

Millennium also indicated that beaver lodges have not been identified within the proposed construction work area. If, at the time of construction, they are identified, Millennium would coordinate further with the NYSDEC and the COE to determine the appropriate action to be taken. We find this to be acceptable and believe that impacts on beaver ponds and their associated wetland habitats would be minimized with the implementation of the NYSDEC's recommendations regarding siphoning and Millennium's ECS.

We reviewed Millennium's wetland determination forms and noted that it identified invasive plant species such as purple loosestrife, phragmites, and Japanese knotweed in wetlands that would be crossed by the proposed project. Mowing or cutting of these invasive species does not destroy the root stalks and creates pieces that may resprout. Seeds, viable propagules, and rhizome fragments may attach to construction equipment and be conveyed to other wetlands. Under section VI.D.7 of our Procedures that are incorporated by reference into Millennium's ECS, Millennium is required to coordinate with the state to develop strategies to control the spread of exotic plant species such as purple loosestrife, phragmites, and Japanese knotweed.

All 12 of the wetlands that would be crossed along the 9/9A Proposal are adjacent to highway, road, and/or bicycle paths. These include 4 forested wetlands (Wetlands W08WCR, 160 feet; W10WCR, 160 feet; W03WCR, 65 feet; and W11WCR, 490 feet), and 2 forested/emergent wetlands (Wetlands W06WCR, 860 feet; and W02WCR, 135 feet). Total avoidance of these wetlands would require moving construction-related impacts into adjacent residential areas or upland forested areas, thus eliminating many of the advantages of partial use of existing utility and transportation corridors. Millennium states that it evaluated several alternatives for the alignment of the project in Westchester County in an attempt to avoid wetland impacts. In many cases, wetlands have formed at drainage blocks and within man-made drainageways along the various transportation corridors considered. The alignment of this portion was chosen to take advantage of the existing corridors and to minimize the creation of new right-of-way through a densely populated area. Therefore, alternatives that totally avoided wetlands while maximizing use of existing transportation corridors and avoided existing development were limited. We found no alternatives that offered a clear environmental advantage over the proposed route.

Millennium attempted to avoid locating temporary work areas (other than the construction right-of-way) within 50 feet of wetlands and waterbodies to the greatest extent possible. However, there are two locations (MPs 401.37 and 401.41) along the 9/9A Proposal where temporary work areas would be within 50 feet of wetlands and/or waterbodies. At these locations, Millennium states that topographic conditions or existing facilities preclude moving the additional work space out of the wetlands. Millennium would minimize impacts at these locations by maintaining at least 15 feet of undisturbed vegetation adjacent to the wetland and waterbody and installing a sediment filter device at the edge of the construction work area prior to clearing. Site-specific details concerning temporary work areas would be included on the CAS.

The 9/9A Proposal would also cross the buffer zones of five NYSDEC-regulated wetlands: Wetland H-3 at MP 396.3, Wetland O-18 at MP 400.0, Wetland O-24 at MP 400.5, Wetland O-16 at MPs 402.2 and 402.8, and Wetland O-9 at MP 402.5. Since these wetlands would not be affected by construction and Millennium's ECS requires that sediment barriers be installed along the edge of the construction work area as necessary to prevent sediment flow into adjacent wetlands, there would be no significant impact on these wetlands.

5.8 LAND USE, RECREATION/PUBLIC INTEREST AREAS, AND VISUAL RESOURCES

5.8.1 Land Use

5.8.1.1 General Construction and Operational Impact

Land use impacts would generally result from the clearing of land for the installation of the pipeline, the metering and regulating stations, and from the maintenance of the pipeline right-of-way and aboveground facilities. Temporary work areas would be required in areas of steep side slopes; for crossings of major rivers,

streams, wetlands, roadways, and railroads; and for topsoil storage in agricultural and residential areas. Pipe storage/contractor yards in open or industrial areas would be leased for the centralized storage of equipment and materials in areas that are convenient to the pipeline and existing rail and highway transportation routes. Access to the construction sites would be from existing paved public roads, temporary access roads, and the construction right-of-way. See section 5.10 for discussion of impacts on the existing transportation system.

Forest clearing during pipeline construction would represent a long-term impact since these areas would be converted to cleared, open land. Although forest cleared within the temporary construction right-of-way would be allowed to revegetate, revegetation to preconstruction conditions could take many years depending on the type of tree cleared.

Agricultural land affected by construction would include rotation croplands (silage corn, grain corn, and forage hay), pasture, long-term hay fields, specialty cropland areas (vegetables, orchards, and tree farms), and maple sugar bush stands. Short-term impacts would include the loss of standing crops within the construction work area and disruption of farm operations in the vicinity of construction activities. Potential long-term impacts include loss of future crop productivity from the mixing of topsoil with subsoil; soil compaction, and altered soil drainage (see section 5.2 for further discussion of impact on and mitigation for actively cultivated agricultural land).

Following construction, all land used for the temporary construction right-of-way and extra work areas would revert entirely to prior use, and the operational right-of-way would be maintained in a generally grassy condition, except as otherwise specified in the ECS or our Procedures (see appendix E1). Although most land uses would be allowed to continue within the operational right-of-way, certain types of use, such as construction of aboveground structures (e.g., house additions, garages, barns, patios, or pools) or the planting and cultivation of trees or orchards, would be prohibited. Some landowners may also consider the necessary inspection and maintenance activities to be a nuisance.

Right-of-Way Easements

An easement would be used to convey right-of-way to the pipeline company. The easement gives the company the right to construct, operate, and maintain the pipeline in the right-of-way, and in return compensates the landowner for the use of the land. The easement negotiations between the company and the landowner would also include compensation for loss of use during construction, loss of nonrenewable or other resources, damage done to property during construction, 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 work areas identified in the Certificate. 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, Millennium would compensate landowners for the use of the land. Generally, Millennium would be acquiring additional right-of-way adjacent to existing rights-of-way. Special permits would be obtained as needed for pipeline crossings of roads, railroads, and streams, as well as for pipeline right-of-way through town, state, or Federal lands.

A number of landowners commented on the future status of the Line A-5 right-of-way in locations where Columbia intends to abandon the facilities in place. Columbia states that it plans to retain rights to the property on which the abandoned line is located for potential future commercial use (see section 2.1). However, in the Union Center area, a 3.3-mile-long segment of Line A-5 would be operated as part of Millennium's system to maintain existing delivery points to shippers in this area that would be bypassed by the proposed route along the powerline right-of-way. In addition, Line A-5 would continue to serve existing customers until the Millennium

pipeline is operational. Because of these issues, the Commission cannot require Columbia to relinquish its easements.

Complaint Resolution

To monitor implementation of construction procedures and mitigation measures, we require that Millennium file weekly status reports that include a description of landowner/resident complaints and how these complaints were addressed or resolved. In addition, issues or concerns can be reported directly to the FERC enforcement hotline for followup during FERC staff inspections. However, to ensure that all affected landowners would know who to contact when they have questions or problems with pipeline construction or restoration, we recommend that:

- **Millennium shall establish an environmental mitigation complaint resolution procedure that would be in place throughout construction and restoration of the Millennium Pipeline Project. The procedure shall provide landowners and/or abutters with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the pipeline facilities and restoration of the right-of-way. Prior to construction, Millennium should mail the complaint procedure to each landowner whose property would be crossed by the project and abutters whose properties are adjacent to a road or utility right-of-way that would be used for installation of the pipeline. The complaint resolution procedure must:**
 - a. **include a local contact (and telephone number) and Millennium's "hotline" contact (and toll-free telephone number) that the landowner/abuttor should first call with his/her concerns;**
 - b. **indicate how long it would take after complaints/inquiries are made for Millennium to respond;**
 - c. **indicate that the response would inform the caller how and when problems were or would be resolved; and**
 - d. **instruct the landowner/abuttor that if they are still not satisfied with the response from contacting Millennium's "hotline," then the Commission's Enforcement Hotline may be contacted at (877)303-4340.**

In addition, we recommend that:

- **Millennium should include in its weekly status report a table that contains the following information for each problem/concern reported:**
 - a. **the identity of the caller and the date of the call;**
 - b. **the CAS alignment sheet number, property identification number, and milepost/survey station number of the property;**
 - d. **a description of the concern/problem; and**
 - e. **an explanation of how and when the problem was resolved, or why it has not been resolved.**

5.8.1.2 Site-Specific Impact

Construction of Millennium's pipeline and aboveground facilities would disturb about 797.6 acres under water in Lake Erie and 5,158.4 acres of land. The land acreage would include:

1,287.5 acres disturbed for construction (including 739.0 acres of extra work areas, 322.9 acres of pipe storage/contractor yards, and 225.6 acres of access roads);

18.6 acres for the remote cathodic protection groundbeds,

0.6 acre for the remote blowdown valves; and

3.6 acres for construction of the aboveground facilities.

The acreages presented in table 5.8.1.2-1 are based on typical construction and permanent right-of-way cross-sections shown on figure 2.2-1 (new right-of-way) and in appendix C (adjacent to existing rights-of-way), the temporary extra work areas identified by Millennium, the aboveground facility sites shown in appendix B3, the proposed pipe storage/contractor yards in appendix B4, and the access roads identified in appendix D. Although Millennium included extra work areas in the vicinity of three (MPs 110.6, 138.7, and 200.3) of the four remote blowdown valves, we conservatively estimated that an additional 0.2 acre would be affected for construction and operation of each of these valves based on review of aerial photography of the proposed requirements and review of Millennium's extra work area calculations. The fourth remote blowdown valve (MP 243.4) would be within the area fenced for the Union Center Regulator (0.7 acre).

Land Use

Most of the land affected by construction would be open land (2,222.8 acres, 41 percent), although the NYSDA&M has commented that as much as 20 percent of land categorized as open may be used for agricultural purposes. Other major land use types affected include forest (1,487.9 acres, 35 percent) and agricultural land (1,018.8 acres, 15 percent). About 55 percent of the land disturbed during construction would be temporarily affected and would be returned entirely to previous uses following construction.

Land used for the block valves, regulator stations, and new measuring stations would be permanently converted to utility use. This would include the remote blowdown valves that generally would be constructed on or near the edge of the permanent right-of-way in areas where block valves are required in powerline rights-of-way. Two of the four stations would be constructed on previously developed industrial areas. The third (the Wagoner Station) would require clearing about 0.5 acre of forest adjacent to an existing compressor station. The fourth (the Union Center Regulator Station) would be constructed adjacent to Cummings Road in an open area. Residents in the vicinity of aboveground facilities could be affected by noise and dust during construction. Visual intrusion could occur during both construction and operation. Visual impacts are discussed in 5.8.6, and noise impacts are discussed in section 5.11.2.

Installation of the remote cathodic protection groundbeds would disturb about 18.6 acres of land. The groundbeds would be generally perpendicular to the proposed pipeline and impacts from construction and operation would be the same as those described for the pipeline.

Sixteen of the proposed pipe storage/contractor yards would be on open land (208.7 acres, 65 percent), 6 would be on industrial land (106.2 acres, 33 percent), and 1 would be in agricultural land (8 acres, 2 percent) (see appendix B4 for the location, size, and existing land use at each of the pipe storage/contractor yards). All yards would be restored to preconstruction condition after use.

TABLE 5.8.1.2-1

Acres Affected by Construction and Operation

State/County	Forest ^{a/}		Agriculture ^{b/}		Open ^{c/}		Industrial/ Commercial ^{d/}		Residential ^{e/}		Water ^{f/}		Other ^{g/}		Total	
	Constr.	Oper.	Constr.	Oper.	Constr.	Oper.	Constr.	Oper.	Constr.	Oper.	Constr.	Oper.	Constr.	Oper.	Constr.	Oper.
Pennsylvania/New York ^{h/}																
Lake Erie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	797.6	797.6	0.0	0.0	797.6	797.6
New York ^{i/}																
Chautauqua	146.5	64.9	170.1	60.4	232.7	108.6	26.2	0.6	3.8	1.5	0.6	0.4	0.0	0.0	579.9	236.4
Cattaraugus	221.0	115.3	152.4	55.3	221.4	95.7	8.1	4.2	2.6	1.3	0.5	0.3	0.0	0.0	606.0	272.1
Allegany	143.7	64.9	77.5	32.7	130.4	85.0	14.5	1.8	3.7	2.1	0.3	0.2	0.0	0.0	370.1	186.7
Steuben	158.4	69.9	256.7	82.7	245.6	106.2	2.7	1.3	2.5	1.0	1.0	0.6	0.0	0.0	666.9	261.7
Chemung	109.8	47.2	63.3	23.0	162.5	81.8	52.0	0.3	1.0	0.4	0.6	0.4	0.0	0.0	389.2	153.1
Tioga	91.3	35.1	73.5	21.8	205.4	74.2	0.7	0.4	4.7	1.3	0.9	0.6	0.0	0.0	376.5	133.4
Broome	146.1	56.4	91.4	28.8	296.7	133.5	17.8	2.3	10.5	4.2	3.2	2.2	0.0	0.0	565.7	227.4
Delaware	101.3	24.1	13.5	4.8	162.6	106.0	0.5	0.2	1.1	0.5	2.1	1.5	0.0	0.0	281.1	137.1
Sullivan	134.9	7.6	37.1	16.1	227.6	180.0	10.3	3.8	4.5	2.4	2.6	2.0	0.9	0.5	417.9	212.4
Orange	143.5	19.6	75.1	32.3	228.4	170.2	14.3	7.5	18.5	8.7	3.5	1.8	5.7	3.5	489.0	243.6
Rockland	65.9	14.2	0.0	0.0	56.5	35.7	24.6	2.7	4.2	1.7	29.5	7.8	1.7	1.0	182.4	63.1
Westchester	22.6	18.5	0.0	0.0	44.9	51.0	76.2	70.6	0.2	0.3	21.3	5.6	45.7	46.8	210.9	192.8
Subtotal																
Land	1,485.0	537.7	1,010.6	357.9	2,214.7	1,227.9	247.9	95.7	57.3	25.4	66.1	23.4	54.0	51.8	5,135.6	2,319.8
Aboveground facilities	0.5	0.5	0.0	0.0	0.7	0.7	2.4	0.9	0.0	0.0	0.0	0.0	0.0	0.0	3.6	2.4
Remote groundbeds	2.2	2.2	8.0	8.0	7.2	7.2	0.2	0.2	1.0	1.0	0.0	0.0	0.0	0.0	18.6	18.6
Remote blowdown valves	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
TOTAL	1,487.9	540.6	1,018.8	366.1	2,222.8	1,236.0	250.5	96.8	58.3	26.4	863.7	821.0	54.0	51.8	5,956.0	3,138.7

^{a/} Includes upland forest, forested wetlands, timber production areas, sugar maple, and Christmas tree farms.

^{b/} Includes active and rotated cropland, vegetable fields, and hayfields.

^{c/} Includes open land, pasture, and scrub-shrub and emergent wetlands.

^{d/} Includes all other land, including roads, railroads, existing rights-of-way, and commercial and industrial land.

^{e/} Includes existing residential lawns and driveways.

^{f/} Includes water crossings over 100 feet, including Lake Erie and Hudson River.

^{g/} Includes roads in which the pipeline would be placed.

^{h/} Acreage for the Lake Erie crossing based on a 200-foot-wide construction and operational right-of-way.

^{i/} Acreage for the land segment is based on a 75-foot-wide construction right-of-way and includes the extra work areas, the pipe storage yards, and access roads by county. Acreage for the land segment during operation is based on a 50-foot-wide right-of-way.

NOTE: Constr. = Construction; Oper. = Operation

Following construction, Millennium would retain 797.6 acres of permanent right-of-way under water in Lake Erie and 2,341.1 acres of land for operation of the pipeline and associated facilities. The operational right-of-way and aboveground facilities on land would affect a total of 2,222.8 acres of open land, 540.6 acres of forest, 366.1 acres of agricultural land, 26.5 acres of open water associated with river crossings, 96.8 acres of industrial/commercial lands, 26.4 acres of residential land, and 51.8 acres of "other" land which includes roads in which the pipeline would be placed.

Millennium has reviewed existing land ordinances and land use plans and identified no specific conflicts. However, Millennium would obtain applicable permits from the towns and cities that would be crossed by the pipeline.

Timber Production, Sugar Bush, and Orchards

Millennium would compensate landowners for any tree loss as a direct result of the pipeline construction. In areas of commercial timber, a state-certified timber appraiser would appraise each tract of timber to determine the value, and landowners would be compensated based on this appraisal. In areas of ornamental or shade trees, the value would be determined by the fair market value (planted and guaranteed) from local tree nurseries. If a species is not available from a nursery and the tree is small, the fair market value would be based on that of a similar species of comparable size. The value of larger trees that are not available from local nurseries would be determined by the formula developed by the International Society of Arboriculture. This formula is based on size, species, condition, and location of the tree, and has been accepted by insurance companies, courts, and the Internal Revenue Service.

The pipeline would cross about 1.5 miles of land used for timber production on nine parcels, 0.3 mile of land used for pine plantations on three parcels, and 5.2 miles of state reforestation land. The pipeline would also cross about 0.2 mile of orchard at MP 46.5 in Chautauqua County and 0.2 mile of a Christmas tree farm at MP 248.0 in Broome County. All but two of these crossings would be adjacent to existing rights-of-way. Millennium states that it would consult with the NYSDEC to develop replanting specifications on reforestation land. Based on review of the alignment sheets, most of the required tree clearing would be within the temporary construction work area that could be replanted following construction.

The NYSDA&M commented that, in its discussions with landowners, sugar bush (maple trees used for the production of maple sugar) were identified in Cattaraugus and Chemung Counties. As a result of field surveys conducted by the NYSDA&M, Millennium, and the landowners in August 1999, two sugar bush stands that would be affected by construction were identified between MPs 94.0 and 94.4 in Cattaraugus County, and between MPs 213.6 and 214.0 in Chemung County. Millennium has proposed minor route variations to avoid impact on these operations, and we have recommended their use (see Moore and Larison Variations in section 6.3). In addition, the NYSDA&M identified a route variation between MPs 97.9 and 98.8 (the so called Sugarbush Reroute, Fay Hollow/Snow Brook Road) that was incorporated into the proposed route to resolve sugarbush concerns in that area.

One landowner, near MP 307.5 in Sullivan County, stated that the pipeline would affect an existing apple orchard on his property. This segment of the pipeline would be installed by lift and lay, and most construction would be within the existing right-of-way.

Community Enhancement

The towns of Warwick and Cochocton suggested that Millennium develop a plan for community enhancement such as the one developed by Iroquois and known as the Land Preservation and Enhancement Program (LPEP). Iroquois' LPEP included purchasing property and donating it to state and local organizations, enhancing properties of significance on or near the pipeline, and financing studies regarding the effect of new right-

of-way on wildlife and habitat. Millennium states that it has no plans to develop such a program. Millennium contends that the towns of Warwick and Cochocton currently receive benefits from natural gas provided by Line A-5 and will continue to receive these benefits with the new pipeline. In addition, Millennium estimates that annual taxes paid to both towns would increase seven to eight times over the current rate (\$47,000 per year to Warwick and \$17,000 per year to Cochocton). This new revenue could be dedicated to projects in the community in whatever way the towns deem appropriate.

We believe that if construction and operation is done in accordance with the procedures and mitigation identified in this FEIS, long-term impact on the communities crossed by the pipeline would be minimal. For the most part, the greatest portion of construction impacts would be borne by the landowners, and additional mitigation measures have been identified, where appropriate, by Millennium and us to reduce these impacts. For instance, in Warwick, a separate site-specific plan is under development to minimize and compensate for construction-related damages in the black dirt area (see section 5.2.2). Other mitigation plans that would be developed between Millennium and the landowner (including the state) during easement negotiations would address site-specific issues such as use of the area during construction, timing restrictions, and unique restoration measures such as specific plantings or the construction of ORV barriers. In addition, we have recommended that Millennium work with the state and landowners, as appropriate, to develop wildlife enhancement areas and that it develop with the appropriate agencies compensatory mitigation plans for Lake Erie and the Hudson River/Haverstraw Bay. We believe these measures would adequately address and compensate for construction-related impacts in New York.

Use of Powerline Easements

Millennium proposes to install the pipeline within the NYSEG powerline right-of-way and between the power poles in the Town of Owego in Tioga County and the Towns of Maine and Union in Broome County (approximate MPs 232.2 to 243.5). The distance between the centerlines of the power structures is given as 100 feet between MPs 232.2 and 243.5 (figure ST-8525-000-A1078 in appendix C4). This area is characterized by a mix of residential and rural land use where deviations off the powerline right-of-way may be acceptable in some areas, but not in others. In response to concerns of the PSCNY about the placement of the pipeline within this right-of-way, Millennium states that it is continuing to work with NYSEG to establish a mutually agreeable location for the pipeline in NYSEG's right-of-way, and it is conducting additional voltage mitigation studies to determine the appropriate distances to powerline facilities.

While installation of the pipeline within the existing NYSEG powerline right-of-way would be the most environmentally preferable alternative, we recognize the concerns of the PSCNY regarding potential outages during construction or operation of the pipeline. Therefore, we recommend that:

- **Millennium should continue consultations with NYSEG (MPs 232.2 to 243.5) regarding the placement of the pipeline within or adjacent to the existing powerline rights-of-way and develop mitigation plans to reduce the risk associated with a pipeline accident during construction and operation of the pipeline. The plan and NYSEG's comments on the plan should be filed with the Secretary for review and approval by the Director of OEP before construction may begin.**

The 9/9A Proposal would require five crossings of the ConEd powerline right-of-way (MPs 402.7, 405.5, 406.9, 409.7, and 416.6). The 9/9A Proposal would also parallel the ConEd right-of-way between MPs 402.7 and 405.4 where pipeline construction would be between State Routes 9A and 100 and the powerlines (MPs 402.7 to 404.0) and within the Briarcliff-Peekskill Trailway adjacent to the powerlines (MPs 404.0 to 405.4). Mitigation measures for locations near the ConEd's facilities are included in the SMOU developed between the PSCNY and Millennium (see appendix G). This SMOU identifies construction and operation procedures and design specifications that Millennium would use in locations where the pipeline would be adjacent to or cross the ConEd powerline facilities and where the pipeline would be within 1,500 feet of the ConEd powerline corridor. Issues

associated with construction and operation of the pipeline along the ConEd powerline corridor were central to the identification of the 9/9A Proposal. See section 6.2.2 for discussion of the ConEd and PSCNY concerns and our analysis of them.

Evacuation Route for the Indian Point Nuclear Power Plant

A number of commenters were concerned that construction or operation of the pipeline within State Route 9A on the 9/9A Proposal would interfere with the emergency evacuation route for the Indian Point Nuclear Power Plant. The current designated evacuation route includes the southbound lanes of U.S. Route 9 and State Route 9A. We consulted with a Program Specialist, Radiological Emergency Preparedness Branch, of the Federal Emergency Management Agency (FEMA) about the proposed construction within and adjacent to the southbound lane of State Routes 9A/100 (MPs 401.6 to 404.0). The FEMA stated that it would require detailed construction drawings to evaluate the impact of construction on the evacuation route and that a contingency plan would need to be developed with county and local governments to minimize adverse impacts on the federally approved Radiological Emergency Preparedness Plan (FEMA, 2001). In addition, any alternate routes identified in the Contingency Plan, as well as the potentially degraded capability of the established evacuation route, must be reviewed by professional traffic engineers at FEMA.

If an adequate plan for traffic flow cannot be developed because of the effect the proposed construction would have on traffic in this area, the Contingency Plan may conclude that the Indian Point Power Plant should not be operated during construction within some or all of these roadways. We recommend that:

- **Millennium should consult with and assist FEMA with the development of a Contingency Plan for the emergency evacuation route for the Indian Point Nuclear Power Plant on the 9/9A Proposal. Prior to construction, Millennium should file with the Secretary all correspondence with FEMA and the final Contingency Plan.**

The pipeline would be constructed adjacent to and within the northbound lane and east shoulder of U.S. Route 9 and State Route 9A between MPs 391.8 and 392.6, MPs 392.9 and 394.2, and MPs 397.0 and 401.3. Both southbound lanes of these roads would remain unaffected throughout construction except for blasting. However, Millennium would install the pipeline within and adjacent to State Routes 9A/100 for about 2.4 miles between MPs 401.6 and 404.0. While construction would include one of the southbound lanes in some areas, most construction would be along the bicycle path, thereby minimizing impact on one of the southbound lanes (see additional discussion in section 5.8.4).

5.8.2 Residential and Commercial/Industrial Areas

5.8.2.1 General Construction and Operational Impact

In residential areas, the two most significant impacts associated with construction and operation of a pipeline are disturbance during construction and the limitation on future residential or other permanent structures on the right-of-way. Since residences adjacent to the construction work areas would be most affected, we identify residences within 50 feet of the construction work areas to determine the degree of impact and the appropriate mitigation.

Temporary construction impact in residential areas could include: inconvenience caused by noise and dust generated by construction equipment, personnel, and from trenching of roads or 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 aboveground structures, such as sheds or trailers, from within the right-of-way.

With typical overland pipeline construction, the trench is often excavated before pipe stringing, welding, and installation. This practice results in trenches that remain open for extended periods of time, which can pose a safety hazard to nearby residents. Impacts in residential areas can be reduced by locating the pipeline at a greater distance from the residence, by using specialized construction practices, and by reducing the amount of time the trench remains open in the vicinity of residences.

Construction practices used to minimize disruption in residential areas include reducing work space requirements, reducing the size of work crews and equipment, increasing the use of temporary safety fencing, avoiding the removal of trees, and minimizing the length of time that the trench is left open. Specialized residential construction techniques include sewer-line and drag-section construction techniques (see section 2.3.3 for a description of these techniques). Either technique would limit the amount of land required for construction and the time the trench is left open in the vicinity of the affected residences.

Some commercial/industrial land would be affected by construction of the pipeline and aboveground facilities. Impact on these areas would include temporary impact during construction when activities could cause disruption, inconvenience, and loss of potential revenues, and permanent or long-term impact as a result of the limitation of some future uses of the operational right-of-way. Temporary impact can be minimized either by providing access across the construction right-of-way during construction or by timing construction activities to avoid peak business periods. Permanent impact can be minimized by following existing rights-of-way and by locating the pipeline with consideration of future planned developments.

5.8.2.2 Site-Specific Impact

Residential Areas

Millennium estimates that a total of 221 residences would be within 50 feet of the construction work area (see table 4.8.2-1). For all residences that would be within 50 feet of the construction work area, Millennium proposes to implement the following mitigation measures.

A minimum of 25 feet would be maintained between the residence and the construction work area, except as noted below.

Mature trees and landscaping would be preserved within the construction work area, except where removal is necessary for the safe operation of construction equipment.

The top 12 inches of topsoil would be stripped from the construction work area, or topsoil would be replaced (imported) after construction where topsoil cannot be segregated.

The edge of the construction work area would be fenced for a distance of 100 feet on each side of a residence to ensure that construction equipment and materials, including spoil, remain within the work area.

The trench would be backfilled and all lawn areas and landscaping would be restored within the construction work area immediately after pipeline installation when weather permits and provided the right-of-way would no longer be needed for access.

