safety standards and plans for maintenance and inspection, or shall certify that it has been granted a waiver of the requirements of the safety standards by the DOT in accordance with section 3(e) of the Natural Gas Pipeline Safety Act. The FERC accepts this certification and does not impose additional safety standards other than the DOT standards. If the Commission becomes aware of an existing or potential safety problem, there is a provision in the Memorandum to promptly alert DOT. The Memorandum also provides for referring complaints and inquiries made by state and local governments and the general public involving safety matters related to pipeline under the Commission's jurisdiction.

The FERC also participates as a member of the DOT's Technical Pipeline Safety Standards Committee which determines if proposed safety regulations are reasonable, feasible, and practicable.

We received several comments regarding the safety of the pipeline system both onshore and offshore, and more specifically the proximity of the pipe to the schools, communities, and the railroad. The pipeline and aboveground facilities associated with the Islander East Pipeline Project must be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. Part 192 specifies material selection and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion.

Pipelines are built in areas of varying population density throughout the United States. Because avoidance of populated areas is not always possible, the standards in the Federal regulations become more stringent as the human population density increases.

Part 192 also defines area classifications, based on population density in the vicinity of the pipeline, and specifies more rigorous safety requirements for populated areas. The class location unit is an area that extends 220 yards on either side of the centerline of any continuous one mile length of pipeline. The four area classifications are defined as follows:

- Class 1: Location with 10 or fewer buildings intended for human occupancy.
- Class 2: Location with more than 10 but less than 46 buildings intended for human occupancy.
- Class 3: Location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of any building, or small well-defined outside area occupied by 20 or more people during normal use.
- Class 4: Location where buildings with four or more stories aboveground are prevalent.

Class locations representing more populated areas require higher safety factors in pipeline design, testing, and operation. Pipelines constructed on land in Class 1 locations must be installed with a minimum depth of cover of 30 inches in normal soil and 18 inches in consolidated rock. All pipelines installed in navigable rivers, streams, and harbors must have a minimum cover of 48 inches in soil or 24 inches in consolidated rock. Offshore pipelines constructed in less than 12 feet of water, as measured from the mean low tide, must have a minimum cover of 36 inches in soil and 18 inches in consolidated rock. Offshore pipelines constructed in 12 to 200 feet of water, as measured from the mean low tide, must be installed so that the top of the pipe is below the natural bottom unless the pipeline is protected by some other means such as a heavy concrete coating.

Class 2, 3, and 4 locations, as well as drainage ditches of public roads and railroad crossings, require a minimum cover of 36 inches in normal soil and 24 inches in consolidated rock. Class locations also specify the maximum distance to a sectionalizing block valve (e.g., 10.0 miles in Class 1, 7.5 miles in Class 2, 4.0 miles in Class 3, and 2.5 miles in Class 4). Pipe wall thickness and pipeline design pressures, hydrostatic test pressures, maximum allowable operating pressure, inspection and testing of welds, and frequency of pipeline patrols and leak surveys must also conform to higher standards in more populated areas. Class locations by milepost for the Islander East Pipeline Project are shown in table 3.12.1-1.

Part 192 prescribes the minimum standards for operating and maintaining pipeline facilities, including the requirement to establish a written plan governing these activities. Under section 192.615, each pipeline operator must also establish an emergency plan that includes procedures to minimize the hazards in a natural gas pipeline emergency. Key elements of the plan include procedures for:

- Receiving, identifying, and classifying emergency events, gas leakage, fires, explosions, and natural disasters;
- Establishing and maintaining communications with local fire, police, and public officials, and coordinating emergency response;
- Emergency shutdown of system and safe restoration of service;
- Making personnel, equipment, tools, and materials available at the scene of an emergency; and

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- Protecting people first and then property, and making them safe from actual or potential hazards.

Part 192 requires that each operator must establish and maintain liaison with appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline emergency, and to coordinate mutual assistance. The operator must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to appropriate public officials. Algonquin and Islander East would provide the appropriate training to local emergency service personnel before the pipeline is placed in service. No additional specialized local fire protection equipment would be required to handle pipeline emergencies.

TABLE 3.12.1-1
U.S. Department of Transportation Class Locations by Milepost

Beginning Milepost	Ending Milepost	Distance (miles)	Class ^a
0	1.32	1.32	3
1.32	2.84	1.52	2
2.84	3.06	0.22	1
3.06	3.39	0.33	2
3.39	9.25	5.86	3
9.25	9.78	0.53	1
9.78	10.29	0.51	3
10.29	33.32	23.03	1
33.32	33.58	0.26	3
33.58	34.47	0.89	1
34.47	36.08	1.61	2
36.08	36.56	0.48	1
36.56	38.94	2.38	3
38.94	40.29	1.35	1
40.29	41.13	0.84	2
41.13	42.45	1.32	3
42.45	44.29	1.84	1
44.29	44.80	0.51	3
Calverton Lateral			
CA 0.00	3.10	3.28 ^b	3
CA 3.10	3.25	0.15	1
CA 3.25	3.50	0.25	2
CA 3.50	4.00	0.50	3
CA 4.00	4.80	0.80	2
CA 4.80	5.60	1.03 ^b	1

^a Following are class locations as defined by the USDOT Safety Standards (49 CFR Part 192):

Class 1 – location with 10 or fewer buildings per mile intended for human occupancy;

Class 2 – location with more than 10 but less than 46 buildings per mile intended for human occupancy; and

Class 3 – location with 46 or more buildings per mile intended for human occupancy or where the pipeline lies within 100 yards of any building or small well-defined outside area occupied by 20 or more people during normal use.