Millennium identified four residences that would be within 50 feet of the 9/9A Proposal. All four residences are adjacent to State Route 9A where the pipeline would be installed on the east edge of the roadway between MPs 399.8 and 400.8. Several commenters on the SDEIS believe that there are more than four residences within 50 feet of construction areas along the 9/9A Proposal. Millennium stated that it determined the distance from the construction work area using a combination of aerial photography with the centerline and construction

work area and field review using range-finding laser and tape measure. All distances were calculated from the construction work area to the residence, not to residential property lines, outbuildings, pools, or other structures. Between Chappaqua Road and North State Street (MPs 399.5 and 401.2), the area of concern, the proposed construction work area would be 35 feet wide, comprising the 12-foot-wide travel lane on State Route 9A and 23 feet adjacent to the travel lane. Only 4 residences were identified within 50 feet of the construction work area, although a total of 101 residences (including 6 apartment buildings) were identified within 200 feet of the construction work area. We believe this is an accurate accounting of the residences. We also note that we have recommended the ConEd Offset/Taconic Parkway Alternative that would avoid impact on these residences (see section 6.3.6).

Where possible, Millennium has reduced the construction work area or relocated the pipeline to be more than 50 feet from residences. For areas where construction would be within 50 feet of a residence, Millennium would attempt to avoid removal of mature trees and landscaping; install temporary fencing along the edge of the construction work area within 100 feet of the residence or backfill the trench on the same day; and restore the construction work area in the vicinity of the residence as soon as possible. There are no instances where construction would be within 25 feet of a residence. See section 5.8.6 for discussion of visual impacts and section 5.11 for discussion of air and noise impacts.

With the exception of properties in Westchester County, Millennium has adjusted its construction work area so that only 1 residence at MP 67.6 in Chautauqua County would be within 25 feet of the construction work area. Millennium has prepared and filed a site-specific residential construction plan for this property that would be finalized with the landowner before construction. We have reviewed this plan and find it acceptable.

However, because new residences may be constructed along the proposed route before proposed construction is scheduled, we recommend that:

- **Millennium update the listing of residences within 50 feet of the construction work area and file this information with the Secretary before construction. For all previously unidentified residences closer than 25 feet to the construction work area, Millennium should file a site-specific plan with the Secretary for the review and written approval of the Director of OEP before construction.**

Construction in Yonkers and Mount Vernon

Within Westchester County between MPs 417.3 and 421.8, about 3.4 miles of the construction work area would be placed entirely within the streets. An estimated 81 residential structures would be within 50 feet of the construction work area in this segment. Millennium proposes to use a 20- to 35-foot-wide construction work area (see appendix C), but would finalize the width before construction and after discussions with the appropriate jurisdictional entities. In all cases, the construction work area would be restricted to the width of the existing road, and no activities would be conducted off-street. Millennium would maintain no permanent right-of-way within the streets but would retain the right to maintain the sub-pavement pipeline and trench. In addition, Millennium would implement the following mitigation measures for in-street construction in Westchester County.

One month before the initiation of construction, information about the construction schedule, anticipated dates of specific street closings, and other pertinent data would be dispersed via the local media. Arrangements would be made to provide appropriate transportation access for persons in residences that would be temporarily blocked by construction.

The street closing schedule would be published daily in the local media for the duration of construction.

The pipeline would be installed using the sewer-line/stove-pipe construction technique.

During construction hours, no equipment or materials would be placed in a manner that would obstruct highway warning or directional signs or signals.

Construction would be during approved working hours only. Open trench would be covered with steel plates at the end of each work day. Each plated segment would be clearly identified by barricades, lights, or signage.

Asphalt and unusable spoil from the street trenches would be removed to an authorized landfill. Any dirt on the roads would be swept or washed off the streets at the end of each work day. Trenches dug through streets and highways would be repaired as required by local authorities.

We reviewed the route through the Cities of Yonkers and Mount Vernon and believe that construction activities could be managed so as to result in only short-term construction-related impacts on traffic, residences, and local businesses. Millennium's proposed use of sewer line construction techniques for in-street construction would reduce the required work space and minimize the impact and duration of activities in these densely populated areas (see section 2.3.3 for a description of these construction techniques). By using these specialized construction techniques, Millennium could maintain a restricted flow of traffic around work areas and would not generally require street closings on wider roadways. Construction activities on narrower local roadways, where the existing road right-of-way is between 20 and 35 feet, would require temporary traffic detours.

In addition, because construction would require between 20 and 35 feet of temporary work space, some on-street parking for local residents would be eliminated from the section of the street under active construction. Residents that typically park vehicles along roads identified for construction would be required to find alternate parking for the duration of time required for installation of the pipeline in any one location.

There is also the potential to affect trees along the roads that would be used for installation of the pipeline. Millennium proposes to trench within roads, not along the side of them. Therefore, construction would not require tree clearing on either side of the road as all construction and associated activity would be confined to the area between street curbing. However, there is the potential for root disturbance. Millennium states that it would compensate for any trees lost as a direct result of the pipeline construction. In areas of ornamental or shade trees, the value would be determined by the fair market value (planted and guaranteed) from local tree nurseries (see discussion in section 5.8.1.2).

City of Yonkers

The city identified a variation to avoid crossing through the center of the Ridge Hill site, one of the few remaining sites that has the potential to produce jobs and induce development with little impact on the community. Millennium has no objection to a minor realignment on this property and we concur (see Ridge Hill Variation in section 6.3.15). In addition, in response to comments from the city, Millennium has proposed a route variation that would move the pipeline from within Palmer Road and Desmond Avenue/Bronx River Road to the Sprain Brook Parkway between MPs 418.3 and 420.5 (see Parkway Variation in section 6.3.16). The city supports this variation and we have recommended its use.

City of Mount Vernon

The City of Mount Vernon is a 4.2 square mile area bordered on the north by the Village of Bronxville and the Town of Eastchester, on the south by the City of New York and the Bronx, on the west by the City of Yonkers, and on the east by the Town of Pelham. The city had a 2000 population of 68,381 and a 1990 per capita

income of \$15,835. Mount Vernon is the 9th most densely populated city in the U.S. and would be crossed by the pipeline between MPs 419.9 and 421.8.

The city has several redevelopment projects in progress, including the Sanford Boulevard Redevelopment Project (retail expansion), the Third Street Initiatives Program (commercial and residential improvements), the Hip Hop Culture Gallery and Hall of Fame Project (rehabilitation of an abandoned fire house and surrounding buildings), and the Railroad Cut Redevelopment Project (structural decking over the railroad corridor with planned hotel and convention center, sports arena, office/commercial building, and retail mall) (www.ci.mount-vernon.ny.us). Our review indicates that installation of the pipeline would not conflict with, or preclude the pursuit of, these revitalization initiatives by the city.

In the City of Mount Vernon, installation of the pipeline would be in narrow streets and would require additional temporary street closings and the rerouting of traffic. We received over 750 comment letters protesting the proposed pipeline location in Mount Vernon, including comments concerning the Hamilton Elementary School that has an enrollment of 560 students. We also noted two fire stations along the proposed route in Mount Vernon that would require special consideration during construction planning, if these stations are in operation. Although construction is scheduled for the summer when most schools are closed, many schools have summer programs. Therefore, we recommend that:

Millennium develop site-specific construction plans for construction adjacent to the Hamilton Elementary School, Fire Station No. 4 on Oak Street, and the fire station at South 14th and 3rd Streets in Mount Vernon. These plans should include measures to assure the safety of Hamilton Elementary School students while at school and going to and from school, and adequate movement of emergency fire equipment during in-street construction activities. These plans should be developed in consultation with the City of Mount Vernon and emergency service providers and filed with the Secretary, prior to construction, for the review and written approval of the Director of OEP.

Our review of the proposed route through Mount Vernon indicates that many utilities are present in and along the streets, including underground utilities, such water and sewer lines, and overhead electric and telephone wires. Millennium states that existing utility lines would be marked by their owners to avoid damage during third-party excavation as part of the "One-Call" system. Millennium's contractor would identify existing utilities before trench excavation during consultation with utility operators and the city. Normal construction practice calls for installing the new pipeline under the existing utility lines to maintain sufficient cover.

Because construction through Mount Vernon would result in construction disturbance and traffic disruption to residents, travelers, and visitors, site-specific plans would need to be developed to address issues of construction timing, traffic detours, notification of residents of upcoming construction, maintenance of construction equipment to reduce air and noise pollution, and utility crossings. Although Millennium states that it is developing a site-specific plan for construction through the city, this a densely populated urban community where construction activities would be disruptive and inconvenient to residents. Therefore, we recommend that:

Following consultation with appropriate authorities and community representatives, and before construction, Millennium should prepare site-specific construction and mitigation plans for the City of Mount Vernon (approximate MPs 419.9 to 421.8). These plans should address construction-related issues, including:

- a. construction schedules and timing;
- b. traffic detours around construction activities;
- c. resident notification of construction schedules;
- d. alternate parking locations for loss of parking spaces.

- e. provisions for maintenance of access to businesses and residential buildings;
- f. provisions for maintenance of construction equipment to reduce air and noise pollution; and
- g. provisions for appropriate utility repair crews and materials to be on site at all times during construction in residential/commercial areas between MPs 420.6 and 421.8.

If utilities to residential buildings are damaged and cannot be restored on the same day, Millennium must offer affected residents alternative housing and transportation to and from these alternative housing locations. The plans, with documentation of consultation with appropriate authorities, should be filed with the Secretary for review and written approval by the Director of OEP before construction.

Septic Systems

Millennium identified 231 septic systems on properties that would be affected by the construction work area (see table 4.8.2-2). We received a number of comments regarding the potential impact on residential septic systems as a result of pipeline construction. Millennium states that the location of each septic system or leach field would be verified during easement acquisition and, through discussions with individual landowners, would be avoided wherever possible. Where avoidance would not be feasible, and a system would be taken out of service during construction, Millennium would provide alternate service or compensate the landowner for the loss of use. If a system were damaged during construction, Millennium would repair or replace the damaged portion to its preconstruction condition or otherwise compensate the landowner. We believe that these measures would minimize impact on septic systems.

Property-Specific Concerns

About 10 landowners commented that the information provided in Millennium's initial application materials did not reflect the exact location of the pipeline in relation to their residences or property boundaries. Millennium provided new maps to each of these landowners. Final crossing plans would be developed in consultation with each landowner during easement acquisition and negotiation.

We also received comments from landowners who were concerned about losing access to parts of their property during construction, or that movement of heavy equipment for farming, quarrying, timbering, etc., would pose a safety hazard for the pipeline. Millennium states it would work with landowners to identify locations where access must be maintained during construction, or where additional precautions should be incorporated into the design of the pipeline to accommodate heavy equipment crossings. All crossing locations would be maintained during construction through the use of trench plugs or steel plates covering the ditch, except during actual installation of the pipe. The pipeline would be buried at greater depth or otherwise protected in areas where landowners identify the need for heavy equipment crossings during operation of the pipeline. We believe that implementation of these measures would allow for continued access across the right-of-way during construction and operation of the pipeline.

We believe that pipeline companies should provide landowners with specific information about how a proposed project would affect their properties. When the survey work and final plans for a construction project are completed, more precise information would be available about the location of the construction right-of-way, extra work spaces, topsoil conservation areas, and heavy equipment crossings; and where special construction techniques or mitigation methods would be used. We believe that landowners would benefit by knowing as much as possible about the final details of a project where it would affect their properties. Therefore, we recommend that:

- **Before construction, Millennium provide each landowner affected by construction with a final CAS showing the construction work area and pertinent information about how the Millennium Pipeline Project would be constructed and restored on their property.**

Planned Residential Developments

The pipeline would cross three planned residential developments that are not yet under construction. Millennium proposes to coordinate construction mitigation plans with the developers and develop site-specific plans for affected areas that would avoid or minimize impacts on future development of these areas. This may require alteration of the pipeline route or lot layout to minimize impacts.

We believe that the measures proposed by Millennium for general construction in residential areas, and our recommendations, would minimize impacts on individual residences and properties.

Commercial/Industrial Areas

Millennium identified about 9.3 miles of commercial and industrial land that would be crossed by the pipeline, 55 percent of which would be in Westchester County. For all areas where businesses or commercial land uses would be within 50 feet of the construction work area, Millennium proposes to implement the same mitigation measures as for residential properties described above.

Along the 9/9A Proposal, 33 businesses would be within 50 feet of the construction work area. Several commercial landowners were concerned about the location of the pipeline on their properties in light of future development as discussed below.

The 9/9A Proposal and the proposed route would cross the Metro-North Commuter Railroad Company (Metro-North) railroad at MPs 391.6, 394.3, 395.4, 420.3, and 421.1, and would parallel Metro-North's facilities between MPs 394.3 and 395.4. The crossings at MPs 395.4, 420.3 and 421.1 would involve an electric third rail, and the pipeline would parallel the electric third rail facilities between MPs 395.0 and 395.4. Metro-North was concerned about the safety of its facilities, specifically with regard to the location of a pipeline adjacent to active railroad tracks powered by an electric third rail.

Millennium states that the safety precautions that would be used to construct beneath the electrified railroad tracks are similar to those used for "normal" railroad crossings. The principal difference is the need for increased awareness regarding worker safety and the proximity of the aboveground, electrified third rail. Millennium would erect construction fencing around the work area before construction activities begin and would post appropriate warning signs. Millennium would also comply with any relevant worker safety and other construction specifications that Metro-North may have to ensure that the construction contractor is well aware of the worker safety concerns. Millennium is also in the process of working with Metro-North to develop detailed crossing plans and drawings for each crossing. Millennium would file the detailed plans and design drawings with the Commission once they are completed. We have recommended the ConEd Offset/Taconic Parkway Alternative that would avoid three of the five crossings of Metro-North (MPs 391.5, 394.3, and 395.4) and the area where the pipeline would parallel the tracks between MPs 394.3 and 395.4 (see section 6.2.6). In its comments on the SDEIS, Metro-North stated its support of the alternative route since the alternative would avoid construction and operation of the pipeline at these locations.

However, in its comments on the SDEIS, Metro-North also indicated its continued concern about a safe crossing of the railroad, particularly where there is an electric third rail (e.g., MPs 420.3, and 421.1). Therefore, we recommend that:

- **Before construction across the Metro-North railroad tracks in Westchester County, Millennium file the detailed plans and design drawings with the Commission along with comments on the plans from Metro-North for review and written approval by the Director of OEP.**

Millennium was also informed by the Village of Briarcliff Manor that a possible highway ramp may be developed between State Route 9A and the Taconic Parkway (approximate MP 402.5). Based on our conversations with the NYSDOT, this project has not reached a planning stage and cannot be incorporated into the routing of the 9/9A Proposal. However, Millennium should consider this possible highway ramp because it may affect pipeline routing. Therefore, we recommend:

- **Millennium should coordinate with the NYSDOT about the pipeline siting with respect to a potential ramp location near MP 402.5 on the 9/9A Proposal and file any correspondence or plans developed with the NYSDOT with the Secretary prior to construction.**

Millennium met with the Coca Cola Bottling Company of New York (Coca Cola) in November 2000 to discuss alternative routes across its property (approximate MP 407.8) in conjunction with its re-evaluation of the pipeline route across the LCOR Asset Management L.P. and Eastview Holdings L.L.C. (LCOR/Eastview) property in Greenburgh (see discussion below). Millennium is currently evaluating a route variation that would accommodate LCOR/Eastview's concerns and avoid the area where Coca Cola indicates that it plans to expand its warehouse. This route variation would only affect these two properties. Coca Cola confirmed that the alternative route would not affect its planned development. Although the Town of Greenburgh engineer is aware of discussions regarding a building proposal on the Coca Cola property, to date no formal submission has been made to the planning board.

Millennium met with LCOR/Eastview officials in June 2000 regarding potential routes across their property (approximate MP 408.2) and filed the route that they recommended. Millennium met with LCOR/Eastview officials again in August and September 2000 to re-evaluate the filed route. Millennium also consulted with the Town of Greenburgh engineer and was informed that LCOR/Eastview currently has a project under review with the planning board consisting of construction of two science buildings and a parking lot. Millennium met again with LCOR/Eastview officials in November 2000 to develop another route across this property. LCOR/Eastview officials are reviewing this route variation and will provide comments in the near future. Millennium will file the route variation with the Commission when it has been finalized.

As part of the development of route variations across the Coca Cola and LCOR/Eastview properties, Millennium contacted the NYSDOT on November 9, 2000, regarding proposed projects along State Route 9A in Westchester County. The NYSDOT has prepared a Draft Expanded Project Proposal (July 2000) that describes seven alternatives to modify State Route 9A north of Elmsford (MP 409.9). Some of the alternatives affect the LCOR/Eastview property and some affect the Coca Cola property. Millennium was informed that construction is currently planned for 2006, if at all. During its discussions in November 2000 with LCOR/Eastview, Millennium discussed the various routes since some of the highway routes may present an opportunity for the pipeline alignment through the area. However, since the final highway routing has not been established, it is impossible to describe exactly how these routes would affect the location of the 9/9A Proposal route at this time.

Millennium contacted Charles J. Persico on September 14, 2000, regarding potential routes across his property (approximate MP 408.7). At that time, Mr. Persico suggested a route variation along a public street adjacent to his property. Millennium has investigated this route variation and recommends that it be adopted (see discussion in section 6.3).

Millennium contacted Ardsley Partners on June 26, 2000, regarding potential routes across its property (approximate MP 414.2). At that time, Millennium believed that it had reached an agreement to install the pipeline

along existing utility lines and along the property line at the back of the Ardsley Partners' property. Millennium met again with Ardsley Partners on November 13, 2000, and confirmed that the existing alignment is satisfactory. Millennium also confirmed that this alignment would accommodate any future development plans. At this time, Ardsley Partners does not have any new development plans on file with any agency.

5.8.3 Recreation and Public Interest Areas

5.8.3.1 General Construction and Operational Impact

One of the primary concerns in crossing recreational areas is the impact that pipeline construction and operation would have on recreational activities. Disruption and noise during construction could be a nuisance to hikers, bikers, and campers, and could cause disturbance to wildlife, especially in protected areas. Since pipeline construction is generally scheduled for the summer season when recreational activities are at their peak, this impact, to a large extent, is unavoidable. However, although construction would span about a 6-month period, construction activities at any one location are intermittent and any one sequence (pipe stringing, ditching, etc.) is usually limited to 1 to 5 days, therefore limiting the duration of disturbance. Some additional mitigation may be possible by timing construction to avoid peak periods of recreational use on a site-specific basis.

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. Removal of existing forest for the construction and operation of the pipeline would have the most significant long-term impact. Although temporary work areas in forests would be allowed to revegetate, revegetation to preconstruction conditions in forested areas would take many years.

5.8.3.2 Site-Specific Impact

Table 5.8.3.2-1 lists each identified recreation or public interest area and mitigation proposed by Millennium for each crossing (see table 4.8.3-1 for a description of each recreation and public interest area and its use). Proposed mitigation includes construction timing restrictions (Mongaup WMA and North County Trail); use of specific mitigation for all trail crossings (see section II.G of Millennium's ECS in appendix E1); and consultations with affected landowners to develop site-specific mitigation plans, timing restrictions, and restoration procedures. Use of the proposed mitigation would reduce short-term and long-term impact of the proposed project on the recreational and public interest areas crossed, except as discussed in the following section.

In table 5.8.3.2-1, Millennium has identified proposed mitigation for recreation and public interest areas. However, for 60 of the listed properties, Millennium indicates that mitigation would be developed with the landowner. While use of the proposed mitigation would reduce short-term and long-term impact of the pipeline on the recreational and public interest areas crossed, we must review and approve all construction and mitigation plans. Therefore, we recommend:

- **Before construction, Millennium should file with the Secretary all mitigation plans for construction of the pipeline and restoration of the construction right-of-way developed with the property owners identified on table 5.8.3.2-1, for review and written approval of the Director of OEP.**

TABLE 5.8.3.2-1

Site-Specific Mitigation for Recreation and Public Interest Areas

County	Approximate Beginning Milepost	Area Name	Approximate Crossing Length	Acres Affected by Construction/ Potential Impact	Proposed Mitigation/Action
Chautauqua	0.0 - 32.9	Lake Erie	32.9 mi	797.6 ac - Disruption of water-based recreation in immediate area.	Shoreline would be directionally drilled.
	42.9	Village of Westfield Chautauqua Gorge/ Chautauqua Creek (NRI listed river)	524 ft	1.5 ac - Loss of scenic or recreational values.	Site-specific plan developed for crossing (see section 5.5.2). Chautauqua Creek to be crossed using dam and pump.
	62.9 - 66.7	State of New York Reforestation land	2.1 mi (4 parcels)	20.3 ac - Vegetative clearing.	Standard construction procedures. Replant with species agreed to with the NYSDEC.
Cattaraugus	78.3	Southern Tier Bike Route/Axelville Road	28 ft	<1.0 ac - Disruption of use.	Bicycle route using existing road. No specific mitigation proposed. No impact if road is bored. Temporary (1 day) disruption if road is open cut.
	81.7	Southern Tier Bike Route/Pidgeon Valley Road	26 ft	<1.0 ac - Disruption of use.	Same as above at MP 78.3.
	82.6	Little Valley Rod and Gun Club	60 ft	0.1 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	84.5	Southern Tier Bike Route/Little Valley Road	33 ft	<1.0 ac - Disruption of use.	Same as above at MP 78.3.
	84.5 - 84.6	Buck N Bass Rod and Gun Club	402 ft	0.7 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	86.2 - 86.3	State of New York Miscellaneous use	315 ft	0.7 ac - Vegetation clearing.	Mitigation to be developed with state.
	86.8	Finger Lakes Trail/North Country National Scenic Trail	1 ft	<0.1 ac - Disruption of use.	Hiking trail. Managing agencies (NPS and Finger Lakes Trail Conference, Inc.) to be notified 1 week before construction. Implement construction procedures in section II.G of ECS including maintaining safe passage and backfilling the trench immediately following installation.

TABLE 5.8.3.2-1 (cont'd)

County	Approximate Beginning Milepost	Area Name	Approximate Crossing Length	Acres Affected by Construction/ Potential Impact	Proposed Mitigation/Action
Cattaraugus (cont'd)	87.0	Finger Lakes Trail/North Country National Scenic Trail	33 ft	<0.1 ac - Disruption of use.	Same as above at MP 86.8.
	87.5 - 87.6	State of New York Miscellaneous use	541 ft	1.2 ac - Vegetation clearing.	Mitigation to be developed with state.
	91.4 - 91.9	State of New York Reforestation land	3,140 ft	6.2 ac - Vegetation clearing.	Standard construction procedures. Replant with species agreed to with the NYSDEC.
	91.9	Finger Lakes Trail/North Country National Scenic Trail	32 ft	<0.1 ac - Disruption of trail use and nearby campsite.	Same as above at MP 86.8.
	100.0 - 100.2	Alpine Sportsman Club	1,078 ft	2.2 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	101.8 - 102.9	Twin Rock Gun Club	5,552 ft	12.2 ac - Vegetation clearing. Restricted use .	Mitigation to be developed with landowner.
Allegany	121.8 - 122.0	East Lovejoy Sportsman's Club	776 ft	1.4 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	136.4 - 136.9	Educational Foundation of Alfred	2,526	4.4 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	137.3	Genesee River (NYSDEC designated study river)	130 ft	<0.1 ac - Temporary loss of scenic or recreational values.	Millennium would use a dry crossing (steel dam and culvert) and would install in-stream sediment filters. Town of Wellsville Water Authority would be notified in writing 1 week before construction. Millennium is working with the COE regarding restoration of the floodwall.
	146.7 - 146.8	Andover Rod and Gun Association	556 ft	1.1 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
Steuben	152.3 - 156.1	State of New York Reforestation land	5,192 ft 3 parcels)	10.1 ac - Vegetation clearing.	Standard construction procedures. Replant with species agreed to with the NYSDEC.
	167.7 - 168.1	Tracy Creek Club, Inc.	1,706 ft	3.5 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.

TABLE 5.8.3.2-1 (cont'd)

County	Approximate Beginning Milepost	Area Name	Approximate Crossing Length	Acres Affected by Construction/Potential Impact	Proposed Mitigation/Action
Steuben (cont'd)	173.5 - 174.1	Purple Island Wildlife Refuge (private)		3.5 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	181.4	Cohocton River (NRI listed)	203 ft	0.5 ac - Temporary loss of scenic or recreational values.	Millennium plans to open cut this river and would install in-stream sediment filters.
	183.5 - 184.6	State of New York Reforestation land	1.15 mi	9.7 ac - Vegetation clearing.	Standard construction procedures. Replant with species agreed to with the NYSDEC.
	186.3 - 186.4	Corning Fish and Game Club	729 ft	1.7 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	187.6	Town of Corning	342 ft	0.8 ac - Vegetation clearing.	Mitigation to be developed with landowner.
	188.3	Steuben County	82 ft	0.2 ac - Vegetation clearing.	Mitigation to be developed with landowner.
Chemung	198.5	Catherine Valley Trail/Chemung Canal (undeveloped)	25 ft	<0.1 ac - Disruption of use.	Implement construction procedures in section II.G of ECS including maintaining safe passage and backfilling the trench immediately following installation. Notify NYSOPRHP in writing 1 week before construction begins. The NYSOPRHP requests that weed-free straw be applied as mulch in all disturbed areas.
	198.5 - 199.2	Soaring Eagles/Mark Twain State Park Golf Course	3,636 ft	3.1 ac - Disruption of use. Golf course not affected by construction.	Timing and mitigation measures to be developed with landowner. NYSOPRHP would be notified 1 week before construction. The NYSOPRHP requests that weed-free straw be applied as mulch in all disturbed areas. The NYSOPRHP also notes that the crossing would be within several trail areas and that these be crossed in accordance with Millennium's ECS (section II.G).
	201.7 - 201.8	Chemung County	833 ft	1.5 ac - Vegetation clearing.	Mitigation to be developed with landowner.
	206.1 - 206.5	Chemung County Rod and Gun Club	2,375 ft	5.2 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
Tioga	224.2 - 224.4	Tioga County	818 ft	2.0 ac - Vegetation clearing.	Mitigation to be developed with landowner.

TABLE 5.8.3.2-1 (cont'd)

County	Approximate Beginning Milepost	Area Name	Approximate Crossing Length	Acres Affected by Construction/Potential Impact	Proposed Mitigation/Action
Broome	250.0	The Conservation Fund	17 ft	<0.1 ac - Vegetation clearing.	Mitigation to be developed with landowner.
	250.0 - 250.2	Village of Port Dickinson	1,230 ft	2.9 ac - Restricted use of park facilities.	Site-specific plan to be developed for crossing. Village of Port Dickinson to be notified in writing 1 week before construction.
	250.5	Village of Port Dickinson	114 ft	0.2 ac - Vegetation clearing.	Mitigation to be developed with landowner.
Delaware	275.8	Delaware County Soil and Water Conservation District	357 ft	0.9 ac - Vegetation clearing.	Mitigation to be developed with landowner.
	276.0	West Branch Delaware River (NYSDEC designated study river)	270 ft	Minimal (dry crossing) - Temporary loss of scenic or recreational values.	Millennium proposes to bore the river.
	285.9	Town of Hancock	303 ft	0.6 ac - Vegetation clearing.	Mitigation to be developed with landowner.
	287.0	East Branch Delaware River (NYSDEC study river)	512 ft	1.0 ac - Temporary loss of scenic or recreational values.	Millennium proposes to cross river using a conventional bore for most of the crossing and an open cut/ diversion for remaining segment. In-stream sediment filters would be installed.
	287.9 - 288.1	F Troop Ltd.	1,133 ft	2.3 ac - Vegetation clearing.	Mitigation to be developed with landowner.
	288.1	Melrose Sportsmen Inc.	410 ft	0.7 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	288.1 - 288.2	F Troop Ltd.	424 ft	0.7 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	290.2 - 290.9	Gee Brook Club LLC	3,438 ft	6.3 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	290.9 - 291.5	Somerset Club, Inc.	3,638 ft	9.2 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.