^b Distance includes Calverton Lateral route variation.

3.12.2 Pipeline Accident Data

Several commentors were concerned about the possibility of occurrence of a catastrophic event such as an explosion. Since February 9, 1970, 49 CFR Part 191 has required all operators of transmission and gathering systems to notify the DOT of any reportable incident and to submit a report on form F7100.2 within 20 days. Reportable incidents are defined as any leaks that:

- Caused a death or personal injury requiring hospitalization;
- Required taking any segment of transmission line out of service;
- Resulted in gas ignition;
- Caused estimated damage to the property of the operator, or others, or both, of a total of \$5,000 or more;
- Required immediate repair on a transmission line;
- Occurred while testing with gas or another medium; or
- In the judgment of the operator was significant, even though it did not meet the above criteria.

The DOT changed reporting requirements after June 1984 to reduce the amount of data collected. Since that date, operators must only report incidents that involve property damage of more than \$50,000, injury, death, release of gas, or that are otherwise considered significant by the operator. Table 3.12.2-1 presents a summary of incident data for the 1970 to 1984 period, as well as more recent incident data for 1991 through 2000, recognizing the difference in reporting requirements. The 14.5-year period from 1970 through June 1984, which provides a larger universe of data and more basic report information than subsequent years, has been subject to detailed analysis, as discussed in the following sections.^{1/}

During the 14.5-year period, 5,862 service incidents were reported over the more than 300,000 total miles of natural gas transmission and gathering systems nationwide. Service incidents, defined as failures that occur during pipeline operation, have remained fairly constant over this period with no clear upward or downward trend in annual totals. In addition, 2,013 test failures were reported. Correction of test failures removed defects from the pipeline before operation.

Additional insight into the nature of service incidents may be found by examining the primary factors that caused the failures. Table 3.12.2-1 provides a percentage distribution of the causal factors as well as the annual frequency of each factor per 1,000 miles of pipeline in service.

The dominant incident cause is outside forces, constituting 53.5 percent of all service incidents from 1970 through June 1984. Outside force incidents result from the encroachment of

^{1/} Jones, D.J., G.S. Kramer, D.N. Gideon, and R.J. Eiber, 1986. "An Analysis of Reportable Incidents for Natural Gas Transportation and Gathering Lines 1970 Through June 1984." NG-18 Report No. 158, Pipeline Research Committee of the American Gas Association.

mechanical equipment such as bulldozers and backhoes; earth movements due to soil settlement, washouts, or geologic hazards; weather effects such as winds, storms, and thermal strains; and willful damage.

TABLE 3.12.2-1
Natural Gas Service Incidents by Cause

Cause	Incidents per 1,000 Miles of Pipeline (percentage)	
	1970-1984	1991-2000
Outside force	0.70 (53.5)	0.10 (39.3)
Corrosion	0.22 (16.6)	0.06 (23.25)
Construction or material defect	0.27 (21.7)	0.03 (12.7)
Other	0.11 (8.2)	0.06 (24.2)
TOTAL	1.30	0.25

Landowners in the Juniper Point, Connecticut community have indicated that barges at the Tilcon Inc. site have overturned and dumped their loads of rock several times in the last few years, including one sunken barge in the area. The landowners are concerned that an overturned barge would damage the pipeline, causing a rupture. Using the HDD construction method to install the pipeline in the area, the pipeline will be located at a minimum depth of over 80 feet below sea floor at the Tilcon Channel crossing. At this depth, the pipe would be located well within sub sea bedrock throughout the channel crossing area providing more than adequate protection over the pipeline in the event of an overturned barge or dumped rock in the area.

We received a comment from Mr. Ghiroli of Branford, Connecticut, stating that his family business entails the use of large equipment and excavators at the location of the proposed pipeline. He was concerned about his safety and his ability to continue using his land for his business. The useable portion of the landowner's property is limited to a thin strip of land located between the railroad and a large wetland area. In accordance with permit restrictions on the use of this land, a 1.5 to 2-foot berm has been placed along the usable area, approximately 20 feet from the edge of the wetland, to minimize runoff and sedimentation into the wetland. Islander East has proposed a minor variation to minimize any impacts to the future use of the property. See the Town Line Variation in section 4.4.2 of this document. On the northern end of his property (MP 6.95 to MP 7.02), the pipeline would be placed as close to the edge of a steep drop-off at the edge of the workable area as deemed safe. Islander East has agreed to install the pipeline with a minimum of 5 feet of cover in this area to safely allow operation of heavy equipment over the pipeline and to install additional protective devices to prevent excavation over the pipeline in this area. From MP 7.02 to MP 7.07, the pipeline would be shifted further into property owned by adjacent landowners and closer to the wetlands adjoining the small stream in order to avoid Mr. Ghiroli's access between the north and south portions of his property. In the southern section (MP 7.07 to MP 7.28), the pipeline would be primarily located 25 feet west of the erosion control berm located at the west edge of the useable portion of the property. Mr. Ghiroli has indicated that he is restricted from working in this area by permit conditions associated with the property. This pipeline placement is acceptable since the landowner is restricted from excavating or operating equipment on or west of the berm. Therefore, there should be minimal safety implications from the landowner's continued use of the property.

Table 3.12.2-2 shows that human error in equipment usage was responsible for approximately 75 percent of outside forces incidents. Since April 1982, operators have been required to participate in "One Call" public utility programs in populated areas to minimize unauthorized excavation activities in the vicinity of pipelines. The "One Call" program is a service used by public utilities and some private sector companies (e.g., oil pipelines and cable television) to provide preconstruction information to contractors or other maintenance workers on the underground location of pipes, cables, and culverts. Data from 1991 through 2000 show that the portion of incidents caused by outside forces has decreased to 39.3 percent.

The pipelines included in the data set in table 3.12.2-1 vary widely in terms of age, pipe diameter, and level of corrosion control. Each variable influences the incident frequency that may be expected for a specific segment of pipeline.

TABLE 3.12.2-2
Outside Forces Incidents by Cause (1970-1984)

Cause	Percent
Equipment operated by outside party	67.1
Equipment operated by or for operator	7.3
Earth movement	13.3
Weather	10.8
Other	1.5

The frequency of service incidents is strongly dependent on pipeline age. While pipelines installed since 1950 exhibit a fairly constant level of service incident frequency, pipelines installed before that time have a significantly higher rate, partially due to corrosion. Older pipelines have a higher frequency of corrosion incidents, since corrosion is a time-dependent process. Further, new pipe generally uses more advanced coatings and cathodic protection to reduce corrosion potential.

Older pipelines have a higher frequency of outside forces incidents partly because their location may be less well known and less well marked than newer lines. In addition, the older pipelines contain a disproportionate number of smaller diameter pipelines, which have a greater rate of outside forces incidents. Small diameter pipelines are more easily crushed or broken by mechanical equipment or earth movements.

Table 3.12.2-3 clearly demonstrates the effectiveness of corrosion control in reducing the incidence of failures caused by external corrosion. The use of both an external protective coating and a cathodic protection system, required on all pipelines installed after July 1971, has significantly reduced the rate of failure compared to unprotected or partially protected pipe. The data shows that bare, cathodically protected pipe actually has a higher corrosion rate than unprotected pipe. This anomaly reflects the retrofitting of cathodic protection to actively corroding spots on pipes.

We received a comment from the Connecticut Seafood Council voicing their concern about potential environmental impacts in Sound resulting from cathodic protection systems similar to those that have been reported from the electromagnetic fields (EMF) generated by electric transmission lines. We are not aware of, nor anticipate, any health hazards from the low-power, direct current

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output of cathodic systems. We are aware of media reports regarding the health effects of EMF which relate to alternating-current power transmission systems, not direct-current systems. Electric power transmission lines transmit alternating current. The transmission of alternating current generates fluctuating EMF. Direct-current systems do not generate fluctuating EMF. Also, the elements (ground beds and rectifiers) of the cathodic protection system would be designed and located to control the cathodic protection direct-current so that the effect on any other buried metallic structures and the marine environment would be negligible.

TABLE 3.12.2-3
External Corrosion by Level of Control (1970-1984)

Corrosion Control	Incidents per 1,000 miles per Year
None-bare pipe	0.42
Cathodic protection only	0.97
Coated only	0.40
Coated and cathodic protection	0.11

3.12.3 Impact on Public Safety

The service incident data summarized in table 3.12.2-1 include pipeline failures of all magnitudes with widely varying consequences. Approximately two-thirds of the incidents were classified as leaks, and the remaining third classified as ruptures, implying a more serious failure. Fatalities or injuries occurred in 4 percent of the service incidents reported in the 14.5 year period from 1970 through June 1984.

Table 3.12.3-1 presents the average annual fatalities that occurred on natural gas transmission and gathering lines from 1970 to 2000. Fatalities between 1970 and June 1984 have been separated into employees and nonemployees, to better identify a fatality rate experienced by the general public. Of the total 5.0 nationwide average, fatalities among the public averaged 2.6 per year over this period. The simplified reporting requirements in effect after June 1984 do not differentiate between employees and nonemployees. However, the data show that the total annual average for the period 1984 through 2000 decreased to 4.2 fatalities per year. Subtracting two major offshore incidents in 1989, which do not reflect the risk to the onshore public, yields a total annual rate of 3.1 fatalities per year for this period.