TABLE 5.8.3.2-1 (cont'd)

County	Approximate Beginning Milepost	Area Name	Approximate Crossing Length	Acres Affected by Construction/ Potential Impact	Proposed Mitigation/Action
Delaware (cont'd)	291.5 - 292.6	Tomar Mountain Gun Club, Inc.	3,994 ft (3 parcels)	8.5 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	294.2 - 294.8	Falcon Gun and Rod Club, Inc.	3,522 ft	6.4 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	297.1 - 297.5	Gun and Rod Holding Corporation	1,984 ft	3.8 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
Sullivan	310.8 - 311.7	Stony Brook Hunting Club, Inc.	4,391 ft (2 parcels)	8.6 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	317.3 - 320.2	Ten Mile River Reservation (Boy Scouts of America)	2.85 mi (2 parcels)	29.6 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	320.7 - 322.9	Excelsior Sportsman Club	1.9 mi (2 parcels)	18.7 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	323.8 - 330.2	Mongaup WMA	5.3 mi (4 parcels)	48.9 ac - Vegetation clearing. Restricted use.	Construction and maintenance would be restricted to the fall season and would be completed by November 30. Site-specific plan developed for the boat launch to be finalized with the FWS. Coordinate with NYSDEC for final mitigation measures.
	331.0 - 331.4	The Forestburg Scout Reservation	2,460 ft	4.3 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
Sullivan/ Orange	331.9 - 333.6	Hartwood Club, Inc.	1.5 mi (2 parcels)	16.4 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
Orange	333.6 - 333.8	Little Acres Hunting Club	.218 ft	2.2 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	335.3 - 336.9	Cahoonzie Club, Inc.	1.6 mi	15.6 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	340.3	County of Orange	65 ft	<0.1 ac - Vegetation clearing.	Mitigation to be developed with landowner.

TABLE 5.8.3.2-1 (cont'd)

County	Approximate Beginning Milepost	Area Name	Approximate Crossing Length	Acres Affected by Construction/ Potential Impact	Proposed Mitigation/Action
Orange (cont'd)	345.2 - 345.4	Town of Greenville		2.9 ac - Vegetation clearing.	Mitigation to be developed with landowner.
	349.8 - 349.9	State of New York, Mental Retardation	383 ft	0.8 ac - Vegetation clearing. Construction disturbance.	Mitigation to be developed with landowner.
	350.7	Wallkill River (NRI listed)	82 ft	<0.1 ac - Temporary loss of scenic or recreational values.	Millennium proposes to bore the river.
	352.3	Scenic Farms Golf Course	300 ft	0.5 ac - Construction disturbance.	Part of the crossing would be bored with Pochuck Creek.
	358.1 - 358.6	Breakaway Trails, Inc.	2,362 ft	4.4 ac - Vegetation clearing. Construction disturbance.	Mitigation to be developed with landowner.
	360.4 - 360.8	Town of Warwick	2,050 ft	5.9 ac - Vegetation clearing.	Access to work area would be along the construction right-of-way. Construction personnel may use the Town Hall parking lot if such use is agreed to. Final mitigation to be developed with landowner.
	360.8	Warwick Sports Center, Inc.	274 ft	0.6 ac - Vegetation clearing. Restricted use.	Mitigation to be developed with landowner.
	363.5 - 363.7	NPS, AT National Scenic Trail	901 ft	1.6 ac - Disruption of trail use. removal of exiting vegetative screening.	Site-specific plan developed which includes: no clearing of additional trees on NPS property (use only the existing 50-foot-wide corridor), notify NPS 1 week before construction, implement construction procedures in section II.G of ECS (maintain safe passage and backfill trench immediately following installation), and a site-specific restoration plan. AT is listed in the NRHP.
	364.9 - 366.1	Sterling Forest State Park	1.2 mi (2 parcels)	13.1 ac - Vegetation clearing.	Includes Doris Duke Wildlife Sanctuary (MPs 364.9 to 365.8). Final mitigation to be developed with NYSOPRHP and PIPC.
	366.1 - 367.3	Sterling Forest Corp. Ski Area	200 ft	14.3 ac - Vegetation clearing.	Restoration plans to be developed with landowner during easement negotiations. Includes crossing of Indian Kill Reservoir. South County Water Corp. to be notified before construction.

TABLE 5.8.3.2-1 (cont'd)

County	Approximate Beginning Milepost	Area Name	Approximate Crossing Length	Acres Affected by Construction/ Potential Impact	Proposed Mitigation/Action
Orange/ Rockland	369.9 - 375.7	Harriman State Park	5.8 mi (2 parcels)	81.5 ac - Vegetation clearing. Restricted use.	Final mitigation to be developed with NYSOPRHP and PIPC. Notification in writing 1 week before construction. Landscape plantings at road crossings in accordance with detailed drawings. Trail crossings (Ramapo-Dunderberg, Torne Mt. Ivy, Kakiat, and Suffern-Bear Mountain Trails) in accordance with section II.G of Millennium's ECS. The NYSOPRHP requests 4 week notice and approval of all plantings.
Rockland	375.7 - 376.6	Rockland County Kakiat County Park	4,664 ft	12.2 ac - Vegetation clearing. Disruption of use.	Mitigation to be developed with landowner during easement negotiations. The Rockland County Park Commission would be notified 1 week before construction.
	383.7 - 383.9	Town of Clarkstown	1,153 ft	2.3 ac - Vegetation clearing.	Mitigation to be developed with landowner.
	385.0 - 385.3	High Tor State Park	2,038 ft	3.8 ac - Vegetation clearing. Restricted use.	Final mitigation to be developed with NYSOPRHP and PIPC. Notification in writing 1 week before construction.
	386.2	Village of West Haverstraw	182 ft	0.7 ac - Vegetation clearing.	Mitigation to be developed with landowner.
	387.5 - 387.6	Village of West Haverstraw	478 ft	0.8 ac - Restricted use of developed recreation facilities.	Construction work area at edge of improved recreation area. Mitigation to be developed with landowner.
Rockland/ Westchester	387.9 - 390.1	Hudson River/Haverstraw Bay	2.2 mi	7,040 ac - 1.5 percent of the bay.	Mitigation and final crossing plan under continuing development with COE, NMFS, FWS, NYSDEC, and NYSDOS.
Westchester	390. - 391.3	U.S. Veterans Hospital	1.15 mi	11.7 ac - Vegetative clearing. Construction disturbance.	Mitigation would be developed with landowner. Listed on the NRHP.
	394.3 - 395.3	Senasqua Town Park	5,544	6.8- Vegetative clearing.	Soils would be tested and mitigation developed if necessary in compliance with Federal, state, and local regulations. Maintain access to Yacht Club during construction. Post safety signs. Notification in writing 1 week prior to construction.
	396.5 - 396.8	Van Cortlandt Manor	1,901	2.0-Vegetative clearing.	Coordinate with NYSORHP to develop appropriate mitigation.

TABLE 5.8.3.2-1 (cont'd)

County	Approximate Beginning Milepost	Area Name	Approximate Crossing Length	Acres Affected by Construction/ Potential Impact	Proposed Mitigation/Action
Westchester (cont'd)	397.4 - 397.4	Old Croton Aqueduct State Historic Park	158	0.1- Vegetation clearing.	Coordinate with NYSORHP to develop appropriate mitigation.
	397.0 - 401.3	Briarcliff-Peekskill Trailway	22,810	19.4 -Tree trimming, trail closing	Install appropriate signs, barricades, and other safety devices to protect trail users and maintain access to existing trails during weekends. Mitigation to be developed with Westchester County officials.
	401.6 - 401.9	North County Trail	1,584	1.3 -Tree trimming, trail closing	
	401.8 - 404.1	Briarcliff-Peekskill Trailway	11,287	9.6 -Tree trimming, trail closing	
	404.0 - 404.1	North County Trail	317	0.4 -Tree trimming, trail closing	0.4 -Tree trimming, trail closing
	406.8 - 406.9	Briarcliff-Peekskill Trailway	264	0.4 -Tree trimming, trail closing	
	409.1 - 410.1	South County Trail	5,280	5.6 -Tree trimming, trail closing	5.5 -Tree trimming, trail closing
	410.1 - 411.3	South County Trail	6,072	5.5 -Tree trimming, trail closing	
	411.6 - 413.5	South County Trail	9,874	8.9 -Tree trimming, trail closing	
	410.1 - 410.1	West Rumbrook Park	53	0.7-Vegetation clearing.	Cross in edge of park in abandoned right-of-way. Standard construction procedures.
	414.6 - 416.1	Sprain Ridge Park	8,078	10.7-Vegetation clearing.	Coordinate with SHPO to develop appropriate mitigation. Possible opportunity to improve existing trail in park.
	416.6 - 416.6	Sprain Brook Parkway	370	0.6-Vegetation clearing.	Road crossing. Standard construction procedures.
	416.8	Grassy Sprain Reservoir dam	300	0.5-Vegetation clearing	City of Yonkers proposed parking lot for boat access to the reservoir.
420.4 - 420.7	Westchester County Bronx River Park	345 ft	0.8 ac - Vegetation clearing. Restricted use.	No construction in developed area. Includes Scotti Field (MP 420.4). City of Yonkers Park Department would be notified 1 week before construction.	

Boat Launch at the Mongaup River/Rio Reservoir

Millennium proposes to install a temporary boat launch at the Mongaup River (MP 330.2) that would be 15 feet wide and surfaced with gravel. Safety fencing would be installed around the construction work areas, and signs would be posted to identify access and parking areas. Following construction, a permanent boat launch would be constructed with asphalt (15 feet wide, 30 feet long, and 4 inches thick) and the remaining area inside the rock barriers (a minimum of 30 inches in diameter) would be restored with 2 inches of gravel. Shrubs would be planted in accordance with the site-specific plan, and the existing gate (or replacement) would be reinstalled. The FWS has identified concerns with construction of the permanent boat launch because it may affect a nearby bald eagle nest and roosting habitat. We have recommended that Millennium consult with the FWS on the final plan for this facility to protect bald eagles and their habitat at this location (see discussion of the bald eagle in section 5.6.3).

Sterling Forest Corporation

We received comments from the Sterling Forest Corporation concerning potential impact on existing utilities and planned development on its property in Orange County. The pipeline would cross about 6,200 feet of land that is owned and managed by the Sterling Forest Corporation between MPs 366.1 and 367.3. All construction would be adjacent to existing rights-of-way using the lift and lay procedure and would affect about 14.3 acres. One of the issues identified by the corporation was the crossing of the Indian Kill Reservoir at MP 367.1 (see section 5.3.2.3 for discussion of crossing procedures). Millennium states that it has met with the Sterling Forest Corporation to locate extra work areas so as to minimize forest clearing. We believe that implementation of Millennium's standard construction practices, and development of site-specific mitigation plans during easement negotiations with the landowner, would be adequate to avoid or minimize impacts on this privately owned property.

NPS and AT Crossing

We received comments from the NPS regarding the crossing of the AT at MP 363.6 in Orange County. The NPS, which administers the AT, was concerned about the potential aesthetic impact of the crossing on the AT and NPS land, safety of the hikers that may use the trail during construction, impacts on a nearby hawkwatch site on State Route 17A, and the use of herbicides to maintain the right-of-way during operation. In addition, since this portion of the AT is listed in the NRHP, we must consult with the SHPO regarding any plan to cross the AT and provide the ACHP with an opportunity to comment.

The crossing would be in an area where Millennium would replace Columbia's existing Line A-5. To minimize clearing of existing vegetation and reduce potential visual impact, Millennium proposes no extra work space on NPS land and to construct the pipeline within the existing cleared 50-foot-wide right-of-way. In addition, Millennium has filed a detailed site-specific plan for the construction, restoration, and maintenance of the AT and adjacent NPS property. Millennium has further committed to providing barriers to off-road vehicles, maintaining access across the trail at all times, and not to use herbicides to maintain the right-of-way. We believe that this plan would minimize construction-related impacts on this recreational trail and that proposed restoration would, at a minimum, preserve the existing aesthetic qualities in the area. However, we have not received NPS's comments on the plan and recommend that:

- **Millennium continue consultations with the NPS to finalize the site-specific plan for the crossing of the AT at MP 363.6. Millennium should file the results of this consultation, and comments from the NPS and the SHPO, with the Secretary for review and written approval by the Director of OEP before construction.**

Other Trail Crossings

In accordance with its ECS, Millennium would maintain safe and uninterrupted passage on all trails crossed by the pipeline. Standard crossing procedures would involve posting warning signs, installing protective safety fencing, leaving trench plugs or installing other bridging devices over the trench, and completing construction through the area as quickly as possible. Millennium states that the trench would not be opened until the pipe is ready for installation and that the trench would not be left open within 100 feet of the trail crossing. Following construction, the temporary work areas would be planted with trees according to a plan developed in consultation with the appropriate land manager.

NYSOPRHP and PIPC Land

Land managed by the NYSOPRHP and/or PIPC that would be crossed by the pipeline includes Catherine Valley Trail/Chemung Canal (MP 198.5), the Soaring Eagles/Mark Twain State Park (MPs 198.5 to 199.2), the Sterling Forest State Park (MPs 364.9 to 366.1), the Harriman State Park (MPs 369.9 to 375.7, and the High Tor State Park (MPs 385.0 and 385.3). The crossing of the Catherine Valley Trail/Chemung Canal would be adjacent to the NYSEG powerline right-of-way and would affect less than 0.1 acre. The crossing of the Soaring Eagles/Mark Twain State Park would be adjacent to an existing power line and would not affect recreational facilities. About 3.1 acres of land would be affected by construction. The new permanent right-of-way would be 25 feet wide (2.1 acres) within the park. The crossing of the Sterling Forest, Harriman, and High Tor State Parks would be within the lift and lay segment of the project. About 13.1 acres would be affected by construction in the Sterling Forest, 81.5 acres in Harriman Park, and 3.8 acres in the High Tor State Park. Construction through these state parks would require blasting, and extra work areas have been included for rock storage.

The NYSOPRHP and PIPC commented that additional mitigation, above and beyond that identified by Millennium, would be required for these crossings including additional notification (4 weeks before construction), specific mulching requirements, identification of blasting locations, specifications for storage and/or disposal of blast rock, and approval of any planting plans. In addition, they noted that replacement land may be considered for any new right-of-way in park lands. Millennium estimates that very little new park land would be affected by new permanent right-of-way although it is willing to consider replacement land. Since the crossings would be either adjacent to or within existing rights-of-way through the park lands, we believe impact on these lands would be minimized.

Other Parks

The crossings of the Van Cortlandt Manor and Old Croton Aqueduct State Historic Park along the 9/9A Proposal would be coordinated with the NYSOPRHP (the SHPO) to identify appropriate mitigation (see section 5.9.2). The crossing of the ridge top in Sprain Ridge Park may also provide an opportunity to improve an existing trail in that park. We have recommended the ConEd Offset/Taconic Parkway Alternative which would avoid all impacts on the Van Cortlandt Manor. The Old Croton Aqueduct would still be crossed by this alternative, but in a different location.

In its recent Comprehensive Plan, the City of Yonkers included plans to activate and use the Sprain Reservoir as a recreational resource. Although plans have not yet been developed, the area immediately south of the dam at approximate MP 416.8 is being considered for a small parking lot to allow boat access to the reservoir. Although no plans have yet been developed, there are no other Yonkers-controlled locations that could be used for access to the reservoir. The City of Yonkers believes that the pipeline can coexist with the parking lot and will work with Millennium to complete an appropriate design for this crossing.

Westchester County Bicycle Paths

Along the 9/9A Proposal, where the pipeline would be installed within the bicycle paths (including the North County, South County, and Briarcliff-Peekskill Trailways), only a short segment would be affected at any one time. Millennium is discussing mitigation plans with Westchester County officials. In part, mitigation is expected to consist of installing appropriate signs, barricades, and other safety devices to protect trail users as well as attempting to maintain access to all parts of existing trails during weekends. Construction would be accomplished using stove-pipe type methods, and tree removal would be minimized to the greatest extent practicable. In addition, construction of the 9/9A Proposal may offer the opportunity to connect the two existing sections of the North County Trail and possibly also join the North County and South County Trails, where segments of the abandoned railroad have not been converted to a trailway. The abandoned railway right-of-way and the existing trail are managed and maintained by Westchester County Department of Parks, Recreation and Conservation. Connecting incomplete sections of the trailway system would have to be coordinated with the NYSDOT and the Westchester County Department of Parks, Recreation, and Conservation. Restoration plans for the trailway and abandoned railroad would be completed during the easement negotiations.

Golf Courses

The Scenic Farms Golf Course would be crossed at MP 352.3 for a total crossing length of 300 feet. Millennium proposes to bore part of the crossing in conjunction with the bore of Pochuck Creek.

ORV Use

The pipeline right-of-way often creates corridors that become trails for ORV users, which is often considered either a nuisance or a violation of privacy by landowners. Millennium proposes to discuss ORV control for each landowner or land manager on new right-of-way (see section II.J.5 of Millennium ECS). However, we believe that the same offer should be extended to landowners where the pipeline would be adjacent to existing rights-of-way in forested areas since many of these rights-of-way would be expanded for construction of the new pipeline. Therefore, we recommend that:

- **Millennium provide ORV control in forested areas as specified in its ECS to any landowner or land manager that requests such controls along its construction right-of-way. If these controls extend off the construction right-of-way, Millennium should conduct appropriate surveys in the off-right-of-way areas. The results of these surveys, and plans for ORV controls that extend off the right-of-way, should be filed with the Secretary before their installation.**

Potential Contaminated Sites

Millennium identified 15 recorded sites that would be crossed by the pipeline and may contain hazardous or contaminated soils (see table 4.8.3-2). Millennium states that it would attempt to avoid all known hazardous waste sites, including contaminated soils and groundwater. If avoidance is not practical, Millennium states it would coordinate with the NYSDEC, EPA, and local county health departments to determine site-specific and appropriate mitigation through these areas. Millennium would hire a qualified contractor to handle any contaminated materials. The hazardous waste contractor would follow a site-specific health and safety plan and standard operating procedures for working in hazardous environments in compliance with applicable regulations.

One commenter noted that the Seprieo property on the 9/9A Proposal (owned jointly by Croton-on-Hudson and the Beaverkill Conservancy and also known as the Senasqua Town Park) was the site of a former asphalt batching plant and has some associated contaminated soils (9/9A Proposal). This property is a 30-acre site bounded on the west by the Hudson River and on the east by the Metro-North/Amtrak railroad, and it would be

crossed between approximate MPs 394.0 and 395.0. It was formerly owned by Seprieo Associates. In 1995, the property was subdivided into two lots. Lot 1 is 16.6 acres (of which 9.7 acres are underwater), and Lot 2 is 13.4 acres (of which 6.0 acres are underwater). Lot 2 was conveyed to the Croton-on-Hudson, and Lot 1 was conveyed to the Beaverkill Conservancy, Inc., a nonprofit land acquisition affiliate of the Open Space Institute. At the present time, Croton-on-Hudson manages both lots. At some time in the future, Lot 1 will be deeded to Croton-on-Hudson.

Millennium reviewed the Phase I Environmental Site Assessment (May 1994) that was prepared for Croton-on-Hudson before the town acquired the property. It indicates that soils contaminated with hydrocarbons from past commercial/industrial activity are likely to be present at the site. The report also states that the asphalt batching facility was operated on the property between the mid-1960s and the mid-1970s. Seprieo Associates operated the facility for a number of these years. According to geotechnical investigations performed in 1986, the soils are primarily fill and may have been placed there during construction of the railroad in the 19th century. Additional fill also may have been placed there in the early 1900s. Millennium states that it would test soils suspected of being contaminated before construction and, if necessary, a waste management contractor would be retained to properly characterize and dispose of the soils in accordance with Federal, state, and local regulations. The waste management contractor would obtain all required permits for handling and disposing of contaminated materials.

The pipeline would be installed along the edge of the Seprieo property adjacent to Metro-North's access road. Parts of this property have been cleared of brush and have been landscaped to some extent. Millennium would install the pipeline across the property with a minimum amount of mature tree clearing, and would remove brush within the construction work area. During construction, Millennium would maintain access at all times to the Croton Yacht Club and the balance of the park. Safety would be promoted by posting warning signs, erecting safety fencing, and constructing and completing restoration through the area quickly. Millennium would notify responsible officials at least 1 week in advance of commencing construction activities for coordination. Additionally, the trench would not be opened until the pipe is ready to be installed, and the trench would be backfilled the same day. The trench would not be left open overnight. Millennium expects to complete construction through this area within 4.5 weeks.

During restoration, disturbed landscaping can be replaced, and a restoration plan would be developed during easement negotiations (see condition above). Once restoration is complete, the pipeline should not affect park use or operations other than a restriction on structures within the permanent right-of-way. Vehicle access crossings would be taken into account, and the pipeline would be installed with adequate depth and/or other protection measures to ensure safe operation.

The recommended ConEd Offset/Taconic Parkway Alternative would avoid construction across the Seprieo property (see section 6.3.6).

5.8.4 Transportation and Traffic

5.8.4 General Construction and Operational Impact

Generally, impact on the transportation network would result from the pipeline crossings of roads and highways, and the movement of construction equipment, materials, and personnel from the pipe storage/contractor yards to the construction work area. High volume public roads and railroads would be crossed by boring (and casing, if required) under the road or railway, and traffic flow would be unaffected. Lower-volume roads would be crossed by open-cut methods. Although there would be impact on the transportation network from pipeline crossings of railroads, highways, and county roads, and the movement of construction equipment, materials, and workers to the work sites, none of these effects would be expected to be significant.

However, the 9/9A Proposal would require that the construction work area be placed within one of the northbound lanes of U.S. Route 9 (2.1 miles between MPs 391.8 and 394.2), one of the northbound lanes of State Route 9A (4.3 miles between MPs 397.0 and 401.3), and one of the southbound lanes of State Routes 9A/100 (2.4 miles between MPs 401.3 and 404.0). Depending on location, the pipeline would be installed between 0 and 23 feet from the painted lane line separating the travel lane from the paved shoulder. Traffic impacts would be more significant since construction within these roads would result in traffic delays for the duration of construction (about 3 months).

Millennium states that it would comply with NYSDOT and local highway department requirements regarding public notification of construction activities. Millennium anticipates that notification would include highway information signs, publications in the local newspapers, and coordination with local authorities. Millennium would keep at least one lane of traffic open at all road crossings. All traffic control would be in accordance with plans developed with the NYSDOT before the start of construction.

5.8.4.2 Site-Specific Impact

To assess the traffic impacts of the 9/9A Proposal, we asked the BSC Group, Inc. to conduct a traffic impact study (BSC, 2001) (see RIMS link on www.ferc.gov). This study was based on information provided by Millennium in its 9/9A Proposal, traffic volumes and accident data from the NYSDOT, a site visit of the affected roadways, and modeling using methods defined in the 1997 Highway Capacity Manual. The study focused on potential impacts on the affected road segments and traffic patterns. It included consideration of construction impacts on lane closures, ramp closures, roads proposed for open-cut crossings, signalized intersections, and impacts associated with blasting. We received one comment letter on the SDEIS regarding the traffic study (see comment summary 4-1 through 4-6 in appendix O). Modifications to the traffic study to address these comments are included below.

Table 5.8.4.2-1 summarizes the existing conditions and anticipated impacts associated with construction of the 9/9A Proposal within the designated roadways. However, if the ConEd Offset/Taconic Parkway Alternative is authorized, the impacts described below would be avoided.

Traffic Volumes

Existing daily traffic volumes were obtained from the NYSDOT Highway Data Service Bureau as measured by automatic traffic recorders placed at various locations along U.S. Route 9, State Route 9A, and State Routes 9A/100. These daily volumes were collected on different dates during 1999 and 2000 and represent the latest available data. The annual average daily traffic (AADT) for the individual segments of these roads are developed by calculating the average of a number of vehicle counts and applying adjustment factors to account for variations that may have occurred during the counting period. Thus, AADT values are statistically significant representations of the traffic volume expected during a 24-hour day. For analysis, it was assumed that traffic volumes in the area increased by 1 percent per year.

The functional classification of U.S. Route 9, as classified by the NYSDOT, is Urban Principal Arterial Expressway. It has a northbound AADT of 15,000 vehicles north of the State Route 9A interchange (MPs 391.8 to 392.7), with a higher AADT south (19,200), and the highest AADT (22,000) south of where the pipeline would leave U.S. Route 9 (MP 394.2).

TABLE 5.8.4.2-1

Summary of Traffic Conditions Along U.S. Route 9, State Route 9A, and State Routes 9A/100

Traffic Aspect	U.S. Route 9 MPs 391.8 to 394.2 (northbound)	State Route 9A MPs 397.0 to 401.3 (northbound)	State Routes 9A/100 MPs 401.3 to 404.0 (southbound)	
Length in Roadway	2.1 miles		2.4 miles	
Road Characteristics	4-lane divided highway with limited access. No at-grade crossings. Acceleration/ deceleration lanes at exit and entrance points. Full breakdown lane. Generally characterized as long tangent sections with gentle curves	4-lane divided state highway. At-grade crossings controlled by traffic signals or STOP-sign, some have additional lane. Acceleration and deceleration lanes at grade separated interchanges. Narrow 2-foot-wide shoulder with no breakdown lane. Generally characterized as rolling and winding with very few level areas.	4-lane divided state highway with limited access. No at-grade crossings. Narrow 2-foot-wide shoulder with no breakdown lane. Generally characterized as straight with some gentle curves.	
NYS DOT Functional Classification	Urban Principal Arterial Expressway	Urban Principal Arterial Street	Urban Principal Arterial Street	
Posted Speed Limit	55 mph	40 to 45 mph, with lower advisory speeds posted for sharp curves or steep grades.	55 mph	
Directional Traffic volumes (AADT)	15,100 to 19,200	15,000 to 17,300	20,000 to 22,000	
Average Calculated Accident Rate	0.65	2.26	1.80	
NYS DOT Average Accident Rate (compiled from accident data compiled in 1997 and 1998) for similar state highways.	1.42 (urban divided 4-lane state highway with controlled access)	1.99 (urban divided 4-lane state highway with partial control of access)	1.99 (urban divided 4-lane state highway with partial control of access)	
Predicted Queues due to Lane Closures:				
Duration of queue	7 to 8:45 pm	None	10 - 11:45 am	3 - 8:15 pm
Maximum queue length	2,500 feet	None	1,700 feet	8,900-10,800 ft
Approximate delay <u>a/</u>	6 minutes	None	5 minutes	20 to 25 minutes
Potential Ramp Closures	On ramp (State Route 9A) MP392.7	On and Off ramps (Cedar Lane) MP 397.8 On and Off ramps State Route 133 MP 399.9	Off ramp (State Route 100) MP 401.3 On ramp (State Route 117) MP403.4	

TABLE 5.8.4.2-1 (cont'd)

Traffic Aspect	U.S. Route 9 MPs 391.8 to 394.2 (northbound)	State Route 9A MPs 397.0 to 401.3 (northbound)	State Routes 9A/100 MPs 401.3 to 404.0 (southbound)
Proposed Open-Cut Road Crossings	Furnace Dock Road MP 392.9	Old Albany Post Road MP 397.0 Quaker Bridge Road MP 397.2 Cedar Lane MP 397.8 State Route 134 MP 398.6	State Route 100 off-ramp MP 401.3
Signalized Intersections	None	State Route 134 MP 398.6 Chappaqua Road MP 400.4 North State Road MP 401.1	None
Potential for Blasting	Moderate	High	Low
Overpass Crossings	Watch Hill Road MP 392.3 Warren Road MP 393.3	Hawkes Avenue MP 398.4 Ryder Road MP 399.6	Pleasantville Road MP 401.7 State Route 117 MP 403.4

a/ Assumes a travel speed of 5 mph.