The nationwide totals of accidental fatalities from various manmade and natural hazards are listed in table 3.12.3-2 in order to provide a relative measure of the industry-wide safety of natural gas pipelines. Direct comparisons between accident categories should be made cautiously, since individual exposures to hazards are not uniform among all categories. Nevertheless, the average 3.1 public fatalities per year is relatively small considering the more than 300,000 miles of transmission and gathering lines in service nationwide. Furthermore, the fatality rate is approximately two orders of magnitude (100 times) lower than the fatalities from natural hazards such as lightning, tornados, floods, earthquakes, etc.

The available data show that natural gas pipelines continue to be a safe, reliable means of energy transportation. Based on approximately 311,000 miles in service, the rate of public fatalities

for the nationwide mix of transmission and gathering lines in service is 0.01 per year per 1,000 miles of pipeline. Using this rate, the Islander East Pipeline Project would result in a public fatality about every 2,204 years. Considering that 22.8 miles of the total 50.4 miles of the pipeline is located offshore, the onshore portion alone might result in a fatality every 4,026 years. This would represent a slight increase in risk to the nearby public.

TABLE 3.12.3-1
Annual Average Fatalities - Natural Gas Transmission and Gathering Systems ^{a/, b/}

Year	Employees	Nonemployees	Total
1970-June 1984	2.4	2.6	5.0
1984-2000 ^{c/}	-	-	4.2
1984-2000 ^{c/}	-	-	3.1 ^{d/}

^{a/} 1970 through June 1984 - American Gas Association, 1986.

^{b/} DOT Hazardous Materials Information System.

^{c/} Employee/nonemployee breakdown not available after June 1984.

^{d/} Without 18 offshore fatalities occurring in 1989 -- 11 fatalities resulted from a fishing vessel striking an offshore pipeline and 7 fatalities resulted from explosion on an offshore production platform.

TABLE 3.12.3-2
Nationwide Accidental Deaths ^{a/}

Type of Accident	Fatalities
All accidents	90,523
Motor vehicles	43,649
Falls	14,985
Drowning	3,488
Poisoning	9,510
Fires and burns	3,791
Suffocation by ingested object	3,206
Tornado, flood, earthquake, etc. (1984-93 average)	181
All liquid and gas pipelines (1978-87 average) ^{b/}	27
Gas transmission and gathering lines Nonemployees only (1970-84 average) ^{c/}	2.6

^{a/} All data, unless otherwise noted, reflects 1996 statistics from the U.S. Department of Commerce, Bureau of the Census, "Statistical Abstract of the United States 118th Edition."

^{b/} U.S. Department of Transportation, "Annual Report on Pipeline Safety - Calendar Year 1987."

^{c/} American Gas Association, 1986.

3.13 CUMULATIVE IMPACTS

Cumulative impacts may result when the environmental effects associated with a proposed project are added to either temporary (construction related) or permanent (operation related) impacts associated with past, present, or reasonably foreseeable future projects. Although the individual impact of each separate project might not be significant, the additive or synergistic effects of multiple projects could be significant. The cumulative analysis focuses on potential impacts from the proposed action to resource areas or issues where their incremental contribution would be potentially significant when added to the potential impacts of other actions. Impacts from actions that are the least certain would be given the least weight and may be screened out of the evaluation.

Identification of the other actions that are included in the cumulative analysis is based on identifying commonalities of impacts from other actions to potential impacts from the alternatives. An action must first meet three criteria to be a candidate for inclusion in the cumulative analysis. The action must:

- impact a resource area, or issue, potentially impacted by the proposed project;
- have this impact within all, or part of, the region of impact (ROI) for the project; and
- have this impact within all, or part of, the timespan for the potential impact from the project.

The spatial extent of a project's ROI depends upon the resource area being evaluated, and should encompass the entire area affected, e.g., as far as noise generated by project activities is noticeable. In general, the boundaries already used in analyses for the proposed action and its alternatives are the default values for the ROI in cumulative analysis of each resource area unless, or until, they are further refined.

The other actions may vary in nature, magnitude, and duration. Selection of the other actions considered in the cumulative analysis is further based on its likelihood of completion. Only "reasonably foreseeable" future actions are evaluated in the cumulative analysis.

Existing conditions in the vicinity of both the onshore and offshore portions of the proposed Islander East Pipeline Project reflect long-term Euro-American occupancy and use of the project area. For example, land that was once almost entirely composed of native plant communities is now largely managed for urban, residential, industrial, recreational, and agricultural purposes. Impacts that might result from a proposed action are evaluated in the context of these existing conditions, rather than pristine conditions. However, this does not mean that potential adverse impacts from the proposed action are negligible if they contribute to a generic trend of ongoing anthropogenic degradation of environmental conditions.