The functional classification of State Route 9A and State Routes 9A/100 is Urban Principal Arterial Street. State Route 9A has a northbound AADT ranging between 15,000 and 17,300 vehicles (MPs 397.0 to 401.3). The lowest AADT (15,000) is between State Routes 134 and 133 (MPs 398.6 and 399.9), with a higher AADT (15,600) north of MP 398.6, and the highest AADT (17,300) south of MP 399.9. State Routes 9A/100 has a southbound AADT ranging from 20,000 to 22,000 vehicles (MPs 401.3 to 404.5). The highest AADT (22,000) is south of State Route 117 (MP 403.4).

In general, for all of the studied locations, the peak hour accounts for about 11.5 percent of the daily traffic, with the peak direction (southbound in the morning and northbound in the evening) accounting for 2.5 times the volume of the opposite flow. The only exception is on the south section of State Routes 9A/100 (MPs 402.5 to 404.5) in the evening peak period when the traffic volumes are almost equal.

Accident Data

Accident rates quantify the number of accidents per million vehicle-miles. Accident data were obtained from the NYSDOT and identified the location of each reported accident during a 3-year period from 1996 to 1999. These data were used to compile accident rates (e.g., the average accident occurrences) for the road segments under study. Accidents with no location information were excluded from the calculated accident rates. Based on accident data compiled in 1997 and 1998, the NYSDOT has determined that the average accident rate for urban divided four-lane state highways with controlled access (such as U.S. Route 9) is 1.42; and the average accident rate for urban divided four-lane state highways with partial control of access (such as State Route 9A and State Route 9A/100) is 1.99.

On U.S. Route 9, between Welcher Avenue (about 1.8 miles north of MP 391.8) and Croton Point Avenue (MP 396.2), the average accident rate is 0.65, well below the state average of 1.42. North of the State Route 9A ramps in Cortlandt (MP 392.7), the average accident rate is 1.02; south of the State Route 9A ramps in Cortlandt, the average rate is 0.38.

On State Route 9A, the entire segment of State Route 9A between the junction of U.S. Route 9 and State Route 9A and the junction of State Routes 9A and 100 (MPs 397.0 to 401.3) has an average accident rate of 2.26, well above the state average of 1.99.

On State Routes 9A/100, between the junction of State Route 9A/100 (MP 401.3) to the Saw Mill River Parkway (about 0.5 mile south of MP 404.0), the average accident rate is 1.80, slightly below the state average of 1.99. The section with the highest average accident rate (2.10) is between the junction of State Routes 9A/100 and the Briarcliff Manor area (MPs 401.3 to 402.5).

Predicted Traffic Flow

To determine the impact on traffic flow from closing one lane of U.S. Route 9, State Route 9A, and State Routes 9A/100, an analysis was conducted to determine if queues would develop (e.g., if cumulative demand exceeds capacity, then queues are likely to form). Queuing can be defined as a line of vehicles waiting to pass through a bottleneck point. The rate of flow at the front of the queue determines the average speed within the queue. Slow moving vehicles and vehicles joining the end of the queue are considered part of the queue. The analysis was conducted using methods defined in the 1997 Highway Capacity Manual (Transportation Research Board Special Report 209, 1997) for freeway work zones, using the estimated vehicle carrying capacity (e.g., the number of vehicles that can be processed over a specified period of time) for a two-lane road reduced to one lane of 1,275 vehicles per hour per lane. The analysis compares the reduced capacity of the road with the demand experienced by it, and can estimate if queuing would occur and the number of vehicles in that queue at a given time. The analysis procedure can also estimate the duration of the queuing.

In addition, while a lane closure on one side of the highway is in place, reduced capacity could be expected on the opposite side of the highway. This is caused by vehicles moving at a slower speed because of driver curiosity about the construction activities taking place in the other direction of travel (e.g., rubbernecking). Based on the hourly count volumes, it appears that, while capacity would be somewhat reduced, the effect on the level of service of the opposing flows would not be significant. However, at signalized intersections, this “rubbernecking” effect may adversely affect the level of service of the intersection (see discussion below on signalized intersections).

On U.S. Route 9 northbound, no queues are predicted north of the State Route 9A ramps in Cortlandt (MP 392.7). South of the State Route 9A ramps (MP 392.8) to where the pipeline leaves U.S. Route 9 (MP 394.2), the model predicted a queue between 7 p.m. and 8:45 p.m.. The queue is expected to be 2,500 feet long, resulting in an approximate delay of 6 minutes. Millennium proposes to maintain both lanes open during the peak traffic period (e.g., between 3 and 7 p.m.). Delaying the start of construction to 8 p.m. could eliminate the backup. Therefore, we recommend that:

- **On U.S. Route 9 (approximate MPs 391.8 to 394.2) on the 9/9A Proposal, Millennium should avoid construction activities in the northbound lane between the hours of 3 and 8 p.m., unless otherwise approved or restricted by the NYSDOT in writing.**

On State Route 9A northbound, no queues are predicted (MPs 397.0 to 401.3). However, this segment has three signalized intersections, and these intersections represent a critical capacity constraint as described below (see Construction through Signalized Intersections). This segment would also be the most likely to require blasting, which would contribute to traffic delays (see Blasting).

On State Routes 9A/100 southbound, a minimal queue is predicted between MPs 402.5 (Briarcliff Manor) and 403.4 (State Route 117) just after the proposed lane closure at 10 a.m. The queue is predicted to be less than 2,000 feet long with an anticipated delay of 5 minutes. However, during the evening peak period (from 3 to 8:15 p.m.), a more significant backup of about 10,800 feet is predicted with an anticipated delay of 25 minutes. Millennium does not propose to stop construction during the evening peak period. Avoiding construction between the hours of 3 and 7 p.m. should eliminate the backup. Therefore, we recommend:

- **On State Routes 9A/100 (approximate MPs 401.3 to 404.0) on the 9/9A Proposal, Millennium should avoid construction for an additional 4 hours during the peak evening traffic period between the hours of 3 and 7 p.m., unless otherwise approved or restricted by the NYSDOT in writing.**

Ramp Closures

There are instances where the pipeline would deviate from the area adjacent to the paved shoulder on U.S. Route 9, State Route 9A, and State Route 9A/100. These are at-grade separated intersections, where the state highway is bridged over another road. In these instances, the pipeline would deviate from the road shoulder, descend to the lower grade, cross the road, and then ascend back to the state highway road shoulder, effectively bypassing the bridge. Generally, this would be done by installing the pipeline adjacent to the entrance, and exit ramps and would require closing of the ramps. This would also require closing of the acceleration and deceleration lanes when installing the pipeline adjacent to them.

When the ramp is closed, traffic would be detoured to alternate routes. These detours would be announced by portable changeable message signs placed before the ramp closure, and traffic would be directed to follow a signed detour to alternate access points. Motorists would also be warned of ramp closures through newspaper and radio announcements. To minimize traffic impacts, ramp closures could be restricted to nights and weekends.

On U.S. Route 9, the on ramp from State Route 9A would be affected (MP 392.7). The off ramp from U.S. Route 9 to State Route 9A would not be affected since Millennium would install the pipeline adjacent to but outside of the ramp itself. It is anticipated that a detour around the closure of the on ramp would result in 5 to 8 minutes of additional travel time.

On State Route 9A, the on and off ramps at Cedar Lane (MP 397.8) and State Route 133 (MP 399.9) would be affected. Detours around the closures are anticipated to require additional travel time of less than 1 minute to 8 minutes for the on ramp at Cedar Lane, 4 to 9 minutes for the off ramp at Cedar Lane, 4 to 12 minutes for the on ramp at State Route 133, and 11 to 16 minutes for the off ramp at State Route 133.

On State Routes 9A/100, the on ramp from State Route 100 (MP 401.6) and the off ramp from State Route 117 (MP 403.4) would be affected. Millennium proposes to open cut the off ramp from State Route 100 (see discussion below on open-cut road crossings). A detour around the closure at State Route 117 is anticipated to require between 9 and 10 minutes.

Because of the additional travel time required to detour around ramp closures, we recommend that:

- **Prior to construction, Millennium should file a traffic management plan for each ramp closure on the 9/9A Proposal with the Secretary for review and written approval by the Director of OEP. The traffic management plan should identify the hours of closure, the method of advance notification, the detour route, and signing, as needed. The plan should discuss the feasibility of using weekends for construction. Millennium should consult with the NYSDOT and file its comments and/or approval of the plan.**

Open-Cut Road Crossings

There are two methods for crossing roads: (1) boring under the road or (2) open cutting the road (see section 2.3.2). Table 5.8.4.2-2 lists each road that would be crossed by the 9/9A Proposal and Millennium's proposed crossing method. Boring under the road would avoid any significant traffic impacts since there would be no lane closures, and traffic flow would not be affected. However, there may be some minor delays associated with construction vehicles entering and exiting the work area. Open cutting the road would have more impact since at least one lane of the road would be closed during construction. Traffic impacts would vary depending on the road use and location of the crossing. Limiting construction to off-peak hours and use of flagpersons to direct traffic would avoid any significant impacts on these roads although some delays of up to 5 minutes could be expected during actual construction. Detailed crossing plans would reduce the potential for unnecessary delays. Therefore, we recommend:

- **Prior to construction, Millennium should file with the Secretary for review and written approval by the Director of OEP, a traffic management plan for each road that is proposed for an open cut on the 9/9A Proposal. The traffic management plan should identify construction work hours, lane closures (including the duration of the closure), how traffic would be managed (e.g., signs, flagpersons) and routed through construction, what provisions would be made for pedestrian traffic, and traffic detours, as needed. The traffic management plan should discuss the feasibility of using weekends for construction. Millennium should consult with the NYSDOT and file its comments and/or approval of the plan.**

TABLE 5.8.4.2-2
Road and Ramp Crossings

Milepost	Name	Crossing Method	Length (ft)	Construction Duration (days)
391.2	Old Albany Post Road/State Route 9A	open cut	80	2
391.6	Conrail and water diversion channel	bore	200	7
391.8	U.S. Route 9	bore	180	5
392.7	New York and Albany Post Road/State Route 9A	bore	130	4
392.9	Furnace Dock Road	open cut	60	2
394.2	U.S. Route 9 and Conrail/Metro-North	bore	430	14
395.0	Croton Yacht Club access road	open cut	90	2
395.5	Conrail/Metro-North	bore	90	3
395.6	"Goodyear Bore" access road to yacht club	bore	150	5
396.2	Croton Point Avenue (including side street and ramp)	open cut	250	4
396.4	U.S. Route 9	bore	220	8
397.0	Old Albany Post Road (dead end road)	open cut	80	2
397.2	Quaker Bridge Road	open cut	60	2
397.3	Quaker Bridge Road off ramp	bore	300	10
397.8	Cedar Lane	open cut	90	2
398.6	Croton Dam Road/State Route 134	open cut	90	2
399.9	Somerstown Road/State Route 133 on ramp	open cut	90	2
399.9	Somerstown Road	bore	60	2
399.9	Somerstown Road/State Route 133 off ramp	open cut	90	2
400.4	Chappaqua Road	bore	90	3
400.9	Parkway Road	bore	90	3
401.1	North State Road	bore	130	4
401.3	State Route 100 off ramp	open cut	90	3
406.7	Saw Mill Parkway	aerial	180	3
407.0	Grasslands Road/State Route 100C	bore	110	4
407.7	Fairview Drive (part of Coca Cola parking lot bore)	bore	300	10
408.7	Vreeland Road (open cut to Tarrytown Road)	open cut	1,300	14
409.0	Tarrytown Road	bore	110	4
410.1	Saw Mill River Parkway on ramp	bore	190	7
413.2	Lawrence Street	open cut	90	2
413.5	Saw Mill River Road	bore	120	4
414.2	New York State Thruway	bore	190	7
414.5	Jackson Avenue	bore	130	5

Notes: For all open cuts, half of the road would be excavated and shored, and the trench would be plated until backfilled. One lane of traffic would remain open at all times.
All bores would be uncased unless local conditions or special requirements require casings.

Construction through Signalized Intersections

No signalized intersections would be affected on the segments of the 9/9A Proposal that would be within U.S. Route 9 or State Routes 9A/100.

However, along the State Route 9A segment, the 9/9A Proposal would cross three signalized intersections (State Route 134 [MP 398.6], Chappaqua Road [MP 400.4], and North State Road [MP 401.1]) where the effects of a lane reduction at the near and far sides of a signalized intersection would have traffic impacts. In this case, in addition to reducing the roadway capacity by closure of a lane, through traffic on that single open lane of highway would be stopped on a regular basis to service the side street traffic.

To determine traffic impacts of pipeline construction at signalized intersections, capacity analyses were performed using the methods defined in the 1997 Highway Capacity Manual. The most significant result from capacity analysis is the assignment of level of service (LOS) rating to traffic facilities under various traffic flow conditions. As defined by the 1997 Highway Capacity Manual, a LOS for signalized intersections is defined in

terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. There are six LOS (A through F) for each type of facility, with LOS A representing the best operating conditions and LOS F representing the worst.

For signalized intersections, the average delay per vehicle approaching an intersection is used to quantify the LOS. A level of service of A is defined as an average delay of 10 seconds or less per vehicle, B is 20 seconds, C is 35 seconds, D is 55 seconds, and E is 80 seconds. A level of service F represents an average delay of greater than 80 seconds. In an urban environment such as Route 9A, LOS D is considered the minimum acceptable level for design purposes. LOS F (any delay greater than 80 seconds) is considered acceptable for a short-term construction impact depending on the extent of the delay and the volume of traffic being delayed.

The results of a comparative analysis can determine what traffic control measures can be taken to mitigate the effects of the lane closure at a signalized intersection. If the LOS of a particular intersection does not deteriorate to an unacceptable level when a lane is closed on an approach, then no action would be needed to alleviate the effects of the closure. However, if the LOS does fall to an unacceptable designation, then other traffic management measures would be required to ensure that the intersection maintains an adequate LOS. This may include the limiting of the closure of the travel lane to fewer hours or the closure of the intersecting minor road, in which case alternate routes would have to be developed to minimize disruption and inconvenience to its users.

To perform an LOS analysis, vehicle turning movement counts for the hours in question, a plan of the intersection showing lane use and width, and a sequence and timing plan of the traffic signal controller for the intersection is required. The only data available were a sequence and timing diagram and the morning and evening peak hour turning movement counts at the North State Road intersection and northbound and southbound hourly counts for Route 9A. Using this information, assuming a revised annual growth rate of 2 percent growth rate for traffic volumes, revised peak hour factors (based on count data), and the fact that Right Turn on Red is not permitted on all approaches to this intersection,^{12/} an approximate LOS analysis for the North State Road intersection had the following results:

The estimated LOS of the entire intersection, with both northbound lanes open to traffic (the existing condition), is F with a 253 second average delay.

With the right northbound travel lane and shoulder closed (the construction condition), the LOS would remain at F (there is no lower level) and the average delay would be 270 seconds, an increase of 17 seconds.

The estimated LOS of the northbound through movement during the morning peak hour with two northbound lanes open to traffic (the existing condition), is B with a 12 second delay.

When analyzed with the right northbound travel lane and shoulder closed during the morning peak hour (the construction condition), the LOS of the northbound through movement would drop to F and the average delay would increase to 139 seconds (less than 3 minutes).

The estimated LOS of the southbound through movement during the morning peak hour with both northbound lanes open to traffic (the existing condition), is F with a 268 second average delay.

With the right northbound travel lane and shoulder closed during the morning peak hour (construction condition) the LOS of this southbound through movement is estimated to remain the same. However, the analysis does not take into consideration the fact that construction

^{12/} This analysis has been revised to reflect comments received on the SDEIS.

occurring just two lanes away would attract the attention of these drivers and slow them down resulting in an increase in delay for the southbound movement that is difficult to quantify.

With the right northbound travel lane and shoulder closed, the LOS for the northbound through movement is F (100 seconds of delay) or better between the hours of 9 a.m. and 12 noon. It remains at LOS F (107 seconds) between 12 noon and 1 p.m., between 1 p.m. and 2 p.m. (132 seconds) and continues at F (255 seconds) between 2 p.m. and 3 p.m.

The estimated increase in delay to the northbound through traffic during the weekday morning peak hour of 127 seconds may be acceptable. However, any increase in delay to the southbound direction, the commuter rush hour movement, that is estimated to be 268 seconds without construction occurring, would be a significant impact. Although no analysis was done on the State Route 134 and Chappaqua Road signalized intersections due to lack of data, the results would likely be similar to those of the LOS analysis for North State Road. Therefore, we recommend that:

- **Millennium should avoid construction on the 9/9A Proposal during the weekday morning peak period within 300 feet of signalized intersections (State Route 134 [MP 398.6], Chappaqua Road [MP 400.4], and North State Road [MP 401.1]) along State Route 9A, unless otherwise approved or restricted by the NYSDOT in writing.**

Pipeline Installed at Overpass Crossings

There are six locations where the pipeline would need to be installed under overpass bridge abutments. These include the Watch Hill and Warren Road bridge overpasses on U.S. Route 9 (MPs 392.3 and 393.3, respectively); the Hawkes Avenue and Ryder Road bridge overpasses on State Route 9A (MPs 398.4 and 399.6, respectively); and Pleasantville Road and State Route 117 overpasses on State Routes 9A/100 (MPs 401.7 and 403.4, respectively). Except for the bridges on State Routes 9A/100, the overpass bridge abutments occupy the area adjacent to the travel lane. Since the shoulder area is limited, it would be impossible to install the pipeline adjacent to the paved right shoulder, and Millennium proposes to install the pipeline beneath the right travel lane of the highway.

Because the pipeline would be under the right travel lane, trenching would be within this lane and much closer to traffic passing in the single adjacent lane. When construction is halted during the traffic peak hours, steel plates would be placed over the trench. The NYSDOT would likely require that steel plates be recessed and bolted into the pavement, if steel plates are allowed at all. The alternative would be to bore under the bridge abutment and avoid disturbance to the outside lane. However, adequate work space for borepits would have to be available (see section 2.3.1 for a description of a bored road crossing). Therefore, we recommend that:

- **Prior to construction, Millennium should file with the Secretary for review and written approval by the Director of OEP, a traffic management plan for installation of the pipeline at bridge overpasses on the 9/9A Proposal. The traffic management plan should identify construction work hours, lane closures (including the duration of the closure), how traffic would be managed (e.g., signs, flagpersons) and routed around construction, and should discuss the feasibility of using weekends for construction. Millennium should consult with the NYSDOT and file its comments and/or approval of the plan.**

Blasting

Millennium indicated that blasting to excavate the trench would only be used in remote areas where the specialized trench digging equipment (e.g., rocsaw trencher) would be ineffective. The manufacturer claims that this unit can cut through concrete and soft rock but not all types of rock. Exposed ledge is visible in some areas

along the edge of U.S. Route 9 and State Route 9A, and depending on its composition, may require something other than the rocsaw trencher to excavate the trench. If blasting is used to break up the subsurface rock, both directions of the roadways would need to be closed for at least 5 to 8 minutes and possibly more. If blasting is used to clear a rock outcrop, the roadways would need to be closed for about 20 minutes. All blasting would have to be limited to periods of the lowest traffic volumes and during daylight hours. Depending on the length of the closure, blasting could have a significant impact on traffic operations, as queues would begin to develop the instant the traffic is stopped.

Based on field observations, ledge was observed along that section of State Route 9A between Chappaqua and North State Roads (MPs 400.4 to 401.1), and this section was selected for estimating the possible effects of a closure due to blasting operations. The analysis used to estimate queues resulting from a road closure was similar to that employed to predict traffic flow (e.g., an examination of the available capacity and demand). Average weekday hourly volumes from the NYSDOT were used (with a 1 percent growth factor). Using these data and all possible daylight hours during which blasting could occur, the lowest total hourly volume (1,646 vehicles in both directions) occurred between 11 a.m. and 12 noon.

Two blasting scenarios were examined: one in which two lanes of State Route 9A northbound were open before and immediately after blasting (Scenario 1), and one in which the right lane of State Route 9A northbound was closed before and immediately after blasting (Scenario 2). In both scenarios, the two southbound lanes of Route 9A remained open before blasting, but all traffic flow in both the southbound and northbound direction was stopped during blasting. The capacity of two lanes of highway was estimated at 1,700 vehicles per hour per lane, based on vehicles moving from a stop condition, such as from an intersection signal. The capacity of a single lane of highway was estimated at 1,275 vehicles per hour per lane. The results of the analysis are shown below:

<u>Duration of Road Closure</u>	<u>Northbound</u>		<u>Southbound</u>	
	<u>Maximum Queue (vehicles per lane)</u>	<u>Duration of Queue</u>	<u>Maximum Queue (vehicles per lane)</u>	<u>Duration of Queue</u>
Scenario 1: No lane closures on State Route 9A				
5 minutes	32	7 minutes	36	7 minutes
8 minutes	54	11 minutes	59	11 minutes
20 minutes	136	26 minutes	142	27 minutes
Scenario 2: Right lane closed in northbound direction only				
5 minutes	63	13 minutes	36	7 minutes
8 minutes	108	20 minutes	59	11 minutes
20 minutes	271	52 minutes	142	27 minutes

The maximum queue would occur immediately before the highway is re-opened to traffic, as the queue builds while traffic flow is stopped. The duration of queue is the length of time from the point at which traffic is stopped for the blasting operation, until queuing ceases. Because the queue builds up while the road is closed, queuing would continue for a period after the highway is reopened. Thus, the duration of the queue encompasses the time from when the road is closed to the time when the road opens and the queuing ends.

In Scenario 1, where all of the lanes remain open on State Route 9A before and after blasting, the maximum queue experienced and the duration of queue in both directions would be similar because the volumes in both directions are similar. An 8-minute closure would result in a maximum of 59 vehicles queuing in the travel lanes for 11 minutes. In Scenario 2, where one northbound lane is closed before and after the blasting operation, queuing becomes more significant. An 8-minute closure would result in a maximum of 108 vehicles queuing in the northbound lane for 20 minutes.

Millennium would consult with the NYSDOT regarding the appropriate timing for blasting and road shutdowns. Since blasting could be required elsewhere, and closure of one lane during blasting would double the number of vehicles and the time in the queue, we recommend that:

- **Before construction, Millennium should file with the Secretary for review and written approval by the Director of OEP, a blasting plan for the 9/9A Proposal that identifies the locations by milepost where blasting is necessary during construction along U.S. Route 9, State Route 9A, and State Routes 9A/100, how blasting would be conducted, and how traffic would be managed. The plan should be developed in consultation with the NYSDOT and include any necessary restrictions to avoid lane reductions (to accommodate work areas) before and after any blasting operation and until any traffic backups have ceased. Millennium should file the NYSDOT comments and/or approval of the plan.**

Staff spoke with a representative of the NYSDOT on September 11, 2000, about the 9/9A Proposal (NYSDOT, 2000). We were informed that the pipeline, being a utility, can be constructed in the U.S. Route 9, State Route 9A, and State Route 9A/100 rights-of-way, but that it needs to comply with all NYSDOT permitting requirements. These requirements include detailed plans of how the project would be constructed and restored, and conformance with local construction regulations (e.g., for night time work, noise). We discussed possible impacts on traffic and were informed that construction would have to occur during off-peak hours, and that construction within roads may only stop traffic for 5 minutes at a time. This time period may be expanded, however, if blasting is involved. For example, a road construction project that is currently underway is allowed to stop traffic for 15 minutes when blasting is required. Also, as part of the permitting process, Millennium would have to develop a plan which explains how it would react during pipeline construction in the event of an emergency at the Indian Point Nuclear Power Plant. That is, Millennium would need to explain how it would remove its construction equipment and button down its operation during such a contingency. Millennium has filed the procedures it would follow to stop its construction activities and remove construction equipment from work areas along these highways if such an emergency were to occur.

5.8.5 Coastal Zone Management Consistency

The national CZM Program is a voluntary partnership between the Federal government and the U.S. coastal states, and was authorized by the CZMA. Its primary goals are to:

preserve, protect, develop and, where possible, restore and enhance the resources of the nation's coastal zone for this and succeeding generations;

encourage and assist the states to exercise effectively their responsibilities in the coastal zone to achieve wise use of land and water resources of the coastal zone, giving full consideration to ecological, cultural, historic, and aesthetic values as well as the needs for compatible economic development;

encourage the preparation of special area management plans to provide increased specificity in protecting significant natural resources, reasonable coastal-dependent economic growth, improved protection of life and property in hazardous areas and improved predictability in governmental decision-making; and

encourage the participation, cooperation, and coordination of the public, Federal, state, local, interstate and regional agencies, and governments affecting the coastal zone.

In 1990, Congress created the Coastal Zone Enhancement Program under the CZMA which provides incentives for states to make changes in any of eight areas of national significance. The eight areas are wetlands

protection, coastal hazards, cumulative and secondary impacts of development, public access to the coast, special area management planning, ocean governance, marine debris, and government and energy facility siting.

Any Federal actions that are reasonably likely to affect any land or water use or natural resource of the coastal zone must be consistent with the enforceable policies of a coastal state's federally approved CZM Program. Because the pipeline would be located within the designated coastal zone in Pennsylvania (Lake Erie) and in New York (Lake Erie, the Hudson River at Haverstraw Bay, and Croton-on-Hudson and the Croton River for the 9/9A Proposal), Millennium must provide evidence that the pipeline would be consistent with the federally approved CZM plans.

Pennsylvania

Millennium filed with the PADEP for a consistency determination for the segment of coastal zone in Pennsylvania in August 1999. No part of the project would be on land in Pennsylvania, and the only affected area within the coastal zone would be in Lake Erie. No impacts are anticipated on cultural resources or endangered and threatened species for the Millennium project area within the designated Pennsylvania coastal zone. Millennium received its coastal zone consistency determination from the PADEP on April 6, 2000.

New York

Millennium initiated CZMA consultation and filed a CZM consistency certification with the NYSDOS in November 1998 for the segments of pipeline within the coastal zone of New York. Millennium responded to NYSDOS comments on its filing in March 1999, and discussed various aspects of its proposed crossing of the Hudson River again with the NYSDOS in August and September 1999. In March 2001, Millennium provided NYSDOS with an updated New York State Coastal Zone Consistency Determination (see appendix J). Millennium is also coordinating with the COE, NMFS, FWS, and NYSDEC as part of other required Federal and state permit processes. In an April 5, 2001 letter to Millennium, the NYSDOS stated that its review of the project began on March 12, 2001, subject to part 930, subpart D. The NYSDOS has not yet made a decision whether to concur with or object to Millennium's filed consistency certification.

The NYSDOS requires that an EIS prepared for an action in a coastal area must include an identification of the CZM Program's applicable state policies, a discussion of the effects of the proposed action on such policies, and its consistency with them. The following discussion identifies the New York CZM Program's 44 policies, and provides a summary of the project as it is relevant to each. For further details regarding a specific project component on each policy, see appendix J.

Project Need

Millennium states that the proposed project would provide: an economic and efficient means to transport U.S. and Canadian gas to growth markets in the eastern U.S.; a significant source of clean-burning natural gas; a greater diversity of supply for existing customers and a new source of supply for markets not currently served with natural gas; and an expanded competitive base supply for emerging markets, including local distribution companies. The Commission will ultimately determine the need for the project based on consideration of all aspects of the proposal, including the customers, cost, financing, rates, engineering, economic risk, and environmental impact (see section 1.1).

Alternatives Considered

At Lake Erie, several system alternatives and two major route alternatives were identified to avoid crossing the lake, and two routes were evaluated by Millennium across the lake. At the Hudson River, two alternate crossing locations and two potential routes to one of the alternate crossings were identified and evaluated

(see section 3.3.3 for further discussion of Hudson River alternatives). In addition, a number of alternative construction techniques were evaluated for the Hudson River crossing to minimize potential environmental impacts on aquatic habitat and biological resources (see section 3.2.4).

Development Policies 1 through 6

These policies (Waterfront Revitalization, Water-Dependent Uses, Major Ports, Small Harbors, Public Services, and Permit Procedures) are primarily directed at waterfront uses and preserving and enhancing these areas for commercial, industrial, cultural, recreational, and other compatible water uses. The onshore portions of the Lake Erie and Hudson River crossings would not be constructed in areas currently used for ports, commercial shipping, recreational boating, or other water-based activities, and the proposed construction would not involve development of water-dependent uses, or preclude them in the future. During installation of the pipeline across the Hudson River, there may be disruption to water-based traffic on the Federal navigation channel through Haverstraw Bay. However, this impact would be limited to the 3-month construction window, and there would be no long-term impact. Millennium has contacted the Coast Guard to coordinate the activity in the shipping channel. The Coast Guard indicated that it only has routine navigation and safety concerns at this time. These concerns would be addressed through local notice to mariners and voice safety broadcasts during construction.

For the 9/9A Proposal in the vicinity of the Village of Croton-on-Hudson, Millennium would comply with the approved Local Waterfront Revitalization Program (LWRP). The two primary coastal zone issues associated with the 9/9A Proposal would be those segments of the pipeline that would cross the shoreline park between the west side of the Metro-North Commuter Railroad Company railroad tracks and the Hudson River (approximate MPs 394.3 to 395.3) and along the abandoned segment of U.S. Route 9 adjacent to the Van Cortlandt Manor property and the Croton River (MP 396.8). According to Millennium, the proposed route through Croton-on-Hudson was preferred by village officials because any other route through the village would significantly increase traffic congestion. In general, the pipeline would be installed underground, and the LWRP policies associated with facilitating water-dependent development (Policies 1 through 6) would not be applicable. In response to Policy 1, Millennium stated it would enhance the shoreline park, but has not provided any details. Therefore, we recommend that:

- **Prior to construction, Millennium should develop a plan in consultation with the Village of Croton-on-Hudson regarding its LWRP to enhance the shoreline park in the vicinity of the 9/9A Proposal. The plan should be filed with the Secretary.**

Fish and Wildlife Policies 7 through 10

These policies (Significant Habitats, Pollutants, Recreational Resources, and Commercial Fisheries) are directed at preserving and enhancing the survival of fish and wildlife populations. The proposed project would not expand or preclude recreational use of fish and wildlife areas in coastal areas (Policy 9), or further develop commercial finfish, shellfish, or crustacean resources in coastal areas (Policy 10). Consistency with Policy 7 and Policy 8 is summarized below and discussed in greater detail in appendix J and the EFH Assessment and BA issued January 2001.

Policy 7 is directed at protecting habitats that: (1) are essential to the survival of a large portion of a particular fish or wildlife population, (2) support populations of rare and endangered species, (3) are relatively rare within a coastal region, (4) support fish and wildlife populations with significant commercial and/or recreational value, and (5) would be difficult or impossible to replace. Policy 8 is directed at protection of fish and wildlife resources in the coastal area from the introduction of hazardous wastes. The greatest potential to conflict with compliance and consistency with these policies would be from project activities that could have direct or indirect potential adverse impacts on these fish and wildlife resources. Direct impacts could occur during construction from dredging and backfilling the trench, and the introduction or reintroduction of pollutants and sediment during

these activities could have either direct and indirect impacts. Each project component within a coastal zone is discussed below.

Lake Erie

The Lake Erie crossing has not been identified as being within a significant coastal fish and wildlife habitat. The nearshore segment has limited foraging habitat for migratory diving waterfowl because of the steep bluffs and absence of coastal wetlands at the landfall. The nearshore's rocky bottom substrate provides potential spawning and nursery habitat for fish. Impact on these habitats would be avoided by the directional drill of the nearshore that would extend from the Lake Erie landfall to exposed bedrock about 2,620 feet offshore in water depths of about 25 feet. Some blasting may be required between the directional drill exit hole and the softer substrates located about 0.8 mile from the exit hole.

The rest of the Lake Erie crossing would be installed using a jet sled (see section 2.3.1). Millennium states that best management practices would be developed for offshore construction activities in Lake Erie. These would include procedures to reduce the possibility for accidental release of wastes and materials into lake waters, provisions for leak and spill containment, and would be consistent with Marine Contingency Plans for Spills of Oil and Other Noxious Substances developed for Lake Erie. Sediments along the proposed route are generally uncontaminated, and trenching should only have a temporary and insignificant effect on water quality (see section 5.3.3).

Hudson River

At the Hudson River, the pipeline would cross the northern part of a designated Significant Coastal Fish and Wildlife Habitat. Haverstraw Bay also includes designated EFH for species with Federal management plans and is known to contain overwintering populations of the federally endangered shortnose sturgeon (see section 4.4.1). Despite past disturbances and development, Haverstraw Bay contains considerable fish and wildlife habitat and provides the most extensive area of shallow estuarine habitat in the lower Hudson River. The bay provides nursery and feeding habitat for several fisheries, including striped bass, American shad, white perch, bay anchovy, Atlantic menhaden and blue crab.

Migratory birds use Haverstraw Bay for foraging and resting during spring (March to April) and fall (September to November) migrations, and some gulls and waterfowl use it as overwintering habitat. The federally threatened and state endangered bald eagle has been occasionally observed along the shore and on ice floes in the Hudson River and is known to use area in the bay during winter for foraging.

Millennium's proposed method to install the pipeline in Haverstraw Bay would involve installing the pipe continuously using a closed-bucket dredge, and storing dredge spoil in bottom-dump barges. Construction would be completed in about 3 months, with disturbance localized to one 1,300-foot-long segment at any one time. In the deep water, one 1,300-foot-long segment would take about 2 weeks to complete (see section 2.3.3).

Millennium currently proposes a September 1 through November 15 construction window as a result of a lengthy collaboration with the NMFS, NYSDOS, and NYSDEC (see section 5.3.4 and 5.6.3 for additional discussion).

Millennium's analysis of likely effects included the range of physical, biological, and chemical parameters. Potential impacts on fish and wildlife resources may include exposure to contaminants released from sediments during trenching and backfilling operations, or from accidental spills or leaks from lubrication and fueling of construction equipment and poor maintenance or housekeeping practices. Sediment quality sampling conducted along the route indicates that the sediments contain trace amounts of a variety of metals and SVOCs. Potential impacts on water quality would be minimized by use of the closed-bucket, storage of the spoil on barges,

and use of bottom-dump barges to backfill the trench. We recommended that Millennium file the results of its sediment core analysis, the Hudson River Sampling Plan, and consultations with appropriate agencies prior to the beginning of construction. Millennium also proposes to develop a dredging operations monitoring plan to ensure that impacts are minimized to the greatest extent possible.

Croton River

Since Millennium would install erosion controls and install the pipeline in accordance with the procedures identified in its ECS, SPCC Plan, and our Plan and Procedures (see FERC website at www.ferc.gov), the pipeline would be consistent with coastal zone policies directed at minimizing runoff and degradation of water quality and fish and wildlife habitat. In addition, since the pipeline would be installed under the Croton River and associated wetland using a directional drill, there would be no impact on these habitats. While there would be temporary disturbance within the waterfront park during construction, Millennium plans to complete construction within a 4-week period at this location. Once construction is completed, there would be no long-term impact on this coastal area (see section 5.7.3).

Flooding and Erosion Hazards Policies 11 through 17

These policies (Siting Structures, Natural Protective Features, 30-Year Erosion Control Structures, No Flooding or Erosion Increases, Natural Coastal Processes, Use of Public Funds, and Non-Structural Control Measures) are directed at protecting shorelines, natural features on the shorelines (such as beaches, bluffs, or dunes), and structures within floodplains. For Policy 11, the only aboveground building proposed for construction in a coastal zone area would be on the west bank of the Hudson River at MP 387.7, within the Bowline Point Generating Station industrial complex. A block valve would be installed in the floodplain there, but Millennium states the valve cannot be moved out of the floodplain since it is at the designated connection point for gas service to the Bowline Generating Station. Siting the block valve there would not affect flood storage and would have minimal threats to humans from flooding. For Policy 12, the only barrier island, beach, bluff or dune area would be at Lake Erie, but there would be no impact on the bluff or nearshore areas there, because it would be directionally drilled. For Policies 13, 14, and 15, the only construction of permanent erosion control devices or effect on existing ones would be at the Hudson River, where Millennium may place rock rip-rap or another appropriate device to stabilize the river banks. Millennium would implement the erosion control measures in its ECS and our Plan and Procedures to minimize all potential impacts from erosion on coastal areas. The project would not interfere with natural processes that supply beach materials to adjacent lands, or cause increased erosion to such land. For Policy 16, no public funds would be used in the proposed project. For Policy 17, Millennium would implement its ECS and our Plan and Procedures, which include best management practices used during construction to protect natural resources and property from flooding.

General Policy 18

This policy is directed at safeguarding the vital economic, social, and environmental interests of the state to protect valuable coastal resource areas. Millennium states that the project would provide a source of clean-burning natural gas and a vital energy infrastructure to a large section of the state. Safeguarding of the social and environmental interests of the state is being addressed through the Federal National Environmental Policy Act process as part of Federal and state review and permitting of the project. Also see appendix J for supplemental information provided by Millennium supporting the need for its project.

Public Access Policies 19 and 20

These policies (Water-Related Recreation Resources and Public Foreshore) are directed at providing public access to coastal areas. Currently, there is no public access to areas that would be affected by construction at the Lake Erie or the Hudson River crossings. While public access there is not proposed as part of the project,

it would not be precluded in the future by construction or operation of the project. Public access would be restricted during the proposed 21-day construction period for the 9/9A Proposal at the Croton-on-Hudson's waterfront park and Croton Yacht Club. Access would be maintained to the yacht club, and there would be no interruption to boating traffic on the Hudson River. Millennium states that, after construction, public access to the site would be restored to preconstruction conditions, and certain park facilities could be enhanced. Millennium also states that it would comply with the LWRP by consulting with Croton-on-Hudson officials regarding this. Since this has not occurred yet, we recommend that it be completed prior to beginning construction (see Policy 1 above).

Recreation Policies 21 and 22

These policies (Water-Dependent/Water-Enhanced Recreation and Multiple-Use Development) are directed at boating, swimming, fishing, and other activities that are enhanced by a coastal location such as pedestrian and bicycle trails, picnic areas, or scenic overlooks. The directional drill for the Lake Erie crossing would be in an agricultural field. The Hudson River crossing would start within an industrial area on the west bank (Bowline Generating Plant) and end on the east bank at the Franklin D. Roosevelt Veteran's Hospital. The proposed project would not involve shoreline development at these areas, and no current or potential future recreational activities or uses would be affected. For the 9/9A Proposal, Millennium would comply with the LWRP and would maintain access to the waterfront park and Croton Yacht Club.

Historic and Scenic Resources Policies 23 through 25

These policies are directed at protecting structures or areas of historic, archeological, or cultural significance, and preventing impairment of significant state or other quality scenic resources. Millennium has conducted cultural resources surveys of all project areas for which it received survey permission. The Franklin D. Roosevelt Veteran's Hospital, an NRHP-listed property, is located on the east bank of the Hudson River where the proposed pipeline would come onshore. The Commission is in the process of executing a Programmatic Agreement (PA) with the New York SHPO, NPS, and the ACHP to fulfill the Commission's obligations under section 106 and determine project impact on cultural resources.

Lake Erie

In August and September 1997, Raul Pelagos, Inc. conducted a marine geophysical survey of the initially proposed route between Port Stanley, Canada, and landfall near North East, Pennsylvania. In August 1998, Canadian Seabed Research Ltd. conducted a supplemental marine geophysical survey for the revised pipeline route from Port Stanley to landfall near Ripley, New York. The revised route included relocation of the drill exit on the Canadian side, a reroute around a sub-sea mound in the middle of the lake (in Canadian water), and the relocation of the landfall to Ripley. Both surveys involved collection of side scan sonar, sub-bottom profiles, and magnetometer traces. The 1997 survey also included sediment samples; the 1998 survey included lake-bottom bathymetry and an offset track line along the entire primary centerline. Based on these surveys, there are no underwater archeological or cultural resources along the Lake Erie route, and no historic or listed structures located within the project area (Policy 23).

No scenic resources of statewide significance would be affected at Lake Erie (Policy 24) nor would the project adversely impact the overall scenic quality of the coastal area (Policy 25).

Hudson River

In November 1997, Ocean Surveys, Inc. conducted a geophysical survey of the proposed pipeline crossing of the Hudson River between West Haverstraw in Rockland County and the Franklin D. Roosevelt Veteran's Hospital in Westchester County, New York. The survey involved the collection of digital side scan sonar,

hydrographic, seismic reflection profiles, and magnetic intensity data within a 2,000-foot-wide corridor. In August 1998, a supplemental geophysical survey was conducted between Bowline Point and the Veteran's Hospital. Based on sonar and magnetometer data analysis, there are sonar targets that may represent either cultural resources, natural material, or debris associated with historical to recent occupation in this section of Haverstraw Bay. Although none of these targets appears to be significant, further investigation of these targets would be done as part of ongoing cultural resources surveys (Policy 23).

Several segments of the Hudson River waterfront have been identified as "Statewide Areas of Scenic Significance" due to their visual appeal, presence of scenic vistas or visible historic structures, or lack of shoreline development. The closest identified scenic area, the Hudson Highlands, is near Stony Point more than 2 miles north from the proposed crossing.

The coastal zone area, by definition, extends from the shore to the horizon line. On the west side of the Hudson River and south of the proposed crossing, the pipeline would cross High Tor State Park and the High Tor ridge, which is the western horizon in the Hudson River viewshed. The pipeline would be constructed adjacent to an existing powerline right-of-way which crosses the ridge at a right angle, thus screening the right-of-way from most visual perspectives.

On the west bank, the mainline valve and delivery point to the Bowline Generating Station would be within the station property and would not represent a change in the visual character of the area. On the east bank of the Hudson River, a mainline valve would be constructed within 50 feet of the shoreline and within the grounds of the Franklin D. Roosevelt Veteran's Hospital, a NRHP-listed site. The pipeline would be adjacent to a powerline corridor through hospital property, and the valve would be visible from the upper floors and from nearby George's Island. Millennium is currently consulting with the New York SHPO to determine if visual screening of the valve would be required (Policy 24).

The Haverstraw Bay shoreline in the vicinity of the proposed crossing is developed with a mix of industrial facilities (a power generating facility, a gypsum processing plant and dock, several oil terminals and tank farms, and marinas) and residences (single family and cluster housing) that are visible to the horizon line. The river is used by freighters and barges carrying fuel and crushed rock. Neither the mainline valves on the shoreline nor the dredging equipment used to install the pipeline would represent a new visual element in this section of the bay (Policy 25).

Croton River

The north side of the directional drill across the Croton River would be within the Van Cortlandt Manor National Historic Landmark. Millennium initiated consultation with the management of the historic site (staff of the Historic Hudson Valley) to coordinate construction activities (Policy 23). No existing historic structures would be disturbed. Cultural resource surveys and a final report have not been completed yet. Since the pipeline would be installed underground and no aboveground structures would be built there, no scenic resources would be impaired and the scenic quality of the coastal area would not be modified (Policies 24 and 25).

Agricultural Lands Policy 26

This policy is directed at conservation of important agricultural land (e.g., prime farmland, unique farmland, and farmland of statewide importance) within the state's coastal area. The soils that would be crossed within the designated coastal zone for Lake Erie are classified as prime farmland soils. The directional drill of Lake Erie would be staged in an area used for corn production. Topsoil segregation would be used, and construction would be consistent with our Plan and Millennium's ECS. Although agricultural uses could be precluded for one season in areas used for construction, these uses would continue following construction. The pipeline location was sited to avoid established vineyards along the Lake Erie shore. Millennium would implement

its ECS and our Plan to conserve and protect agricultural lands there. The Hudson River crossing and 9/9A Proposal would not be through areas used for any agriculture.

Energy and Ice Management Policies 27 through 29

These policies are directed at ensuring that facilities are consistent with coastal management policies. Policy 28 (Ice Management Practices) and Policy 29 (Energy Resources Development) would not be applicable to the project, since no ice management practices would be required and no energy resources from Lake Erie or other coastal zone areas would be developed.

Policy 27 is directed at the need for major energy facilities and the compatibility of the facility within the coastal zone. Millennium states that this project is classified as a major energy facility that is entitled to preference under the CZM Act. As a major energy facility the project would satisfy the "public energy needs" of New York and the northeast U.S. region in a number of different respects. First, the project would satisfy growing market demands, as evidenced both by executed contracts for the pipeline's capacity and the forecasts of various experts. Second, the project would provide low-cost Canadian gas supplies to one of the highest-priced gas markets in the United States (New York). Third, the project would improve electric power reliability and advance clean air objectives by serving new and existing gas-fired power plants along New York's southern tier. Fourth, the project would improve the reliability of gas service to New York by upgrading the existing natural gas infrastructure through the addition of more capacity, deliverability, delivery points, and interconnections. Fifth, the project would provide gas producers and gas storage developers in western New York with increased access to markets.

Millennium states that it has taken public need and environmental issues into consideration and that the project has been designed to use the best available construction technology to result in the least environmental impact. Millennium states that the Hudson River crossing would be necessary because half of the capacity of the project would be delivered to the proposed delivery point for Millennium's shippers on the east side of the Hudson River in Mount Vernon, New York, and to a proposed customer, IBM in Yorktown, New York. Millennium concludes that the proposed project would be consistent with this policy.

Water and Air Resources Policies 30 through 44

These policies are directed at meeting water and air quality standards. Policy 31 (LWRP Policies and Constraints), Policy 32 (Innovative Sanitary Waste Systems), Policy 34 (Discharge of Waste Materials from Vessels into Coastal Waters), Policy 39 (Solid Waste Management), Policy 40 (Effluent Discharge), Policy 41 (State and National Air Quality Standards), Policy 42 (Clean Air Act Reclassifications), and Policy 43 (Acid Rain Precursors) would not be applicable to the project. Applicable policies are discussed in detail in the following section. For further details regarding specific project components and each policy, see appendix J.

State and National Water Quality Standards Policy 30

There would be no discharge of pollutants (including, but not limited to, toxic and hazardous substances) into coastal waters. At the Lake Erie crossing, all reasonable measures would be taken to prevent or minimize the discharge of contaminated dredged material, if any, during pipeline construction activities. Based on the low concentrations of chemical parameters in the sediment, the large dilution capacity of the project waters, and the transitional nature of the jetting activities, little degradation of water quality due to chemical release from resuspended sediment would be expected. Any chemical releases would be expected to be small, and their effects localized and temporary, because of the expected rapid dispersion by mixing and sorption processes. At the Hudson River crossing, the river is classified as a saline surface water with three narrative water quality standards: (1) taste-, color-, and odor-producing toxic, and other deleterious substances (none in amounts that would adversely affect the taste, color or odor, or otherwise impair the water for its best use); (2) turbidity (no increase that would

cause a substantial visible contrast); and (3) suspended, colloidal, and settleable solids (none from sewage, industrial or other wastes that would cause deposition or impair the water for its best use). Millennium anticipates that these narrative standards may be exceeded during construction only in the immediate vicinity of the dredging site within the visible plume and for short periods of time. Millennium would comply with all of the NYSDEC section 401 Water Quality Certificate conditions, which include monitoring of the physical and chemical water parameters (see appendix K). This would ensure adherence to Policy 30.

Stormwater Runoff/Combined Sewers Policy 33

The project would not involve construction of any combined sewer overflows, and Millennium would implement its ECS and our Plan and Procedures, which include best management practices used during and after construction to ensure the control of stormwater runoff draining into coastal waters.

Dredging and Dredge Spoil Disposal Policy 35

Compliance with this policy is discussed in regard to dredging activities in the responses to Policies 7 and 8. Additionally, at the Hudson River, lay-barge dredging and backfilling operations would not require the disposal of dredged material. At Lake Erie and the 9/9A Proposal, construction impacts on the shoreline and nearshore zone would be avoided by use of a directional drill. Further offshore in Lake Erie, blasting, cutting or ripping of the shale bedrock would be required for a short distance, about 0.6 mile. Millennium has agreed to use some of this rock material for artificial reefs to be constructed in consultation with appropriate Federal and state agencies. This material would not affect coastal processes. Trench excavation by mechanical jetting would occur at water depths in excess of 50 feet and would not affect natural coastal processes or increase the potential of erosion of adjacent land. Adherence to Millennium's section 401 Water Quality Certificate would ensure compliance with this policy.

Shipment and Storage of Petroleum or other Hazardous Materials Policy 36

The proposed Millennium Pipeline would transport natural gas through areas within coastal zones, but the facilities would be constructed and operated in compliance with all FERC and USDOT regulations, so the proposed activity would prevent or at least minimize any inadvertent spills into coastal waters, and the cleanup of such spills would be immediate. Thus, the policy would be complied with.

Non-point Pollution Discharges Policy 37

The proposed project would not involve the non-point discharge of nutrients, organics, and eroded soils into coastal waters during construction or operation of the project. Millennium would implement its ECS and our Plan and Procedures, which include best management practices used during and after construction to ensure against unintended occurrences of non-point pollution discharges into coastal waters. Adherence to Millennium's section 401 Water Quality Certificate would further ensure compliance with this policy.

Surface Water and Groundwater Supplies Policy 38

Millennium would implement its ECS and our Plan and Procedures, which include best management practices used during and after construction to ensure that the quality and quantity of groundwater and surface water supplies are conserved and protected. Adherence to Millennium's section 401 Water Quality Certificate would further ensure compliance with this policy.

Preserve and Protect Tidal and Freshwater Wetlands Policy 44

Except for the open water component of the Hudson River, no freshwater wetlands would be disturbed. The proposed crossing is north of the NYSDEC limit (the Tappan Zee Bridge) for tidal wetlands (Article 25) jurisdiction, although tidal wetlands do exist north of those designated in Article 25. At Lake Erie no tidal or freshwater wetlands would be affected since the nearshore would be directionally drilled. In general, Millennium would implement its ECS and our Plan and Procedures, which include best management practices used during and after construction to ensure that any wetlands crossed by the pipeline would be preserved and protected. Adherence to Millennium's section 401 Water Quality Certificate would further ensure compliance with this policy.

No freshwater wetlands would be crossed by the 9/9A Proposal within the designated coastal zone, although the pipeline would cross the buffer zone of NYSDEC-regulated Wetland H-3 along the parking lot for the railroad station at Croton-on-Hudson and along the abandoned railroad bed on the north bank of the Croton River. These wetlands would not be affected by construction.

Conclusion

Based on consultations with the NYSDOS, the Lake Erie crossing appears to be consistent with New York CZM policies (NYSDOS, 1999). The revised construction method for the Hudson River crossing (using a closed-bucket, lay-barge dredge during a construction time window that would minimize potential impacts on a variety of Federal- and state-sensitive fishery resources) represents a significant improvement over the original bottom-pull dredge construction method. However, the NYSDOS is responsible for determining the proposed project's consistency with New York CZM policies. Therefore, we recommend that:

- **Prior to beginning construction of any project facilities, Millennium should file with the Secretary a determination of consistency with the New York State CZM Plan.**

5.8.6 Visual Resources

5.8.6.1 General Construction and Operational Impact

Potential impact on visual resources associated with construction of pipeline facilities is primarily of two types: that resulting from alteration of terrain and vegetative patterns due to pipeline construction and right-of-way maintenance, and that resulting from the construction of aboveground facilities.

Generally, visual impact resulting from construction of the pipeline would be temporary and confined to the construction period. Only minor impact on visual resources would be associated with operation of the pipeline through non-forested areas, which account for about 65 percent of the land use along the proposed route. In these areas, visual impact would generally be confined to the clearing of hedgerows and trees along streambanks and roads. In areas where a new right-of-way corridor would be introduced in forested areas, visual impact would be most noticeable at the crossings of roadways and other access areas where the pipeline right-of-way would introduce a newly cleared corridor within forestland. However, 87 percent of the pipeline would be constructed adjacent to existing cleared rights-of-way, significantly reducing the introduction of new cleared corridors. This impact would also be reduced at streams and riverbanks, where native vegetation would be established across the right-of-way except for a 10-foot-wide inspection access strip over the pipeline.

5.8.6.2 Site-Specific Impact

About 335.0 miles (87 percent) of the land segment of pipeline would be adjacent to existing rights-of-way or in roads, reducing the need to establish new utility corridors. This expansion of existing corridors may result

in visual impacts, particularly in areas where existing vegetation provides screening of powerline rights-of-way from nearby residences. However, most of the pipeline would be constructed adjacent to Columbia or other existing pipeline (257.5 miles) where visual impact would be limited to that associated with widening of the existing rights-of-way. The pipeline would be installed adjacent to existing powerlines for about 60.3 miles. The longest segments would be in Broome County where the pipeline would be installed between the power poles (MPs 232.2 and 253.5) and in Westchester County where the pipeline would be installed adjacent to the ConEd powerline (MPs 391.6 to 417.3) in a generally non-residential area. The only residences that would be within 50 feet of the construction work area in areas where the pipeline would be adjacent to the other powerlines would be at MP 46.6 in Chautauqua County and MPs 111.4 and 111.5 in Cattaraugus County. However, these three residences are in open areas where the expanded right-of-way would not represent a significant change in the existing visual environment.