Inland, Nonjurisdictional Projects Directly Related to the Proposed Action

The proposed action interconnects with two planned power plants that were described in Chapter 2. As previously explained, their impacts were not analyzed as part of the proposed action because they are nonjurisdictional. These projects are briefly summarized again here for consideration of potential cumulative impacts.

Brookhaven Energy Project

A new power plant is being proposed for construction in Brookhaven, Long Island by Brookhaven Energy Ltd. Partnership, a subsidiary of American Nuclear Power. The Brookhaven Energy Project is a proposed natural-gas-fired, highly efficient, combined cycle powerplant capable of producing up to 580 megawatts of electricity to be developed in Brookhaven, New York. The power plant would employ Alstom Power GT-24 turbines in a two-by-two configuration. The project site is located at the southeast corner of the Long Island Expressway (at Exit 66) and Sills Road. It includes 28 acres and is in an industrially-zoned area, near the North Bellport Economic Development Zone. This site is surrounded by commercial and industrial properties. Electric transmission lines are adjacent to the property and a KeySpan Energy Delivery natural gas pipeline runs along the Long Island Expressway immediately north of the site. Water and sewer infrastructure is located within the immediate vicinity. The site is already bounded on all sides by infrastructure corridors such as highways, a railroad line, and transmission lines. The site is relatively remote from residential development.

The Brookhaven Energy Project would burn only natural gas to reduce emissions and increase plant efficiency. The plant would operate at approximately 58 percent efficiency, compared to approximately 35 percent efficiency for typical power plants. The plant would be designed to meet the Federal Clean Air Act's Lowest Achievable Emission Rate (a standard that must be met regardless of the cost of achieving this standard) and the Best Available Control Technology Standards. The facility would be a relatively quiet electricity generation station and will meet all Federal, state, and local noise regulations. Plant structures would be painted in neutral earth-tone colors that would minimize visual impacts. The stack height would be limited to a maximum of 160 feet. The plant would use an air-cooled condenser to achieve an approximate 99 percent reduction in water use compared to the amount of water needed for power plants using water-cooling. During normal operation, the plant would use only approximately 29,000 gallons of water per day. Water would be supplied by the Suffolk County Water Authority, and sewer services would be provided by the Suffolk Department of Public Works. Project construction is expected to begin in early 2002 and is anticipated to take approximately two years to complete.

AES Power Plant

A new power plant is being proposed for construction by AES Corp. in Suffolk County, Long Island. The AES Long Island Project is a planned 500 megawatt combined-cycle power plant to help meet Long Island's power needs. The plant would be developed on a 50-acre parcel located within a 500-acre industrial development, known as the Calverton Enterprise Park, at the former 3,000-acre Calverton Naval Reserve Facility. The Calverton Enterprise Park is designated as an economic development zone by the State of New York.

The power plant would be located near the center of the reserve facility between two runways and just to the west of the existing steam plant and former hangers that are being converted for a variety of industrial and commercial uses. The site is well-buffered from the residences in the nearby Town of Riverhead by wooded and agricultural areas. The nearest residential community is over 1.25 miles away.

The AES power plant is a combined cycle plant in which both a gas-turbine and a steam turbine are used in an integrated thermal cycle, resulting in a very efficient system. The primary fuel will be natural gas, and the advanced gas turbine technology to be used in the power plant will reduce emissions of key air quality substances by a factor of 1 to 10 as compared to the existing older power plants on Long Island. The plant would be air-cooled. Air-cooled systems are more expensive than the more commonly used water-based evaporative cooling systems, but their water requirements are significantly less and the amount wastewater created would be minimal. Water and sewer services would be supplied by the Town of Riverhead. Only sanitary wastewater would be discharged to the town waste treatment system. The wastewater from the plant itself would be treated on-site and any residual waste products disposed of off-site. Numerous meetings have been held with the Town of Riverhead regarding the site over the past year and a half. AES has met with the New York State Public Service Commission in an initial meeting, but no agency filings have been made to date.

Marine and Inland Potential Actions that are Considered Further

Several projects may occur in either a similar location or on a corresponding timeline. These projects are discussed below.

Connecticut - Long Island Lateral Project

Tennessee announced open season on its proposal to construct a new transmission line from existing facilities in Massachusetts to Connecticut and Long Island. The line would transport nearly 1.6 Bcf/d of natural gas and provide a 450,000 dth/d capacity. It would provide access to all interstate natural gas pipelines in the New England region. The line would have a bi-directional capability to increase flexibility and also service eastern Long Island. An open season announcement was published January 31, 2001. However, an application to the Commission has not been filed to date, and as such, this precludes any potential for this project to occur within all or part of the timespan for construction of the Islander East Pipeline Project.

ELI Extension Project

The ELI Extension Project is considered here with respect to the potential for cumulative impacts because the project has been proposed and is being studied independently. While it is not certain that this action will occur, the similarity to the Islander East proposed action in many respects advises further consideration. Table 3.13-1 presents a comparison of these two projects and the cumulative total impact. Figure 3.13-1 shows the location of these and other potential projects crossing Long Island Sound.

The Iroquois Gas Company has proposed construction of a 24-inch-diameter gas transmission pipe from Milford, Connecticut to Shoreham, Long Island. The new marine pipeline would run approximately 20 miles across the Sound and to points further inland on Long Island. An open season was announced April 2, 2001, and the proposal was filed with FERC December 14, 2001. If approved and implemented, the line could be in service in 2004. Offshore construction is anticipated to begin in the fall of 2003 ending in the winter or spring of 2003/4. Onshore construction is anticipated to begin in the spring of 2004 and completed by November 2004.

Cross Sound Cable

Cross Sound Cable Company has installed approximately 24 linear miles of high voltage direct current and fiber optic cable from New Haven, Connecticut to Brookhaven, New York. The cable system was installed using the jet plow method and buried to a depth of approximately 6 to 13 feet below the seabed within the federal navigation channel and near shore. The cable reaches landfall at the Shoreham Nuclear Power Station.

TABLE 3.13-1

**Comparison of Offshore Impacts Between Islander East and
ELI Extension Projects and Cumulative Total**

	Islander East	ELI Extension	Cumulative Total
Offshore Project Length (Miles)	22.6	17.1	39.7
Construction Method			
—DREDGE (Miles)	1.1	0.6	1.7
—PLOW (Miles)	20.1	16.4	36.5
—HDD (Miles)	1.4	0.1	1.5
Construction Right-of-Way Width (feet)	80-150	100-300	80-300
Number of Equipment Passes (with anchors)	4	2	6
Offshore Area Impacted (acres)	3,106	2,930	6,036
Shellfish Lease Beds Crossed (feet)	6,141	936	7,077

Potential Actions Not Considered Further

The following projects with impacts similar to the proposed action were screened out of further consideration of cumulative impacts because their activities are unlikely to overlap the activities of the proposed action in location or construction timing and in combination with high levels of project uncertainty.

Millennium Pipeline Project

The Millennium Pipeline Company and Columbia Gas Transmission Company are proposing to construct approximately 420 miles of 36- and 42-inch-diameter pipeline from Lake Erie through Southern New York, terminating at the Westchester/Bronx County line. The Millennium Project would not be constructed within the ROI of the Islander East Project. Also, since the Canadian supply for the Millennium Project has not yet been reviewed by Canadian regulators, the timing would not coincide with the Islander East proposed construction schedule.

Blue Atlantic Project

A joint feasibility study on construction of a subsea pipeline from Nova Scotia to New York and New Jersey is underway. The pipeline would be approximately 750 miles long and carry up to one billion cf/d. The pipeline would potentially be in service in 2005. The study is being conducted by the El Paso Corporation and the Marathon Oil Company. Due to timing and the conceptual planning stage of this proposal, we did not consider the project further.

Dracut Expansion Project

A project to replace 13 miles of existing pipeline between Dracut and Burlington, Massachusetts with larger capacity piping was approved by FERC November 20, 2001. It has been proposed by Tennessee. This project would not be constructed within the ROI of the Islander East Project.

Eastchester Extension Project

An extension of the main Iroquois gas transmission line has been proposed to run from Northport, Long Island under the Sound and into the Bronx where it would connect with the ConEd System. This would involve installation approximately 32 miles of new 24-inch-diameter pipeline. The project would also involve construction of two new compressor stations, a new facility at the Bronx terminus, modifications to existing facilities in upstate New York, and workspace and access roads for these facilities. FERC approved the Iroquois Gas Company request on December 19, 2001. A final EIS for the Project was issued in December 2001. Offshore construction is proposed for September 2002 to March 2003. Due to the geographical separation of the projects, impacts would be outside of the ROI for the Islander East Project.

Potential Cumulative Impacts of the Proposed Action

The potential impacts that could occur during the construction phase of the proposed and other actions are generally more varied and greater than impacts from operation. Similarly, schedules for other planned construction projects are subject to change and uncertainty. Thus, consideration of potential impacts during the construction phases of planned projects is one aspect of identifying areas most vulnerable to significant cumulative impacts. Under the proposed action, adverse impacts to several resource areas would be reduced or mitigated by scheduling construction activities under the proposed action to avoid the most sensitive times, such as the summer months when shore birds are breeding, turtles are in the Sound, or fish are migrating. While these measures would allow the proposed action to be environmentally viable as an individual action, it is still important to consider the potential for cumulative impacts.