Nevertheless, the loss of trees would be most noticeable near residences where existing trees may screen the view of existing rights-of-way. To mitigate for this visual impact we recommend that:

- **Millennium minimize the clearing of trees and vegetation that provide visual screening of an existing right-of-way from the adjacent residences. Where screening must be removed for safety considerations, Millennium should offer to plant fast growing trees or shrubs within the temporary work areas where vegetative screening is removed between a residence and existing right-of-way. Millennium should file the milepost locations of areas where tree screening adjacent to residences would be removed prior to construction.**

Mainline Block Valves

Millennium identified 15 mainline/block valve locations where the valves may be visible to sensitive resources, such as residences or parks (MP 32.9 in Chautauqua County; MPs 74.0, 96.9, 110.6 in Cattaraugus County; MP 138.7 in Allegany County; MP 158.4 in Steuben County; MP 206.4 in Chemung County; MPs 221.4 and 231.1 in Tioga County; MPs 260.1 in Broome County; MP 295.5 in Delaware County; MP 310.4 in Sullivan County; and MPs 390.4 and 421.4 in Westchester County). Each of these valves would be located on a gravel pad and fenced. While the Union Center Regulator Station (MP 243.4) would not be immediately adjacent to any residences, it would be within the viewshed of Cummings Road. Millennium states that it would either plant vegetative screening or use slats in the fencing to screen the facility. Millennium would work with local officials on the exterior design for the Mt. Vernon Station that would be located in parking lot of a industrial building. We believe these mitigation measures would reduce potential visual impact on nearby sensitive resources.

One mainline valve (MP 390.4) would be within 50 feet of the Hudson River and within the grounds of the Franklin D. Roosevelt Veteran's Hospital, a NRHP-listed site. Although the valve would probably not be visible from the ground floors of the hospital, because it would be below the viewshed of the lower levels, it may be visible from the upper stories of the hospital and nearby George's Island Park. Millennium proposes to consult with the New York SHPO to determine if visual screening is required and would file the results of these consultations with the Commission.

Construction of the Ramapo and Wagner Stations would have minimal visual impact since these stations would be constructed adjacent to or in areas previously used for utility or industrial use.

Tree Screening along 9/9A Proposal

In various locations along the 9/9A Proposal, Millennium has discussed preservation of specific trees with landowners and has reduced the construction work area in some locations with the specific purpose of preserving trees adjacent to State Route 9A where residences are close to the highway. For example, between MPs 400.6 and 401.13, the construction work area would be 15 feet wide. Based on these discussions and site inspections,

Millennium believes it can preserve at least 90 percent of the 99 mature trees (e.g., greater than 6 inches dbh) listed in table 5.8.6-1 . Millennium states that it would continue these discussions through the negotiation of the right-of-way for the proposed pipeline. Depending on the location of specific trees, Millennium may further reduce construction work area at specific locations to protect individual trees or may mark and fence off identified trees and work around them. Just before construction, Millennium would mark the trees to be preserved to confirm the agreements with the landowners and to ensure that the trees are not removed.

There would be four locations where the clearing of the 35-foot-wide construction work area would remove all trees between the highway and residential areas: MPs 397.16, 398.3, 398.52, and 400.08. In all of these locations, trees are presently sparse and do not provide an effective visual screen barrier. Millennium proposes to replant fast growing native species to replace trees at these locations. The selection of the types of replacement trees that would be planted would be part of the individual easement agreements.

At MP 397.16, the four trees that would be within the construction work area are adjacent to a relatively long stretch where there are no trees adjacent to State Route 9A. The removal of the four trees would add approximately 25 feet to the 125-foot-long stretch that presently lacks trees. The four trees that would be removed screen the back corner of a residential yard.

At MP 398.3, the three trees that would be within the construction work area are the only trees between State Route 9A and an adjacent apartment complex. The trees are between the highway and a maintenance shed. The removal of these trees would leave an approximately 20-foot-long opening along Route 9A. The trees are widely spaced (greater than 7 feet).

At MP 398.52, the eight trees that would be within the construction work area are the only trees between State Route 9A and a privacy fence surrounding an apartment complex. Removal of these trees would leave a gap of approximately 65 feet along the highway with no substantial vegetation. As at MP 398.3, these trees are generally relatively small and widely spaced.

At MP 400.08, the nine trees are the only trees between State Route 9A and a residential property. The removal of these trees would leave a gap of approximately 175 feet along the highway with no woody vegetation. These trees are generally small and widely spaced.

Millennium has discussed vegetative screening replacement requirements with NYSDOT personnel. Based on those discussions, Millennium believes that NYSDOT typically requires that vegetative screening that is removed be replaced with the same species and number of plants, but not necessarily the same size plant. NYSDOT further requires that a site-specific plan be developed for restoring vegetative screening near residences. This plan must be included in the overall NYSDOT permit application, along with other design and construction details for NYSDOT's review and approval. Millennium would develop a tree screening plan based on the above and in conjunction with affected landowners and would include it in the NYSDOT permit application.

To ensure that tree screening is preserved or restored wherever possible, we recommend that:

- **Millennium should file with the Secretary, before construction, the site-specific plan developed for NYSDOT to restore vegetative screening or to install screening fences on NYSDOT property near residences on the 9/9A Proposal, and all final plans developed with landowners to protect or replace specific trees.**

TABLE 5.8.6-1

Location of Possible Tree Removals Near Residential Areas

Milepost	Species	Size (dbh in inches)	Offset from Highway (feet)	Location
392.89	Black locust	15*	NA	US 9 at Furnace Dock Road
392.90	Black locust	7*	NA	US 9 at Furnace Dock Road
392.90	Sugar maple	3	NA	US 9 at Furnace Dock Road
392.90	Sugar maple	3	NA	US 9 at Furnace Dock Road
392.90	Sassafras	9*	NA	US 9 at Furnace Dock Road
392.90	Black locust	18*	NA	US 9 at Furnace Dock Road
392.90	Sassafras	6*	NA	US 9 at Furnace Dock Road
392.90	White ash	6*	NA	US 9 at Furnace Dock Road
392.90	Sugar maple	10*	NA	US 9 at Furnace Dock Road
392.91	Sugar maple	16*	30	US 9 at Furnace Dock Road
397.15	Black locust	13*	17	NY 9A North of Quaker Bridge Road
397.16	Black locust	6*	18	NY 9A North of Quaker Bridge Road
397.16	Black locust	6*	18	NY 9A North of Quaker Bridge Road
397.16	Black locust	8*	22	NY 9A North of Quaker Bridge Road
397.16	Black locust	4	17	NY 9A North of Quaker Bridge Road
397.16	Black locust	3	17	NY 9A North of Quaker Bridge Road
397.16	Black locust	2	17	NY 9A North of Quaker Bridge Road
397.16	Big-tooth aspen	4	20	NY 9A North of Quaker Bridge Road
397.98	Paulownia	5	17	NY 9A North of Stormytown Road
398.03	Red maple	7*	18	NY 9A North of Stormytown Road
398.03	Red maple	9*	17	NY 9A North of Stormytown Road
398.03	Red maple	16*	20	NY 9A North of Stormytown Road
398.04	Red maple	7*	14	NY 9A North of Stormytown Road
398.05	Fire cherry	3	14	NY 9A North of Stormytown Road
398.05	Fire cherry	5	14	NY 9A North of Stormytown Road
398.11	Fire cherry	4	13	NY 9A North of Stormytown Road
398.12	Paulownia	7*	13	NY 9A North of Stormytown Road
398.14	White ash	17*	18	NY 9A North of Stormytown Road
398.17	Tree-of-heaven	5	16	NY 9A North of Stormytown Road
398.26	Black cherry	8*	19	NY 9A North of Hawkes Avenue Overpass
398.26	Slippery elm	6*	20	NY 9A North of Hawkes Avenue Overpass
398.26	Slippery elm	7*	19	NY 9A North of Hawkes Avenue Overpass
398.26	Tree-of-heaven	5	19	NY 9A North of Hawkes Avenue Overpass
398.26	Slippery elm	3	20	NY 9A North of Hawkes Avenue Overpass
398.27	White ash	8*	17	NY 9A North of Hawkes Avenue Overpass
398.28	Slippery elm	10*	19	NY 9A North of Hawkes Avenue Overpass
398.28	White ash	6*	14	NY 9A North of Hawkes Avenue Overpass
398.28	White ash	4	20	NY 9A North of Hawkes Avenue Overpass
398.29	Shagbark hickory	3	23	NY 9A North of Hawkes Avenue Overpass
398.29	White ash	5	22	NY 9A North of Hawkes Avenue Overpass
398.29	Sugar maple	3	20	NY 9A North of Hawkes Avenue Overpass
398.29	White ash	13*	6	NY 9A North of Hawkes Avenue Overpass
398.29	White ash	8*	8	NY 9A North of Hawkes Avenue Overpass
398.29	Sugar maple	9*	16	NY 9A North of Hawkes Avenue Overpass
398.30	White ash	5	11	NY 9A North of Hawkes Avenue Overpass
398.30	Tree-of-heaven	5	16	NY 9A North of Hawkes Avenue Overpass
398.30	Tree-of-heaven	11*	11	NY 9A North of Hawkes Avenue Overpass
398.30	Tree-of-heaven	2	19	NY 9A North of Hawkes Avenue Overpass
398.30	White ash	15*	14	NY 9A North of Hawkes Avenue Overpass
398.30	Tree-of-heaven	4	16	NY 9A North of Hawkes Avenue Overpass
398.30	Tree-of-heaven	3	17	NY 9A North of Hawkes Avenue Overpass
398.31	Sugar maple	10*	6	NY 9A North of Hawkes Avenue Overpass
398.31	Sugar maple	9*	13	NY 9A North of Hawkes Avenue Overpass
398.31	White ash	6*	11	NY 9A North of Hawkes Avenue Overpass
398.31	White ash	4	10	NY 9A North of Hawkes Avenue Overpass
398.32	Sugar maple	15*	9	NY 9A North of Hawkes Avenue Overpass
398.32	White ash	3	20	NY 9A North of Hawkes Avenue Overpass
398.32	Tree-of-heaven	6*	16	NY 9A North of Hawkes Avenue Overpass
398.33	Tree-of-heaven	8*	23	NY 9A North of Hawkes Avenue Overpass
398.33	White ash	4	17	NY 9A North of Hawkes Avenue Overpass
398.34	Sugar maple	2	16	NY 9A North of Hawkes Avenue Overpass
398.34	Sugar maple	3	18	NY 9A North of Hawkes Avenue Overpass
398.34	Sugar maple	2	20	NY 9A North of Hawkes Avenue Overpass
398.34	Sugar maple	26*	20	NY 9A North of Hawkes Avenue Overpass
398.35	Red oak	5	17	NY 9A North of Hawkes Avenue Overpass
398.35	White ash	4	23	NY 9A North of Hawkes Avenue Overpass

TABLE 5.8.6-1 (cont'd)

Milepost	Species	Size (dbh in inches)	Offset from Highway (feet)	Location
398.35	Tree-of-heaven	3	11	NY 9A North of Hawkes Avenue Overpass
398.35	Slippery elm	24*	15	NY 9A North of Hawkes Avenue Overpass
398.36	Sugar maple	2	12	NY 9A North of Hawkes Avenue Overpass
398.36	American sycamore	7*	19	NY 9A North of Hawkes Avenue Overpass
398.36	Sugar maple	3	18	NY 9A North of Hawkes Avenue Overpass
398.36	Tree-of-heaven	3	10	NY 9A North of Hawkes Avenue Overpass
398.36	Tree-of-heaven	11*	9	NY 9A North of Hawkes Avenue Overpass
398.37	Tree-of-heaven	11*	13	NY 9A North of Hawkes Avenue Overpass
398.37	Tree-of-heaven	11*	18	NY 9A North of Hawkes Avenue Overpass
398.37	Tree-of-heaven	9*	14	NY 9A North of Hawkes Avenue Overpass
398.45	White ash	23*	20	NY 9A North of NY 134
398.45	Sugar maple	3	17	NY 9A North of NY 134
398.45	Shagbark hickory	13*	11	NY 9A North of NY 134
398.46	Shagbark hickory	12*	12	NY 9A North of NY 134
398.46	Red oak	16*	15	NY 9A North of NY 134
398.46	Sugar maple	6*	20	NY 9A North of NY 134
398.46	Sugar maple	3	19	NY 9A North of NY 134
398.46	Sugar maple	5	19	NY 9A North of NY 134
398.46	Sugar maple	10*	19	NY 9A North of NY 134
398.46	Sugar maple	12*	14	NY 9A North of NY 134
398.47	White ash	12*	18	NY 9A North of NY 134
398.47	White ash	19*	21	NY 9A North of NY 134
398.47	Sugar maple	7*	20	NY 9A North of NY 134
398.47	Sugar maple	5	17	NY 9A North of NY 134
398.47	White ash	13*	21	NY 9A North of NY 134
398.47	Sugar maple	7*	16	NY 9A North of NY 134
398.47	Sugar maple	8*	21	NY 9A North of NY 134
398.47	White ash	13*	22	NY 9A North of NY 134
398.47	Sugar maple	7*	13	NY 9A North of NY 134
398.47	Sugar maple	4	20	NY 9A North of NY 134
398.48	Sugar maple	8*	21	NY 9A North of NY 134
398.48	White pine	24*	10	NY 9A North of NY 134
398.48	Sugar maple	10*	21	NY 9A North of NY 134
398.48	Sugar maple	8*	21	NY 9A North of NY 134
398.48	Sugar maple	8*	21	NY 9A North of NY 134
398.48	Sugar maple	5	21	NY 9A North of NY 134
398.48	Sugar maple	6*	20	NY 9A North of NY 134
398.49	White pine	30*	15	NY 9A North of NY 134
398.49	White pine	7*	17	NY 9A North of NY 134
398.50	White pine	19*	17	NY 9A North of NY 134
398.50	White pine	16*	21	NY 9A North of NY 134
398.50	Sugar maple	3	17	NY 9A North of NY 134
398.50	Sugar maple	2	18	NY 9A North of NY 134
398.50	Slippery elm	8*	17	NY 9A North of NY 134
398.50	Sugar maple	4	21	NY 9A North of NY 134
398.50	Sugar maple	19*	22	NY 9A North of NY 134
398.50	Black cherry	10*	20	NY 9A North of NY 134
398.51	Tree-of-heaven	4	16	NY 9A North of NY 134
398.51	White pine	22*	16	NY 9A North of NY 134
398.51	Sugar maple	3	20	NY 9A North of NY 134
398.51	Sugar maple	12*	17	NY 9A North of NY 134
398.52	Sugar maple	9*	19	NY 9A North of NY 134
398.52	Sugar maple	6*	20	NY 9A North of NY 134
398.52	White ash	14*	21	NY 9A North of NY 134
398.52	Sugar maple	6*	17	NY 9A North of NY 134
398.52	Sugar maple	10*	14	NY 9A North of NY 134
398.52	White ash	8*	16	NY 9A North of NY 134
398.52	Sugar maple	4	21	NY 9A North of NY 134
398.52	Sugar maple	7*	20	NY 9A North of NY 134
398.53	Sugar maple	6*	17	NY 9A North of NY 134
398.53	Sugar maple	8*	16	NY 9A North of NY 134
398.53	Sugar maple	4	17	NY 9A North of NY 134
398.53	Sugar maple	5	16	NY 9A North of NY 134
398.53	Sugar maple	7*	20	NY 9A North of NY 134
398.53	White ash	5	18	NY 9A North of NY 134
398.53	Shagbark hickory	4	18	NY 9A North of NY 134
398.53	White ash	3	18	NY 9A North of NY 134
398.53	White ash	3	19	NY 9A North of NY 134

TABLE 5.8.6-1 (cont'd)

Milepost	Species	Size (dbh in inches)	Offset from Highway (feet)	Location
398.53	White ash	2	22	NY 9A North of NY 134
398.54	White ash	2	22	NY 9A North of NY 134
398.54	Tree-of-heaven	4	13	NY 9A North of NY 134
398.55	Sugar maple	4	21	NY 9A North of NY 134
398.55	Tree-of-heaven	3	19	NY 9A North of NY 134
398.64	Tree-of-heaven	5	13	NY 9A North of NY 134
398.72	Tree-of-heaven	5	13	NY 9A North of NY 134
399.58	Tree-of-heaven	5	16	NY 9A South of NY 134
399.58	Slippery elm	7*	23	NY 9A South of NY 134
399.58	Slippery elm	3	18	NY 9A North of Ryder Road
399.58	Slippery elm	6*	18	NY 9A North of Ryder Road
399.58	Apple	4	18	NY 9A North of Ryder Road
399.58	Slippery elm	12*	19	NY 9A North of Ryder Road
399.58	Slippery elm	10*	13	NY 9A North of Ryder Road
399.58	White ash	6*	18	NY 9A North of Ryder Road
399.59	White ash	8*	22	NY 9A North of Ryder Road
399.59	Sugar maple	4	20	NY 9A North of Ryder Road
399.59	Sugar maple	6*	16	NY 9A North of Ryder Road
399.59	Apple	4	22	NY 9A North of Ryder Road
399.59	Slippery elm	3	12	NY 9A North of Ryder Road
399.59	Slippery elm	4	12	NY 9A North of Ryder Road
400.08	White ash	9*	10	NY 9A South of NY 133
400.08	White ash	7*	10	NY 9A South of NY 133
400.08	White ash	5	12	NY 9A South of NY 133
400.08	Sugar maple	2	13	NY 9A South of NY 133
400.09	Black locust	15*	10	NY 9A South of NY 133
400.09	White ash	3	19	NY 9A South of NY 133
400.09	Red maple	3	13	NY 9A South of NY 133
400.09	Red maple	2	13	NY 9A South of NY 133
400.09	Black locust	12*	10	NY 9A South of NY 133
400.31	Unknown	5	8	NY 9A North of Chappaqua Road
400.31	Slippery elm	7*	7	NY 9A North of Chappaqua Road
400.31	Black willow	16*	6	NY 9A North of Chappaqua Road
400.32	Slippery elm	10*	8	NY 9A North of Chappaqua Road
400.32	Red maple	9*	12	NY 9A North of Chappaqua Road
400.32	Red maple	7*	12	NY 9A North of Chappaqua Road
400.32	Slippery elm	4	15	NY 9A North of Chappaqua Road
400.33	White ash	13*	16	NY 9A North of Chappaqua Road
400.37	Sugar maple	3	22	NY 9A North of Chappaqua Road
400.37	Sugar maple	4	19	NY 9A North of Chappaqua Road
400.37	Sugar maple	3	22	NY 9A North of Chappaqua Road
400.37	Sugar maple	3	22	NY 9A North of Chappaqua Road
400.37	Sugar maple	3	22	NY 9A North of Chappaqua Road
400.37	Sugar maple	2	22	NY 9A North of Chappaqua Road

Notes: * Denotes mature trees (i.e., those of 6-inch dbh or more).
Less than 10% of these mature trees will be removed.

5.9 CULTURAL RESOURCES

5.9.1 General Construction and Operational Impact

Construction and operation of the pipeline and associated facilities could potentially affect historic, archeological, and/or architectural properties that are listed on, or that meet the criteria for listing on, the NRHP. Project impacts could include: the physical disturbance during construction of archeological sites located within the work area (e.g., the right-of-way, areas of pipe staging/storage, and temporary access roads); the destruction, demolition, or alteration of historic or architecturally significant structures; and the introduction or removal of visual elements (e.g., measuring stations and right-of-way through forested areas) that could alter the settings associated with historic properties.

In accordance with ACHP procedures for implementing section 106 of the NHPA, for each NRHP-listed property, or each property meeting the NRHP-listing criteria, that lies within the project's area of potential effect, the Commission, in consultation with the New York SHPO, would determine if the property would be affected. Mitigation measures to avoid or minimize these impacts may include:

- route variation to avoid historic properties;

- data recovery (e.g., scientific excavation of archeological sites);

- photographic and architectural recording of standing structures; and

- use of landscaping techniques to screen, reduce, or eliminate adverse visual impact or auditory effects on historic structures.

The Commission has also discussed executing a PA with the New York SHPO, NPS, and ACHP to fulfill the Commission's obligations under section 106. The parties are in favor of a PA, and those discussions are continuing.

5.9.2 Site-Specific Impact

Surveys have been completed in Lake Erie and the Hudson River. No further testing is planned for the Lake Erie crossing. Further testing is planned for 15 sonar targets found in the Hudson River. Of the land surveys, areas not surveyed include about 22.6 miles of the pipeline right-of-way (see table 4.9-1), 99 access roads, 1 pipe storage/contractor yard, the remote blowdown valve locations, the remote cathodic protection rectifier beds, and the Mount Vernon Station. Of the areas surveyed to date, Millennium has identified 59 properties that require additional work, including properties already determined eligible for listing or listed in the NRHP (see table 4.9-3). Currently, 13 properties listed in or determined to be eligible for listing in the NRHP would be crossed by the project (see table 5.9.2-1). In addition, Millennium has yet to complete deep testing of 20 areas and further testing of 6 areas at stream and river crossings.

Millennium filed cultural resource survey reports for the completed surveys with the Commission and the SHPOs in December 1998 and October 1999. These surveys cover about 394.7 miles (95 percent) of the pipeline route and extra work areas, including the Lake Erie and Hudson River crossings, 158 access roads, 22 pipe storage/contractor yards, and 2 measuring stations. The New York SHPO commented on the October 1999 report on January 7, 2000, and table 5.9.2-1 reflects the New York SHPO's recommendations for additional work for those properties (New York SHPO, 2000). We concur with the New York SHPO's recommendations.

TABLE 5.9.2-1

Properties Listed in or Eligible for Listing in the National Register of Historic Places

Property	County	Comment
Genesee Canal	Cattaraugus	Additional work required to determine integrity of canal within right-of-way.
Chemung Canal/Catherine Valley Trail	Chemung	Additional work required to determine integrity of canal within right-of-way.
Chenango Canal	Broome	Additional work required to determine integrity of canal within right-of-way.
Delaware & Hudson Canal	Orange	Additional work required to determine integrity of canal within right-of-way.
Appalachian Trail	Orange	Survey completed.
Harriman State Park	Rockland	Same ditch replacement through park, no effect to structures.
Palisades Interstate Parkway	Rockland	No construction at this location. Millennium would acquire existing pipeline through purchase.
Franklin D. Roosevelt Veteran's Hospital	Westchester	Pipeline would follow existing powerline corridor. Visual mitigation plan to be developed for mainline valve within 50 feet of the Hudson River.
Van Cortlandt Manor	Westchester	Draft work plan under review. Avoided by the ConEd Offset/Taconic Parkway Alternative.
Pumping Station, Croton River Road	Westchester	Additional work to assess effects.
Old Croton Aqueduct Historic District	Westchester	Owned by the NYSOPRHP. Provide work plan.
V. Everitt Macy Park, Saw Mill River Parkway	Westchester	Additional work to assess effects.
Bridge, south of dam at Woodland Lake	Westchester	Additional work to assess effects.
Bronx River Parkway	Westchester	Bored crossing of parkway. Construction to be monitored.

The 9/9A Proposal would cross two properties that are National Historic Landmarks: Van Cortlandt Manor and the Old Croton Aqueduct (owned by the NYSOPRHP). We received several comments expressing concern regarding the potential effects of the proposed project to these two properties. Millennium has prepared draft work plans which will be reviewed by the FERC, the SHPO and the applicable land managers to assess and minimize effects to Van Cortlandt Manor and the Old Croton Aqueduct. Additional cultural resource investigations are required for the properties and locations listed in table 5.9.2-1.

To ensure that the Commission's responsibility under section 106 of the NHPA and its implementing regulations are met and that Millennium completes all necessary surveys and other investigations to identify NRHP-listed or -eligible properties in the area of potential effect, we recommend that:

- **Millennium defer construction of facilities, and use of all staging, storage, and temporary work areas, and new or to-be-improved access roads until:**
 - a. **Millennium files with the Secretary all additional cultural resources surveys and evaluation reports, and any required treatment plans, and the appropriate SHPO's comments on the reports and plans;**

- b. the ACHP has been given the opportunity to comment on the project; and
- c. the Director of OEP reviews and approves all cultural resources reports and plans, and notifies Millennium in writing that construction may proceed.

All material filed with the Commission 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.”

Unanticipated Discovery Plan

Millennium filed revised Unanticipated Discovery Plans, which incorporate comments from the New York and Pennsylvania SHPOs and the FERC, in November 1998. We find the plans to be acceptable.

Native American Consultation

No traditional properties have been identified to date. Any traditional cultural properties that may be identified would be treated in accordance with section 106 requirements (36 CFR 800). Millennium has consulted with the Pennsylvania and New York SHPOs and has contacted the Seneca, Oneida, Cayuga, and Onondaga Nations, and the Ramapo and Delaware tribes. To date, only the Seneca Nation has responded. The Seneca Nation was concerned with the proposed pipeline routing and stream crossing procedures. Millennium met with the Seneca Nation in September 1999 to discuss these concerns. It was determined that the pipeline would not cross or affect Seneca Nation lands. The Seneca Nation has not requested any additional information since this meeting.

Public Comments

We received a number of comments regarding cultural resource concerns either in letters or in statements made at scoping meetings and at the DEIS public comment meetings. Comments and responses to comments on the DEIS are in appendix O. One general comment concerned the potential for the pipeline to result in direct or indirect impacts on historic resources of potential significance. This general concern included comments regarding the preservation of the rich cultural history of Broome County, particularly the Chenango Canal (MP 249.9), which has been determined by the SHPO to be eligible for the NRHP. Millennium is complying with section 106 of the NHPA by conducting archeological surveys of the areas that may be affected by the project and has identified cultural and structural sites in Broome and other counties that warrant further investigation. As described above, we would consider the effects of the project on historic properties, in consultation with the New York SHPO, and then would work with Millennium to develop appropriate action. This may range from a route variation to avoid a historic property, to data recovery, to mitigation to reduce any adverse effects. We have also recommended that construction be deferred until all surveys have been completed and the SHPOs have had an opportunity to comment on the surveys and the recommended mitigation. The ACHP would also be provided an opportunity to comment on the project.

A resident in Erie County, Pennsylvania, commented that historic shipwrecks in Lake Erie could be affected by the project. The underwater remote sensing surveys completed in Lake Erie identified only one target that was not recommended for further investigation. Another target, an historic shipwreck, was identified early in the routing process and avoided.

A resident in Chautauqua County commented that the pipeline would affect a 19th century tannery in the vicinity of MP 44.0. Surveys of the original route, which crossed this property, identified three cultural resource

sites, none of which were indicative of a tannery. Millennium's proposed route, as modified by the line change at Bloomer Road, would avoid this property. No cultural resources were identified on the proposed route.

A resident of Cattaraugus County stated that rock formations near Little Valley hold special significance to many local residents and may qualify as a traditional cultural place for the Seneca Nation (MP 90.5). The resident requested that the project be sited to avoid adverse impact on these formations. Millennium has not been granted access to the property and has not completed an evaluation of the resource and potential project effects. Millennium has provided representatives of the Seneca Nation with additional information on the project, but has received no specific comments from them. We have recommended that, when access is granted, Millennium complete and file the results of all surveys, including recommendations to avoid or mitigate potential impact, for our approval before construction can begin on this property.

A resident in Broome County commented that construction would adversely affect a family burial/memorial site near MP 200.0. Millennium states that the burial site is about 239 feet from the pipeline centerline and would not be affected by the construction work area.