Potential cumulative impacts are grouped by resource areas in this section. The cumulative impacts from the proposed action and construction of the Brookhaven and the AES Endeavor Power Plants would be limited to impacts that occur concurrently at the upland power plant sites and a shared part of their access roads on Long Island, NY. These impacts could include noise, vehicular emissions, soil erosion with resulting impacts to water quality, and land use with resulting habitat loss. The other potential actions considered involve crossing the Sound, and would thus include the above impacts and also marine and coastal impacts in multiple states. All of the projects could

incrementally impact socioeconomics in the area. The potential impacts that are most likely to be cumulatively significant are related to water quality, vegetation and wildlife (including federally- and state-listed endangered and threatened species), marine resources, land use, air quality, noise, and socioeconomics. A summary of these resource areas and the projects that would affect them is presented in Table 3.13-2.

Water Quality

Surface water quality could be adversely affected by sedimentation and the introduction of trace contaminants originating from heavy equipment during construction and maintenance activities for all of the projects considered on a cumulative basis. For the most part, these effects would be temporary and indirect impacts and would not occur in the same watersheds, thus eliminating cumulative impacts on a particular watershed or waterbody. Activities conducted near, but not in, surface water bodies would be minimized by best management practices. Ground water quality would be unlikely to be affected. Water quality in estuarine and saltwater areas is addressed under marine resources.

All projects would be subject to COE 404 Clean Water Act permit that would include appropriate mitigation imposed by the COE. Gas projects involve conversions, not a total loss. Mitigation typically addresses the forested wetland impacts and usually requires a compensation ratio that requires more mitigation than actual impact (in terms of acreage).

Vegetation and Wildlife

Plant communities progress through various successional stages that are subject to disturbances by both natural and anthropogenic events on an ongoing basis. Changes in animal populations generally follow these changes in plant communities. The area potentially impacted by the Islander East Pipeline Project has, in general, been disturbed at times in the past, and the current plant and animal communities represent a variety of successional stages. Since disturbances result in plant communities restarting at early stages, the time required for a community to return to its pre-disturbance stage will depend upon its maturity at the time of disturbance.

All of the projects being considered on a cumulative basis would add to cumulative impacts to vegetation and wildlife through habitat loss. These impacts will be largely dependent upon whether construction phases of the projects occur concurrently and in proximity to one another. The proposed power plant sites are in industrial and economic development zones, and access roads would be shared wherever possible to minimize cumulative habitat loss. Sensitive areas and habitats would be avoided, but some incremental additions to upland habitat loss would still occur. While these cumulative impacts could be greater than those resulting from the proposed action alone, it is unlikely that these cumulative impacts would be unacceptable.

The loss of habitat, including both uplands and wetlands, for all of the projects would be on an additive basis, but the effects from habitat fragmentation could be greater. In the case of threatened and endangered species (e.g., button sedge, roseate tern, piping plover), each individual is protected and a loss of habitat from collective actions could potentially result in the loss of one or more of these individuals if planned mitigation measures were not strictly adhered to.

TABLE 3.13-2
Resource Areas with Potential Cumulative Impacts

Ongoing Activities	Description	Primary Environmental Attributes						
		Water Quality	Vegetation & Wildlife	Marine Resources	Land Use	Socio-economics	Air Quality	Noise
Residential/ Commercial	Various traffic, schools, local business, and public service activities	X	X		X	X	X	X
Industrial	Operation of industrial facilities e.g., shipping, quarrying, existing utilities	X	X	X	X	X	X	X
Recreational/ Commercial Fishing	Boating, biking, hiking, fishing, including shellfisheries, tourism	X		X	X	X		
Agricultural	Practices including management of pastures and cropland (corn, blueberries)	X	X		X	X		
Cross Sound Cable	24 miles high voltage and fiber optic cable from New Haven, CT to Brookhaven, NY		X	X	X	X		X
Future Projects	Description							
Brookhaven Energy	580 MW gas fueled power plant in industrial zone on Long Island		X		X	X	X	X
AES Power Plant	500 MW combined-cycle power plant in industrial park on Long Island		X		X	X	X	X
Connecticut Long Island Lateral	Gas transmission pipeline from Massachusetts to Connecticut to Long Island	X	X	X	X	X	X	X
Eastern Long Island	Gas transmission pipeline from Milford, CT to Shoreham, NY	X	X	X	X	X	X	X

Marine Resources

If the ELI Extension Project and the Connecticut Long Island Lateral Project were also initiated during the same season as the proposed action, it is possible that marine aquatic habitat would be affected by increased levels of water turbidity, hypoxia, wave action, temperature fluctuations, and other disturbances. These impacts would be largely dependent upon whether construction phases of the projects occur concurrently and in proximity to one another. If construction activities were conducted in adjacent areas, the zone of habitat disruption would be enlarged. Habitat disruption and loss, even if temporary, can reduce recruitment (survival of the young) in many organisms, for example, shellfish. As the affected area increased, mobile as well as sedentary organisms would be affected. Noise increases over a greater area could disrupt animal populations. Any blasting activities, in particular, could combine to far greater effect than the sum of the individual impacts because of the physical force vibrations impart underwater.

In the case of threatened and endangered species (e.g., roseate tern, piping plover, sea turtles), each individual is protected and a loss of habitat from collective actions could potentially

result in the loss one or more of these individuals if planned mitigation measures were not strictly adhered to.

Land Use

The combined projects would result in the collective transformation of thousands of acres to herbaceous ground cover, bare ground, or paving. Some prime farmland would be precluded from agricultural use also. The proposed power plant sites are in industrial and economic development zones, and access roads would be shared wherever possible. However, realization of the other projects as well as the Islander East Pipeline Project would result in the conversion of additional acreage from agricultural and recreational uses to industrial or multiple use areas. These impacts will be largely dependent upon whether construction phases of the projects occur concurrently and in proximity to one another.

Some commentors on the Draft EIS expressed concern regarding the potential future use of the Islander East Pipeline right-of-way for additional pipelines or looping. FERC recognizes that the use of existing rights-of-way is a common practice when constructing additional utility and transmission lines. However, no plans for looping or for other future collocation of utility lines have been identified, so these potential activities cannot fall within the range of "reasonable foreseeable actions" that are evaluated under NEPA.

Air Quality

Vehicular emissions during construction would be negligible with respect to emissions produced at on-shore locations on a daily basis. Emissions from equipment being operated offshore would be temporary and thus unlikely to be of concern on a cumulative basis unless numerous projects occurred concurrently. These impacts will be largely dependent upon whether construction phases of the projects occur concurrently and in proximity to one another.

Over the long term, the Islander East Pipeline Project would directly add little to existing levels of air pollution. The Cheshire Compressor Station is not a major source of air emissions. Emissions from the compressor station operation would be minimized by the implementation of BACT for each air emission unit. Therefore, the Islander East Pipeline Project itself would add little to current air pollution levels. Indirectly, the Islander East Pipeline Project could result in a cumulative impact on the region's air quality by providing natural gas to customers on Long Island. For example, the Brookhaven Energy Project and the AES Power Plant would receive natural gas from the Islander East Pipeline Project. The Brookhaven Energy Project is presently under review by New York. The AES Power Plant is still in the planning stage.

The burning of natural gas in new power plants could increase ambient pollutant concentrations in the regional airshed. However, the demand for additional power in the project area cannot be met by currently available non-polluting sources of energy. Because natural gas is a relatively clean-burning fuel, the Islander East Pipeline Project could minimize possible impacts on air quality.

Air quality regulations require new power plants to obtain the appropriate permits. Issuance of the necessary approvals and permits for the new and modified power plants implies that the

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associated impacts on air quality would be acceptable in the vicinity of the permitted facility. For example, in the United States any major air emission source would have to demonstrate compliance with the NAAQS based on potential emissions.

Noise

Noise levels would be higher if construction for more than one project occurred concurrently at the sites and possibly during daily operations later. However, noise levels do not increase on directly additive basis, and compliance with local noise ordinances would limit the impacts of activities at inland locations. Concurrent noise increases over coastal and offshore areas could affect both human and wildlife populations and diminish recreational and aesthetic values in the immediate vicinity. Any noise impacts would be short-term. These impacts will be largely dependent upon whether construction phases of the projects occur concurrently and in proximity to one another. Any blasting activities, in particular, could combine to greater effect than the sum of the individual impacts. However, this would apply only in situations where blasting would occur in the exact location at the same time.

Socioeconomics

The cumulative impact of the proposed action and the other projects on socioeconomics in the area is viewed on a regional, rather than individual basis. These impacts will be largely dependent upon whether construction phases of the projects occur concurrently and in proximity to one another. Beneficial impacts from the projects would be their combined contribution to employment and possible lowering of costs to all people in the region. The total number of either construction or permanent jobs would be small with respect to the total population, but would still contribute to the area's economy. Lowered costs of living and doing business, if realized, would benefit the area's economy by maintaining or increasing profits and the area's ability to retain and attract new businesses and residents.

The adverse impacts of the proposed action in combination with the other actions, particularly the actions that cross the Sound is the potential for diminished aesthetic, recreational, and residential values as a result of the other impacts described above and multiple localized disruptions to traffic and commerce. Income from tourism and recreation are notable contributors to the region's economy, especially at the planned departure points for the pipelines and cable in Connecticut. Connecticut and Long Island are also both high value areas for residential properties. If multiple construction activities changed the attraction of this area to tourists and vacationers, the general regional economy would be affected at least temporarily. Long-term adverse impacts would be realized only if changes in land use resulted in making the area less attractive to residents as well as visitors.

Conclusion

Potential impacts that could occur after the construction phase of the proposed action (e.g., right-of-way maintenance) are generally a continuation of some construction phase impacts, but to a lesser extent. Islander East should communicate in advance the schedules for all activities to regulatory agencies. Any changes to the schedules should be communicated in advance to the same agencies. Habitat alteration or loss, both terrestrial and aquatic, would have the greatest potential cumulative impacts. Islander East should be aggressively proactive in supporting coordination with other scheduled actions to minimize the creation of cumulative impacts.