A resident of Maine in Broome County (MP 251.6) commented that her house is approximately 150 years old and her barn is nearly that old, and could be affected by the pipeline. Millennium has completed cultural resources surveys of this property and recommended it not be eligible for the NRHP because of extensive additions and changes to the property.

Another resident of Broome County (MP 239.0) commented that her house is 100 years old and could be adversely affected by the pipeline. This property would be avoided by the Union Center line change that was incorporated into the proposed route.

A landowner in Sullivan County (approximate MP 306.0) stated that her residence is over 90 years old and has historic significance. Millennium responded that it did not include this residence since it only completed architectural evaluations of buildings within a 150-foot-wide corridor. In accordance with the work plan approved by the New York SHPO in 1997, no architectural evaluation was completed of a building complex with elements outside of the study corridor unless one or more built elements of the complex were present within the corridor. Millennium states that no buildings on this property would be within 300 feet of the project.

Both the NPS and NYSDEC commented on potential construction effects where the pipeline would cross the AT in Orange County (MP 363.6), and requested cultural and natural heritage studies because segments of the AT are listed on the NRHP. Millennium's consultants did not identify any other cultural resources in the existing right-of-way where it crosses the AT, and Millennium proposes to stay within the existing right-of-way when constructing the new pipeline. To mitigate visual impact, Millennium proposes to implement a planting screen plan (see section 5.8.3).

Two Rockland County residents commented that their homes may be of local historical importance since they are associated with the playwright Maxwell Anderson, and were designed and built by the celebrated artist and ceramicist Henry Varnum Poor (near MP 383.9). Millennium proposes to place the pipeline in the street at this location and modified its extra work area to 25 square feet on the corner of one property. This modification would also avoid the pre-civil war stone walls on the property. Millennium would determine how to minimize impact on the second property when access permission is granted.

The Westchester County Commission and the Village of Croton were concerned with impacts on the Franklin D. Roosevelt Veteran's Hospital (MP 390.7), the Old Croton Aqueduct (MP 395.5 on the original route), and the Bronx River Parkway (MP 421.2). A Westchester County resident also requested an assessment of project impact on the Old Croton Aqueduct and the Bronx River Parkway, which are both listed on the NRHP. The Old Croton Aqueduct is also a National Historic Landmark. The pipeline would follow a powerline corridor through

the Veteran's Hospital property, would cross the aqueduct within the ConEd powerline right-of-way, and would be bored under the Bronx River Parkway. Millennium is currently assessing impacts on these properties, including any visual impacts on the Veteran's Hospital from the mainline valve on the east bank of the Hudson River.

The City of Yonkers commented that the pipeline would be in the vicinity of the Sherwood House, a property listed in the NRHP (approximate MP 418.0). The Parkway Variation, which we are recommending, would increase the distance between this property and the proposed route (see section 6.3).

Representatives from the Greater Centennial African Methodist Episcopal Zion Church commented that the terminus of the pipeline was adjacent to their historic church. The church is not currently listed in the NRHP and was not evaluated for NRHP eligibility since it would not be directly or visually affected by the proposed pipeline. In addition, FERC staff is recommending a variation which would place the terminus of the pipeline a block east of the church at the intersection of West 4th Street and South 7th Avenue (see Mount Vernon Variation, section 6.3.17)

5.10 SOCIOECONOMICS

Most of the socioeconomic impact associated with construction of the Millennium Pipeline Project would be short term and localized. This is primarily because of the relatively short construction period and the rapid rate at which construction crews would pass through any one area. Population influx as a result of construction would occur over the entire length of the pipeline route, which would limit the local impact on housing, town infrastructure services (fire, medical, education, police), and transportation. Some beneficial economic impact would be realized during the construction period through local and non-local construction payroll expenditures and purchases of construction goods and materials. Long-term beneficial economic impact would be realized primarily through increased tax revenues in the towns and counties that would be crossed by the proposed pipeline.

When available, local workers would be employed for construction. Additional construction personnel hired from outside the project area would usually include pipeline construction specialists and supervisory personnel who would temporarily relocate to within the project area. Due to the short duration of construction, these workers do not usually bring their families and tend to prefer temporary quarters (i.e., hotels/motels, rental housing, campgrounds) in the more populated, service-oriented areas within a convenient commuting distance of the pipeline. Additional demand on housing supply and town infrastructure services would, therefore, be minimal and limited to the construction period. However, taxes on construction payrolls, construction worker spending for food and housing, and local equipment and material purchases would provide new revenues to the state and counties. When these tax revenues are combined with overall construction spending, these monies could stimulate economic growth through the creation of new jobs locally to support the construction effort.

Construction Worker In-Migration

As currently proposed, construction of the Millennium Pipeline Project may begin as early as the last quarter of 2001 with some of the river construction spreads. Most of the pipeline construction would be between April and November 1, 2002, the in-service date, although restoration would continue beyond November and until revegetation of the right-of-way is complete. Installation of the pipeline would generally progress at about 3,000 to 3,800 feet per day followed by clean-up, restoration, and revegetation of the right-of-way.

Millennium proposes to use nine construction spreads (see table 2.3-1). These spreads would be distributed over the length of the pipeline and would construct the nine segments of the pipeline simultaneously. Each spread would have pipe storage/contractor yards to provide storage for the pipe and a mobilization area for the contractor (see appendix B4). Millennium estimates that about 160 workers would be employed for the Lake Erie crossing and between 190 and 530 workers for each of the remaining eight spreads. Assuming a peak work force of 530 workers for eight construction spreads and 160 workers for the Lake Erie spread, the construction

work force would total about 4,400 persons distributed across 417.3 miles from the Canada/U.S. border to Mount Vernon, New York.

Generally, between 25 and 50 percent of the construction workforce would be hired locally depending on union agreements and how work is subcontracted by the pipeline contractor. Local contractors are often hired for clearing, revegetation, road bores, and hydrostatic testing. The remainder of the workforce would be pipeline construction specialty workers and supervisory personnel who would relocate into the project area during construction. Millennium indicates that four new workers would be permanently hired to operate the pipeline, two at the western end of the pipeline near Ripley in Chautauqua County and two in at the eastern end of the pipeline near Mount Vernon in Westchester County.

The effect on population in the project area is expected to be minimal because the construction period is relatively short (8 months) and construction crews are dispersed over the entire length of the pipeline route. Construction crews would move relatively rapidly through each area with the workforce peaking only during the times when all pipeline activities are in progress.

The total temporary change in population in each area would be equal to the total number of non-local construction workers, plus any family members accompanying them. Although most workers would not bring their families into the project area because of the short term of construction, we conservatively estimate that about 8 family members per 10 workers may move into the project area.

Assuming that 48 percent of the work force would be hired from the local labor force and that the work force would peak at about 4,400 workers, about 2,288 workers could move into the project area. Assuming 8 family members accompany every 10 construction workers, an additional 1,830 individuals may accompany the non-local work force, resulting in a total in-migration of 4,118 persons. The remaining 2,112 workers would be expected to be hired locally. The impact of the in-migration of 4,118 workers and family members into the project area would be relatively insignificant because the workers and family members would be distributed throughout the project area that had a 1995 population of 2.3 million (see table 4.10-1).

Housing

Since the construction period would be relatively short, most workers prefer temporary quarters, typically hotels/motels (60 percent), trailers (30 percent), and campgrounds or rental housing (10 percent) in the more populated, service-oriented towns within a convenient commuting distance of the pipeline or construction work site. Cities and towns along the route include Mayville, Jamestown/Falconer, Salamanca, Olean, Wellsville, Painted Post/Corning, Horseheads/Elmira, Binghamton, Deposit, Hancock, Port Jervis, West Haverstraw, and numerous towns on the outskirts of New York City in Westchester County. In the more rural areas, such as Hancock in Delaware County and Port Jervis in Orange County, as many as 265 rooms may be required during construction. This could displace the more traditional recreation users and travelers or make it more difficult for them to obtain lodging. In the more populated areas, such as Binghamton, Haverstraw, and Westchester County, adequate temporary lodging is available for the construction work force.

Public Services

For the same reasons noted above, impact on locally provided public services such as police, fire protection, medical services, schools, etc., would be expected to be minimal. The communities in the project area would generally have adequate infrastructure to accommodate the temporary construction workforce and/or their families. Additional services would also be available from the larger urban areas.

Transportation Network

Impact on the transportation network would result from the pipeline crossings of roads and highways and the movement of construction equipment, materials, and personnel from the pipe storage/contractor yards to the construction work area. High volume public roads and railroads would be crossed by boring (and casing, if required) under the road or railway, and traffic flow would be unaffected. Lower volume roads would be crossed by open-cut. Once equipment and materials have been transported to the pipeline right-of-way, equipment would move along the construction right-of-way and should not significantly affect area-wide traffic operations.

The appropriate town, city, or village highway/road department owner would determine which roads would be bored and which would be open cut. A permit would be required from the NYSDOT for all work within state highway rights-of-way. In general, railroads and paved or improved roads would be crossed by boring under the rail or road, resulting in no traffic disruptions and no damage to the rail or road surface. Lightly traveled and unimproved rural dirt roads would generally be crossed by open cut, which usually would take about 1 day to complete. Provisions would be made for a detour around the construction site or a bridge across the trench during pipeline installation.

In Westchester County, about 3.1 miles of the pipeline would be installed within the city streets. Millennium estimates that construction in this area would take about 125 days (about 4 months). Millennium would consult with local transportation agencies and the public to identify and resolve concerns. This would include establishing detours around streets where construction is occurring and maintaining access to residences and businesses. About 1 month before construction, Millennium would provide the residents with information on the planned construction and schedule, and would publish the street closing schedule daily in the local media throughout construction. See additional discussion in section 5.8.2.2.

Traffic congestion on local roads could result when bulk equipment and materials are moved from roads onto and off of the construction right-of-way and when construction workers commute to a work site. Once construction equipment and materials reach the construction right-of-way, construction traffic would remain on the right-of-way, except to cross roads which would temporarily interrupt traffic flow. Appropriate traffic control measures, such as signs, barriers, flashing lights, or flagpersons, would be used to ensure safety of local traffic. Although some construction workers would leave their personal vehicles at the contractor yard and would be bused to the construction work areas, other workers would commute directly to the job site and would park at the intersection of the access road and the right-of-way. Since pipeline construction work is usually scheduled to take advantage of all daylight hours, most workers would commute to and from the construction right-of-way before or after normal peak traffic hours. Also, since workers disperse along the entire length of the pipeline spread, impact on traffic at any one location would be limited to peak activity times, such as a waterbody crossing. Although some disruption to traffic on local roads may be expected during construction, these disruptions would normally be limited to several days to a week at any one location.

Although there may be some impact on the transportation network from pipeline crossings of railroads, highways, and county roads, and the movement of construction equipment, materials, and workers to the work sites, none of these effects would be expected to be significant. Millennium would also sweep or shovel construction dirt from public roads to maintain a safe road surface.

See section 5.8.4 for discussion of traffic impacts along the 9/9A Proposal

Agricultural and Timber Land

About 1,010.6 acres of agricultural land would be affected by construction, with 57 percent of the impact in Steuben County (256.7 acres), Chautauqua County (170.1 acres), and Cattaraugus County (152.4 acres). However, the affected agricultural land in these and all other counties would be significantly less than 1 percent

of the total county land in agriculture. Millennium would implement the mitigation measures identified in its ECS, which incorporates our Plan and comments made by the NYSDA&M to minimize impact on agriculture. Millennium would compensate landowners for loss of crops within the construction right-of-way during the year of construction and for reduced productivity, if applicable, for 2 years after construction.

About 1,527.0 acres of forest would be cleared for pipeline construction. Based on information provided by Millennium, about 5 percent of these forested lands may be actively managed for timber. Millennium would coordinate with owners of timber land to minimize impact on timber operations and to maximize reforestation of the temporary construction right-of-way and extra work areas.

Property Values

Landowners are typically concerned about devaluation of their property once the property is encumbered by a pipeline easement, and we received a number of comments on this issue. Appraisal methods used to value land are based on objective characteristics of the property and any improvements to the property. The impact a pipeline may have on the value of a tract of land depends on many factors including the size of the tract in relationship to the pipeline easement, existence of other pipeline and utility corridors, the current value of the land, and current land use. Subjective valuation is generally not considered in appraisals. This is not to say that the pipeline could not impact resale values. A potential purchaser of property would make a decision to purchase based on his/her planned use, such as agricultural, future subdivision, or second home, of the property in question. If the presence of a pipeline renders the planned use infeasible or undesirable, it is possible that a potential purchaser would decide not to purchase the property. However, each potential purchaser has a different agenda and differing capabilities to purchase land.

We have reviewed studies that indicate that the pipeline easement, in and of itself, would not create a measurable loss in value to the property. The studies include those done by The Real Estate Counseling Group of Connecticut, Inc., and studies of pipelines in differing regional areas. In addition, studies have been completed by individual appraisal groups in various parts of the country. Therefore, the effect that an easement may have on property value is a damage-related issue and should be negotiated between the parties during the easement acquisition process or would be determined during condemnation proceedings. The issue of compensation is beyond the scope of the Commission's jurisdiction.

Millennium would compensate landowners for any damage to property including temporary loss of crops and pastures, or permanent loss of timber or mineral resources. In the event a landowner observes damage after restoration is complete, Millennium would work with the landowner to correct the situation and pay compensation where owed. Unresolved issues would be settled in appropriate legal proceedings.

Property taxes for a piece of property are generally based on the actual use of the land. Construction of the pipeline would not change the general use of the land, but it would preclude the construction of aboveground structures on the permanent right-of-way. If a landowner feels that the presence of a pipeline easement reduces the value of his/her land, resulting in an overpayment of property taxes, he/she may appeal the issue of the assessment and subsequent property taxation to the local property taxation agency.

Economy and Tax Revenues

During construction, some portion of the construction payroll would be spent locally for the purchase of housing, food, gasoline, entertainment, and luxury items. The dollar amount would depend on the number of construction workers in a given area and the duration of their stay. It is also likely that some portion of construction materials would be purchased locally. However, these purchases would probably be limited to smaller tools and equipment, emergency repair services, and miscellaneous materials such as hay bales. These direct payroll and materials expenditures would have a positive impact on local economies and would stimulate

indirect expenditures within the region as inventories are restocked or new workers are hired to meet construction demands. Sales tax would also be paid on all goods and services purchased with payroll monies or for construction materials.

Millennium estimates that about \$200 million would be spent in contractor labor wages for the entire project. Of that total, Millennium estimates that about \$95.2 million would be spent in local worker wages assuming about 48 percent of the work force is hired locally (common laborers, truck drivers, and semi-skilled workers). Another \$18.9 million would be spent in local material purchases. Estimated tax revenues during construction, as provided by Millennium, are shown on table 5.10-1. Project construction would provide some short-term job opportunities.

The only long-term socioeconomic effect of the project is likely to be beneficial, based on the increase in tax revenue that would accrue to the counties where the pipeline facilities are located. Following construction, the pipeline would be subject to state, county, and local property taxes. The local tax rate is levied against that part of the assessed value of the pipeline which crosses each municipality and is based on estimated future costs and revenues for each town for the entire year. It is determined by town officials according to estimated budget needs at the beginning of each year. Tax revenues are used to support road and bridge programs, school districts, safety, and general county administration.

Environmental Justice

Executive Order 12898 on Environmental Justice requires that each Federal agency address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. Federal agencies' responsibilities under this order also apply equally to Native American programs.

Table 5.10-2 provides the general ethnic mix and the economic status of the counties through which the Millennium Pipeline Project would pass. Table 5.10-3 shows the length of pipeline in each county and town. For Westchester County, we provide additional data concerning the ethnic composition of the villages, towns, or cities that would be affected by the project where it was available. We note that the City of Mount Vernon is the only location where the population is largely minority (72.4 percent). The City of Mount Vernon commented that it had a 1990 per capita income of \$15,835 and that this is likely one of the lowest per capita incomes in the project area.

The Millennium Pipeline Project would provide natural gas transportation for specific transportation customers. The proposed route would cross mostly rural communities, but it would also cross suburban and urban communities as the project approaches its eastern terminus in the City of Mount Vernon. Affected communities vary in economic status and ethnic mix. In Mount Vernon, the proposed project would interconnect with existing ConEd facilities at the only point we are aware of at which there are large diameter distribution lines that can accommodate the Millennium pipeline.

Pipelines are typically routed to utilize existing right-of-way corridors and to avoid residential areas. However, avoiding all residential areas is not always possible. Since the project would end in an urban area, the number of people affected by the project increases as it nears its terminus.

TABLE 5.10-1

Estimated Tax Revenues During Construction

State/County	1996 Total County Revenue (dollars)	Sales Tax Rate	Estimated Sales Taxes from Construction Worker Purchases (dollars)	Estimated Taxes from Construction Materials Expendables (dollars)	Estimated Taxes from Major Materials (dollars)	Motel Tax Rate	Worker Room Tax	All Taxes as a Percent of County Revenue	Estimated Total Project Taxes (dollars)
Pennsylvania		6.00%	185,760	91,800	825,600	0%	0		1,103,160
New York		4.00%	3,808,000	753,800	6,784,200	0%	0		11,346,000
Chautauqua	132,649,000	3.00%	92,880	60,600	545,100	0%	0	0.53	698,580
Cattaraugus	74,384,000	4.00%	290,880	88,100	792,100	0%	0	1.57	1,171,080
Allegany	83,300,000	4.00%	164,160	60,400	543,300	0%	0	0.92	767,860
Steuben	109,316,000	4.00%	144,000	85,100	765,600	2%	19,000	0.93	1,013,700
Chemung	83,078,956	3.00%	108,000	36,700	329,500	4%	38,000	0.62	512,200
Tioga	103,500,000	3.75%	140,400	40,300	362,200	3%	29,400	0.55	572,300
Broome	255,421,000	4.00%	149,760	73,000	656,200	3%	29,400	0.36	908,360
Delaware	58,355,000	3.00%	125,280	33,400	300,400	0%	0	0.79	459,080
Sullivan	103,565,182	3.00%	302,400	51,500	463,100	2%	53,000	0.84	870,000
Orange	345,772,000	3.25%	327,600	62,500	561,900	0%	0	0.28	952,000
Rockland	138,500,000	3.00%	194,400	14,900	133,700	0%	0	0.25	343,000
Westchester	948,812,000	6.00%	514,080	97,900	881,100	3%	67,500	0.16	1,560,580
TOTAL	2,567,347,477		6,547,600	1,550,000	13,944,000		236,300		22,277,900

TABLE 5.10-2
Environmental Justice Statistics

County/ Municipality	Racial/Ethnic Group, 2000 (percent) <u>a/</u>					Model-Based Estimate <u>b/</u>		
	White	Black/ African American	Native American <u>c/</u>	Asian <u>d/</u>	Hispanic/ Latino <u>e/</u>	Median Household Money Income	Persons Below Poverty	Children Below Poverty
New York State	67.9 %	15.9 %	0.4 %	5.5 %	15.1%	\$36,369	15.6%	24.7%
Chatauqua	94.0	2.2	0.4	0.4	4.2	\$31,051	16.7%	25.4%
Cattaraugus	94.6	1.1	2.6	0.5	0.9	\$31,348	15.7%	22.9%
Allegany	97.0	0.7	0.3	0.7	0.9	\$31,291	18.1%	27.0%
Steuben	96.4	1.4	0.3	0.9	0.8	\$33,732	15.5%	23.4%
Chemung	91.0	5.8	0.2	0.8	1.8	\$33,988	13.8%	21.0%
Tioga	97.5	0.5	0.2	0.6	1.0	\$38,503	11.1%	17.3%
Broome	91.3	3.3	0.2	2.8	2.0	\$35,340	13.8%	22.5%
Delaware	96.4	1.2	0.3	0.5	2.0	\$30,362	14.6%	23.1%
Sullivan	85.3	8.5	0.3	1.1	9.2	\$33,123	16.2%	25.6%
Orange	83.7	8.1	0.4	1.5	11.6	\$46,446	11.4%	16.7%
Rockland	76.9	11.0	0.2	5.5	10.2	\$58,362	9.7%	17.4%
Westchester	71.3	14.2	0.3	4.5	15.6	\$55,040	9.3%	15.2%
Cortlandt	88.6	4.6	0.2	2.6	7.2	\$22,550	NA	NA
Croton-on-Hudson	91.5	1.9	0.3	2.1	6.9	\$65,031	NA	NA
Ossining	70.3	14.3	0.3	4.5	19.9	\$41,901	NA	NA
Briarcliff Manor	90.7	1.7	0.1	5.4	3.1	\$99,477	NA	NA
Mount Pleasant	84.3	5.1	0.2	3.3	14.0	NA	NA	NA
Elmsford	55.8	20.3	0.7	9.1	23.3	\$46,308	NA	NA
Irvington	88.7	1.4	0.1	7.0	3.8	\$64,858	NA	NA
Dobbs Ferry	80.7	7.4	0.1	7.6	7.0	\$50,061	NA	NA
Ardsley	84.0	1.5	0.1	12.3	4.3	\$77,555	NA	NA
Greenburgh	72.4	13.1	0.2	8.8	9.0	NA	NA	NA
Yonkers	60.2	16.6	0.4	4.9	25.9	\$36,376	NA	NA
Mount Vernon	28.6	59.6	0.3	2.1	10.4	\$34,850	NA	NA

a/ The numbers may add to more than 100 percent because individuals may report more than one race.

b/ The 1997 model-based estimate from the 2000 U.S. Census is used for the counties. For the municipalities in Westchester County, the 1990 U.S. Census is used.

c/ Includes American Indian and Alaska Native.

d/ Includes Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, other Asian.

e/ Includes Mexican, Puerto Rican, Cuban, other Hispanic or Latino.

NA = No data available.

Source: U.S. Census Bureau, Census 2000.

TABLE 5.10-3
Portion of Project in Affected Areas

County/Municipality	Miles Affected by Pipeline Construction (Excluding Lake Erie) <u>a/</u>	Percent of Project
New York State	389.3	
Chatauqua	39.5	10.15%
Cattaraugus	44.8	11.51%
Allegany	30.8	7.91%
Steuben	43.8	11.25%
Chemung	24.9	6.40%
Tioga	21.9	5.63%
Broome	37.2	9.56%
Delaware	22.6	5.81%
Sullivan	35.0	8.99%
Orange	39.2	10.07%
Rockland	17.0	4.37%
Westchester	32.6	8.37%
Cortlandt	2.6	0.67%
Croton-on-Hudson	4.2	1.08%
Ossining	3.5	0.90%
Briarcliff Manor	2.1	0.54%
Mount Pleasant	4.7	1.21%
Elmsford	0.7	0.18%
Irvington	1.4	0.36%
Dobbs Ferry	1.9	0.49%
Ardsley	0.7	0.18%
Greenburgh	3.5	0.90%
Yonkers	5.4	1.52%
Mount Vernon	1.9	0.36%

a/ Includes possible errors due to round off

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 the residents. Special construction procedures, techniques, and/or site-specific mitigation measures are then identified to minimize impact on any residences potentially affected by construction, regardless of the income or minority status of the resident. A total of 221 residences have been identified within 50 feet of the construction work area, with 67 percent on the eastern end of the pipeline in Orange, Rockland, and Westchester Counties (see table 4.8.2-1). The majority of the residences would be in the last segment between MPs 420.6 and 421.8 and include multifamily and high rise apartments. Mitigation has been proposed to minimize construction impact on all residences and residents. We have also identified and recommended additional mitigation measures to reduce potential impacts.

Construction and operation of the project would result in a temporary impacts on rural, suburban, and urban residential areas during construction, although implementation of the ECS, proposed mitigation measures, and our recommendations would mitigate these impacts. In-street construction would have the most significant impact during the brief period of construction in any one block along the route due to the closure of that block to traffic. Construction impacts would be annoying and inconvenient, but they would be temporary and short-term. However, we do not believe that construction or operation of the pipeline would have disproportionate adverse human health or environmental effects on any minority or low income communities or Native American groups. Mount Vernon would be affected by construction and operation of about 1.9 miles, or 0.36 percent, of the Millennium Pipeline Project. Of the total 3.1 miles of in-street construction required for the project, about 61 percent would be in Mount Vernon. Alternative routes to the terminus would affect similar resources and would be longer.

The public, regardless of economic status and ethnicity, has been given the opportunity to comment on the project since Millennium's application was noticed by the Commission on February 3, 1998, and the NOI specifically requesting scoping comments for the EIS was issued February 27, 1998. Although our requests for comments on environmental issues include requests that comments be filed during specified comment periods, we continued to accept comments about the project up until the EISs were finalized for publication. Our public meetings about the project were open to everyone. Oral and written comments were given equal consideration.

The FERC's public documents and notices about the Millennium Pipeline Project are readily available to the public. These documents have been available through the Office of Public Information and may be accessed from the FERC webpage at www.ferc.gov and selecting "RIMS" and "CIPS" and searching under Docket No. CP98-150. The mailing distribution list for this FEIS was initiated when the NOI was first issued and it has been continually updated. The original mailing list for the DEIS included directly affected property owners who might be required to grant easements for the project, as provided by Millennium, 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. Unless a party on the original mailing list submitted a request to stay on the mailing list (the form was attached to the NOI), they were removed from the original list. The mail list was expanded to include landowners affected by the amended application for the 9/9A Proposal and the ConEd Offset/Taconic Parkway Alternative, as provided by Millennium, consistent with our 2000 amended filing regulations (18 CFR 157.6(d)(2)). Anyone who commented on the project or who made a request to be added to the mail list was added to mail list. Section 1.3 describes the public notification and participation process. Sections 4.9 and 5.9 describe contacts with Native American tribes that traditionally occupied, or currently occupy, the project area.

5.11 AIR QUALITY AND NOISE

5.11.1 Air Quality

Construction of the proposed facilities would cause a temporary reduction in local ambient air quality as a result of fugitive dust and emissions generated by construction equipment. The extent of dust generated would depend on the level of construction activity and on soil composition and dryness. If proper dust suppression techniques were not employed, dry and windy weather could create a nuisance for nearby residents. The emissions for construction vehicles and equipment should have an insignificant effect on air quality of the region. However, under certain meteorological conditions, there might be high temporary concentrations of pollutants in the vicinity of construction. No significant impact on air quality would occur during operation of the proposed pipeline.

9/9A Proposal

However, along the 9/9A Proposal, air impacts could be perceived to be greater due to congestion and greater residential and commercial development. Millennium states that work along U.S. Route 9, State Route 9A, and State Routes 9A/100 would typically be completed during two, 10-hour work shifts. There would be no construction during the 4-hour peak traffic periods (3 to 7 p.m. for construction along northbound lanes, and 6 to 10 a.m. for construction along southbound lanes). As work progresses, different pieces of equipment would be operating for varying periods of time, often intermittently. Overall, Millennium estimates that during each work day, each piece of equipment would be operated for approximately 53 percent of the work day.

The emissions from construction equipment were modeled using the EPA Nonroad Engine Emissions Modeling emissions factor data. The emissions factor for the hourly amount of exhaust in the form of total hydrocarbons (HC), carbon monoxide (CO), and NO_x for each piece of equipment that would be used on each construction spread is given in table 5.11.1-1.

Millennium estimated the emissions from normal traffic using U.S. Route 9 and State Route 9A using the EPA Highway Mobile Source Emissions Factors from the MOBILE 5 model. These emissions factors were based on a MOBILE 5 model output for a 55 miles per hour highway in 1996. Traffic data for this evaluation were obtained from the State of New York Department of Transportation "1997 Highway Sufficiency Ratings – Region 8." These modeling results were:

	<u>Total</u> <u>(pounds/mile/day)</u>
Total volatile organic compounds (VOC)	163.89
Total CO	1,154.36
Total NO _x	325.90

To compare the results of the construction emissions with highway traffic emissions, the distance over which emissions are occurring, which is 400 feet per day, must be standardized. The comparison of emission from construction activity with highway traffic for any one day period follows:

	<u>Construction</u> <u>Emissions</u> <u>(pounds/400 ft/day)</u>	<u>Highway Traffic</u> <u>Emissions</u> <u>(pounds/400 ft/day)</u>
Total VOC	0.57	12.42
Total CO	2.09	87.45
Total NO _x	5.47	24.69

TABLE 5.11.1-1

Estimated Construction Equipment Air Emissions per Hour of Operation

Typical Equipment	HC (g/hp-hr)	CO (g/hp-hr)	NO _x (g/hp-hr)
1 - D7 dozer	0.68	2.70	8.38
2 - 996 side dump loaders	0.68	2.70	8.38
2 - "Dozer D10, Rocsaw "	0.68	2.70	8.38
1 - Truck Tractor	0.68	2.70	8.38
1 - 225 Backhoe with rock pick and bucket	0.68	2.70	8.38
4 - 10 cubic yard dump trucks	0.68	2.70	8.38
1 - Mechanics rig	0.68	2.70	8.38
2 - Pickup trucks	0.68	2.70	8.38
2 - 3-ton flatbed trucks	0.68	2.70	8.38
1 - Air compressor, 250 cfm	0.99	3.49	8.30
1 - Fuel/lube truck	0.68	2.70	8.38
1 - 26-passenger bus	0.68	2.70	8.38
1 - Compactor - single drum	0.99	3.49	8.30
2 - "Sideboom, 572 or 966 Loader"	0.68	2.70	8.38
1 - Hydracrane, 35-ton	0.68	2.70	8.38
1 - Air compressor, 280 cfm	0.99	3.49	8.30
1 - FBE Coating Machine (100 kW Generator)	0.68	2.70	8.38
3 - Concrete Ready Mix Truck, 8 cubic yards	0.68	2.70	8.38
6 - Light plants	1.50	5.00	10.00
1 - Street Sweeper (1)	0.99	3.49	8.30
1 - Bending machine	-	-	-
1 - Welding rig with two 300-amp welding machines	-	-	-
4 - Welding rig with one 300-amp welding machines	-	-	-

NOTES:

- Emissions factors obtained from Exhaust Emission Factors for Nonroad Engine Modeling - Compression - Ignition, Report No. NR-009A, Feb. 13, 1998, "
- Horsepowers for equipment engines obtained from Caterpillar (handbook and web page) and public sources (internet).
- Bending machine and welding machines were considered as de minimis and were not included in the modeling.

g/hp-hr = grams per horsepower-hour
 cfm = cubic feet per minute
 kW = kilowatt

From a risk-based or receptor basis the emissions should be compared on an annualized basis. Assuming a receptor in a fixed location, exposure to emissions from construction activity would occur only during one 24 hour period, while exposure to emissions from highway traffic would occur daily. The comparison of emissions from construction activity with highway traffic on an annualized basis follows:

	Construction Emissions (pounds/400ft/year)	Highway Traffic Emissions (pounds/400 ft/year)
Total VOC	0.57	4,533.3
Total CO	2.09	31,919.25
Total NO _x	5.47	9,011.85

Based on the above analysis, construction of the 9/9A Proposal would not contribute significantly to air emissions in the project area and to nearby residences on an annual basis. However, there would be one-day increases in pollution due to construction activity, ranging from a 2 percent increase in total CO to a 22 percent increase in total NO_x. This estimate also does not include emissions from vehicles that may be slowed down by pipeline construction that may result in traffic delays. However, these increases would be a localized one-day increase that would move with the construction spread. So, this affect would be not be expected to be significant.

5.11.2 Noise

Pipeline construction activities would proceed along the proposed rights-of-way at average rates of several hundred to several thousand feet per day. Construction noise would be intermittent and would vary from hour to hour at any single location depending on the equipment in use and the operations being performed. Nighttime noise levels would be unaffected, as most construction would be limited to daylight hours. The noise associated with pipeline construction is similar to the noise produced during excavation and grading at many other small construction sites, but its duration at any specific area would be relatively brief. Neighbors might hear the construction noise at times, but the overall impact would be temporary and would not be expected to be significant. All construction activities, including controlled rock blasting, would comply with Federal, state, and local regulations.

9/9A Proposal

Millennium provided an estimate for noise produced by the various pieces of construction equipment expected to be used along U.S. Route 9 and State Route 9A (see table 5.11.2-1). Equipment that would not present a significant noise source and would not be used for extensive periods of time during a work shift was not included in the noise modeling.

Equipment	Noise Level at 50 feet	Data Source
D7 dozer	86	(1)
966 loader, side dump	83	(1)
Rocksaw, D10	91.5	(1)
Truck tractor	Not significant	--
Bending machine	Not significant	--
225 backhoe w/rock pick & bucket	77	(1)
Welding rig w/2-300 amp welding machines	76	(2)
Welding rig w/1-300 amp welding machines	76	(2)
10 yd dump trucks	88	(2)
Mechanics rig	Not significant	--
Pickups	Not significant	--
3t flatbed truck	Not significant	--
Compressor, 250 cfm	81	(2)
Compressor, 280 cfm	81	(2)
Fuel/lube truck	Not significant	--
Bus, 26 passenger	Not significant	--
Compactor, single drum	74	(2)
Sideboom, 572 or 966 loader w/sideboom attachment	77	(1)
Hydra crane, 35 ton	83	(2)
FBE coating machine (100 kw generator)	81	--
Concrete ready mix truck, 8 cyde	88	(2)
Light plants, 4 lite	81	(2)
Street sweeper	74	(2)

Data Source: (1) SAE J88 Test Data from personal correspondence with K. Meitl of Caterpillar Corp. (November 10, 2000).
(2) Transit Noise and Vibration Impact," Federal Transit Administration, U.S. Department of Transportation, DOT-T-95-16, April 1995.

Millennium estimated noise levels for construction work during any 20-hour work day using the modeling techniques established by the Federal Transit Administration (FTA), as detailed in its "Transit Noise and Vibration Impact" guidance manual (USDOT-T-95-16, April 1995). This estimate assumed that:

along U.S. Route 9, State Route 9A, and State Routes 9A/100 work would be conducted in a constantly moving area of two, 400-foot per shift work zones over a 20-hour work day; conservative estimates for the time of operation for each piece of equipment during the work shift; equipment would be operating at full power during all periods of operation; and the nearest receptor was 50 feet from the centerline of the work area.

On this basis, it was estimated that the overall noise level from construction activities would yield an " L_{dn} " of 86.4 dBA. This value represents a receiver's cumulative noise exposure or dose from all events in a 24-hour period, as opposed to an instantaneous noise level for any one period of time. The potential impact from the noise levels estimated for this construction activity are effectively mitigated because the duration of noise exposure at any receptor is limited to one 24-hour period during the entire duration of construction along the roadway. In other words, since construction would progress at approximately 400 feet per day, stationary noise receptors would only be exposed to construction noise for a short period of time.

The noise level from traffic using U.S. Route 9 and State Route 9A was estimated using the STAMINA computer model under the FTA guidelines ("Transit Noise and Vibration Impact" guidance manual, DOT-T-95-16, April 1995). Traffic data for this evaluation were obtained from the NYSDOT "1997 Highway Sufficiency Ratings - Region 8." The results of this analysis show that the L_{dn} , the cumulative noise exposure from U.S. Route 9 and State Route 9A traffic at a receiver 50 feet away from the highway, during the daily construction period of 20 hours would be 76.4 dBA. This is the noise exposure that would be received each day from U.S. Route 9 and State Route 9A traffic noise during a 20-hour period, corresponding to the time period of a two, 10-hour shift construction work day.

These noise levels during construction would be locally significant. Normally, pipeline construction occurs during the daylight hours (i.e., 7 a.m. to 7 p.m.) and as such occurs when residents are awake and active. However, for the 9/9A Proposal, there will be a 20-hour work day. During a 20-hour work day, these projected noise levels could create a disturbance to nearby residents. For example, if the rocsaw (D-10) was the only equipment operating during the construction phase, the construction noise level could exceed the cumulative traffic noise of 76.4 dBA up to a distance of about 284 feet. People with greater noise sensitivity may be annoyed by the noise levels when the construction spread is nearby and active at night. However, this disturbance would last only for a few days during construction, and there would be no impact during pipeline operation.

Directional Drill Sites

At the directional drill sites, drilling equipment would typically operate 24 hours a day until the pipe is installed. This would result in noise impacts on residents in the immediate vicinity of the drilling rig. The degree of impact would depend on site-specific factors such as the presence or absence of screening vegetation, existing topography at the site, the distance between the residence and the drilling rig, and the existing ambient noise at the site.

Millennium proposes to directionally drill the Lake Erie shoreline (MP 33.4), the Chenango (MP 249.8) and Ramapo (MP 370.0) Rivers, and the Croton River (MP 396.8). One residence along the shore road would be about 1,000 feet from the drilling rig at the Lake Erie landfall. At the Chenango River, the crossing would be in towns of Dickinson and Fenton where there are residences on both sides of the river interspersed with state highways and commercial/industrial development. The nearest residences at the Ramapo River crossing would be along the turnpike about 1,500 feet from the drilling rig. There are no residences in the immediate vicinity of the proposed Croton River drill site on the south side of the river, although there are residences on nearby streets within 500 feet of the site.

Millennium is working with an independent directional drilling contractor to determine projected daytime and nighttime noise levels and methods to reduce construction noise at the directional drill sites. Based on their

information, standard directional drill equipment will produce approximately 85 decibels at 200 feet. Millennium expects that mufflers, baffles, and/or other noise attenuation devices would be recommended by the contractor. These mitigation measures will be included in the bid package and enforced during directional drilling activities. Millennium will file the plan with the Commission prior to construction. To minimize noise impact at residences that may be affected by noise from the drilling rig, we recommend that:

- **Millennium file a site-specific plan identifying how it would reduce construction noise during a directional drill near residences. The plan should include projected daytime and nighttime noise levels at nearby residences and mitigation measures that would be used to minimize noise at these residences. The plan should be filed with the Secretary for review and written approval by the Director of OEP before construction.**

RELIABILITY AND SAFETY

One of the main issues raised by commenters concerns 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.

Safety Standards

The USDOT is mandated to provide pipeline safety under 49 U.S.C. Chapter 601. The Research and Special Programs Administration's (RSPA), 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 that set the level of safety to be attained and allow the pipeline operator to use various technologies to achieve safety. RSPA 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 USDOT's agent to inspect interstate facilities within its boundaries; however, the USDOT 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 PSCNY has an agency agreement with the USDOT, Office of Pipeline Safety by which the PSCNY inspects the operations of natural gas pipeline facilities in New York. The PSCNY is responsible for ensuring that utilities provide safe and reliable service in New York. The PSCNY states that its staff is larger than the staff of the USDOT Northeast Region and that the actual monitoring of gas safety measures in New York would be done by PSCNY staff. The PSCNY staff would monitor construction activity from the Canadian boarder in Lake Erie to its termination in Mount Vernon in Westchester County, New York, for compliance with the USDOT

regulations. It would also monitor operation of the pipeline once it is constructed. These actions will help ensure that the pipeline will be constructed and operated safely.

The USDOT 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 that govern USDOT's authority do not authorize USDOT to regulate those activities. The FERC takes the Federal lead on issues regarding environmental impacts (which often affects siting and routing), financing, tariffs, etc.

Under a MOU on Natural Gas Transportation Facilities dated January 15, 1993, between the USDOT and the FERC, the USDOT 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 USDOT 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 USDOT standards. If the Commission becomes aware of an existing or potential safety problem, there is a provision in the MOU to promptly alert USDOT. The MOU 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 USDOT's Technical Pipeline Safety Standards Committee, which determines if proposed safety regulations are reasonable, feasible, and practicable.

The pipeline and aboveground facilities associated with the Millennium Pipeline Project must be designed, constructed, operated, and maintained in accordance with the USDOT 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, design requirements, and protection from internal, external, and atmospheric corrosion.

Pipelines are built in areas of varying population density throughout the U.S. 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 1 mile length of pipeline. The four area classifications are defined as follows:

- Class 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.

Classes 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. Preliminary class locations for the Millennium Pipeline Project have been developed based on the relationship of the pipeline centerline to other nearby structures and manmade features. Table 5.12.1-1 identifies Class 3 and 4 locations, as well as locations where Millennium proposes to upgrade class locations because of possible future development. Final class locations will be determined prior to construction.

Part 192 prescribes the 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
- 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. Millennium 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 5.12.1-1

Class 3 and 4 Locations and Upgraded Class Locations

County	Approximate Beginning Milepost	Approximate Ending Milepost	Class
Chautauqua	33.7	34.2	3
	43.9	45.4	2 <u>a/</u>
	67.4	67.6	2 <u>a/</u>
	69.0	69.1	2 <u>a/</u>
Cattaraugus	76.8	77.1	3
	87.8	88.7	3
	94.9	95.0	2 <u>a/</u>
	110.3	110.8	2 <u>a/</u>
	114.4	115.2	2 <u>a/</u>
	116.1	117.1	2 <u>a/</u>
Allegany	136.8	137.8	3 <u>b/</u>
Chemung	198.2	199.2	3
	202.7	203.2	3
	206.1	207.9	2 <u>a/</u>
Tioga	225.9	227.4	2 <u>a/</u>
	228.2	228.6	3
Broome	249.3	251.2	3
	252.2	257.3	2 <u>a/</u>
	260.6	260.7	2 <u>a/</u>
Delaware	287.4	287.6	2 <u>a/</u>
Sullivan	304.0	306.2	2 <u>a/</u>
	307.1	307.6	2 <u>a/</u>
	311.7	312.7	2 <u>a/</u>
	313.4	313.4	2 <u>a/</u>
Orange	352.1	352.7	2 <u>a/</u>
	353.4	353.7	3
	355.3	357.0	3 <u>b/</u>
	360.4	360.6	3
	363.8	364.8	3
	367.4	369.4	3
Rockland	383.1	385.0	3
	385.0	387.8	4
Westchester <u>c/</u>	390.2	391.7	4
	391.7	417.8	3
	417.8	422.6	4

a/ Upgraded.

b/ Includes an upgraded segment.

c/ In Westchester County, if the ConEd Offset/ Taconic Parkway Alternative is authorized, pipe class would in some cases exceed USDOT Class 4 in accordance with the SMOU between Millennium and PSCNY.

5.12.2 Pipeline Accident Data

Since February 9, 1970, 49 CFR part 191 has required all operators of transmission and gathering systems to notify the USDOT 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 USDOT 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 5.12.2-1 presents a summary of incident data for the 1970 to 1984 period, as well as more recent incident data for 1991 through 1997, 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.^{13/}

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 (23.5)
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

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, 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.

^{13/} 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.

Additional insight into the nature of service incidents may be found by examining the primary factors that caused the failures. Table 5.12.2-1 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. Outside forces incidents result from the encroachment of 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 5.12.2-2 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. The 1991 through 1998 data show that the portion of incidents caused by outside forces has decreased to 40.5 percent.

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 pipelines included in the data set in table 5.12.2-1 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.

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 5.12.2-3 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, significantly reduces the rate of failure compared to unprotected or partially protected pipe. The data show 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.

TABLE 5.12.2-3
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

We have received comments from individuals who are concerned about potential health hazards 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 do we anticipate any health hazards from the low-power, direct-current output of cathodic systems. Media reports on the health effects of EMF 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 electromagnetic fields. Direct-current systems do not generate fluctuating electromagnetic fields. In addition, 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 would be negligible.

5.12.3 Impact on Public Safety

The service incident data summarized in table 5.12.2-1 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 5.12.3-1 presents the average annual number of fatalities that occurred on natural gas transmission and gathering lines from 1970 to 1999. 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 1999 decreased to 3.1 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 2.3 fatalities per year for this period.

TABLE 5.12.3-1
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 <u>c/</u>	-	-	4.2
1984-2000 <u>c/</u>	-	-	3.1 <u>d/</u>

a/ 1970 through June 1984 - American Gas Association, 1986.
b/ USDOT 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.

The nationwide totals of accidental fatalities from various manmade and natural hazards are listed in table 5.12.3-2 to provide a relative measure of the industry-wide safety of natural gas pipelines. Direct comparisons between accident categories should be made cautiously, however, because individual exposures to hazards are not uniform among all categories. Nevertheless, the average 2.6 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.

TABLE 5.12.3-2
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.

Several commenters expressed concern about pipeline safety and mentioned the rupture and subsequent fire that occurred on Columbia's Line A-5 in Binghamton, New York, on August 14, 1993. Columbia was issued a Hazardous Facility Order (CPF No. 13008-H) by the USDOT, Research and Special Programs Division, on August 19, 1993, after this incident. The segment of pipeline between Corning, New York, and east of Hungry Hill Road in Delaware County, New York, was constructed in the 1950's. It consisted of a 12-inch-diameter, predominately Grade B, 0.281wt, bare steel seamless pipe, many portions of which had been replaced with other types of pipe, and had a maximum allowable operating pressure of 1,000 psig, according to the Hazardous Facility Order. Analysis of this event revealed severe external corrosion at the rupture site. A review of the leak history of Line A-5 found 27 confirmed leaks due to external corrosion.

The Hazardous Facility Order required Columbia to perform corrective actions that included reducing the operating pressure of the pipeline by about 20 percent; procuring an independent laboratory to conduct a metallurgical analysis of the ruptured segment of the pipeline; developing inspection plans to determine the extent of corrosion on the pipeline and whether it could be operated at normal operating pressures; developing a remedial action plan to repair or replace corroded pipe; and surveying all river and stream crossings within this segment to determine the extent of corrosion on the pipeline and to determine the need to protect or cover exposed pipe in accordance with 49 CFR 192.327. Following the Hazardous Facility Order, Columbia began replacing portions of Line A-5 where corrosion was discovered.

One of the benefits of the proposed Millennium Pipeline Project is that it would replace Columbia's Line A-5. Columbia's obligations to provide natural gas service from Line A-5 would be carried out by using capacity that would be leased on the new Millennium pipeline. Although Columbia proposes to retain rights to the

abandoned pipeline and right-of-way for potential future use, Line A-5 would no longer be used for mainline transportation of natural gas. As discussed above, the use of both an external protective coating and a cathodic protection system is required on all pipelines installed after July 1971, and this significantly reduces the rate of failure compared to unprotected or partially protected pipe. The Millennium Pipeline Project would be constructed with the required protective coating and cathodic protection.

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 0.008 per 1,000 miles per year. Using this rate, the Millennium Pipeline Project would result in a public fatality every 294 years. This would represent a slight increase in risk to the nearby public.

5.12.4 Frequently Asked Pipeline Safety Questions

In a letter dated December 10, 1998, the USDOT staff responded to a November 19, 1998, letter from Mr. John Diacsuk of Pen Argyl, Pennsylvania, regarding construction of the Market Link Project. Both letters are in the FERC's public file. Mr. Diacsuk's questions reflect concerns that have also been expressed in comments filed on the Millennium Pipeline Project. Because his questions and the USDOT's responses could apply to pipeline projects in general and are not project-specific, we include them to provide additional information from the USDOT.

When natural gas is not being pumped, what inert gas is used to prevent internal pipe corrosion and related stress corrosion cracking?

Natural gas pipelines remain under a dry methane atmosphere, even when gas is not actively being "pumped." Pipelines are normally only purged for some maintenance activities.

Stress corrosion cracking (SCC) in pipelines is a complex process that is not completely understood. In some forms, the process is electrochemical, similar to general corrosion. SCC typically occurs at breaks in the coating or at regions where the coating is disbonded. Soil conditions and temperature of the pipe and the surrounding media are other factors that contribute to SCC. The presence of inert gas or corrosion inhibitors, however, are not factors that contribute to stress corrosion cracking. To date, failure due to SCC in natural gas pipelines in the eastern United States has not been a major problem.

Where is the weld inspection and documentation data maintained?

The requirements for welding of steel in pipelines is contained in Subpart E of 49 CFR part 192. This subpart documents the procedures companies have to follow for the qualifications of welders (section 192.227), inspection and testing of welds (section 192.241), and nondestructive testing (section 192.243). The code does not specifically address the location where the weld inspection and documentation are retained. By choice, most companies prefer to retain all the weld-related information in a central repository.

3 What type of crack detection is provided for the pipeline?

Modern pipeline materials with their improved metallurgical and microscopic structure and innovative manufacturing processes are not prone to cracking. The steel mills are also responsible for implementing inventive quality control and quality assurance checks throughout the manufacturing process. After a pipe length is manufactured, it is subjected to a hydrostatic test to verify that it is crack-free. The pipe is also transported in accordance with RP 5LI: Recommended Practice for Railroad Transportation of Line Pipe to prevent the formations of cracks. As stated in the specification, most purchasers also specify that the manufacturer furnishes a report on the finished pipe.

In addition, section 192.55 (e) states that *"New steel pipe that has been cold expanded must comply with the mandatory provisions of American Petroleum Institute (API) Specification 5L."* The API Specification for high-test line pipe is under the jurisdiction of the Committee on Standardization of Tubular Goods of the API and was prepared with the cooperation of the American Gas Association.

After the installation of the pipeline and before putting it into service, according to section 192.505 (a) of the CFR, *"... each segment of the steel pipeline that is to operate at a hoop stress of 30 percent or more of SMYS must be strength tested...to a test pressure of at least 125 percent of maximum operating pressure on that segment..."* and to higher levels in densely populated areas.

4. What type of inspection is provided in the event of seismic activity?

Section 192.605 specifies that *"Each operator shall prepare and follow for each pipeline, a manual of written procedures for conducting operations and maintenance activities and for emergency response."* A seismic activity is characterized as an incident requiring emergency response.

If a pipeline resides in a seismically active zone, the operator should have sufficiently detailed plans that enumerate the steps that the company will take following a seismic activity. After a major earthquake, hydrostatic testing or in-line inspection can determine if a pipeline endured damage to assure integrity.

In addition to the above-mentioned code requirement there are other regulations that natural gas transmission operators must abide by to protect the public and minimize hazardous occurrences. They are:

- Section 192.103 - addresses the design requirement for line pipe;
- Section 192.613 - Continuing surveillance;
- Section 192.615 - Emergency plans;
- Section 192.616 - Public education; and,
- Section 192.617 - Investigation of failures.

5. In the area of airport approach patterns, can the pipeline withstand an aircraft crash?

Just like all engineered structures, pipelines are designed using well-established engineering principles and codes. Similar to other structures, pipelines are designed to withstand calamitous and emergency situations they are routinely subjected to. Similar to other engineered structures, pipelines cannot withstand aircraft crashes if they occur directly over the pipeline. Both the USDOT and FERC are not aware of commercial aircraft crashes damaging underground pipelines.

6. In the event of rupture, what is the shutdown reaction time, and does it meet USDOT specifications?

In the event of a rupture, a shutdown is achieved by closing valves in the transmission line on either side of the rupture. Section 192.179 of 49 CFR identifies the distance transmission line valves must be placed. This distance is a function of the terrain traversed and varies from a minimum of two and one-half miles in populated areas to a maximum of 10 miles in remote areas. A blowdown valve is another appurtenance that must be installed between mainline valves to vent the transmission line as rapidly as practicable without hazard in the event of a rupture.

The valve spacing criteria are established by Class locations as referenced in section 192.5 and the valve spacing requirement in section 192.179.

The first criteria is Class location, defined hereinabove in section 5.12. Safety Standards.

The relevant spacing is enumerated as follows:

192.179 TRANSMISSION LINE VALVES.

- (a) Each transmission line, other than offshore segments, must have sectionalizing block valves spaced as follows:
- (1) Each point on a pipeline in a Class 4 location must be within 2½ miles of a valve.
 - (2) Each point on a pipeline in a Class 3 location must be within 4 miles of a valve.
 - (3) Each point on a pipeline in a Class 2 location must be within 7½ miles of a valve.
 - (4) Each point on a pipeline in a Class 1 location must be within 10 miles of a valve.

Most transmission lines are also monitored remotely through the use of telephone or radio communications by a system called Supervisory Control and Data Acquisition (SCADA). For large pipeline systems, the SCADA system is located at the operator's control center and is monitored 24 hours a day throughout the year. A rupture that causes the loss of gas is identified by the SCADA system as a loss of pressure and is exhibited by any combination of audiovisual signals called alarms. The operator routinely has a set of protocols that identify how and what has to be done by the control center to mitigate a disastrous condition.

As mentioned earlier, the USDOT 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. The regulations do not specify the shutdown time of a segment of a facility because of an accident. However, the operator is expected to use diligence and current industry practices to assign a reasonable shutdown time.

7. What type of disaster contingency plan is in place?

Refer to the answer to question number 4.

8. Can the pipeline be damaged during floods in flood prone areas?

Pipelines can be damaged by floods in flood prone areas. However, according to section 192.317 of 49 CFR, *"The operator must take all practicable steps to protect each transmission line or main from washouts, floods, unstable soil, landslides or other hazards that may cause the pipeline to move or to sustain abnormal loads."*

Based on published surveys of flood plains and high water marks in active waterways, companies generally use established engineering best practices to prevent their facilities from becoming undermined during floods. They commonly use casings, heavy wall pipe, and concrete coating in susceptible locations to protect the pipe. They may also install weights on the pipeline to prevent flotation and routinely vegetate the ground cover with grasses to prevent soil erosion.

Based on historical flood data, companies may also horizontally directionally drill segments of their pipelines for much greater lengths and at greater depths than required under the channel to prevent damage due to floods. Areas susceptible to floods and other natural disasters are also patrolled more often than other areas.

9. What type of over-pressure protection is provided for the pipeline?

Sections 192.195, 192.199 and 192.201 of 49 CFR address over-pressure protection in natural gas transmission pipelines. The commonly used over-pressure protection devices are rupture discs, pressure relief, or pressure limiting devices and control valves. The recognized methods of preventing overpressuring the downstream-carrying components of gas control equipment include the following:

Selecting equipment rated to withstand the inlet pressure on the downstream side. This is particularly important if the equipment employs internal sensing and the adjacent downstream piping is not otherwise protected;
 Connecting the control or sensing line to the downstream pressure system where over-pressure protection has been provided; and
 Protecting the downstream pressure carrying components by installing a relief valve, regulator, backpressure valve, or other suitable device in the control or sensing line.

10. Is a bond provided to ensure that the taxpayer and land owner are not burdened in the event of pipe line disaster or collapse of abandoned sections in future years (e.g., the coal mines under Scranton are still collapsing, and the coal company is not responsible for the repair costs)?

Bond issues and other financial instruments to compensate land owners in the event of pipeline failures are not within USDOT's or FERC's jurisdiction. However, local jurisdictions may have requirements for bonds for construction projects.

What protection is in place to ensure that the pipeline is not used for storage of natural gas or other gases?

If an applicant receives FERC approval to transport natural gas, that is the purpose of the pipeline. Depending on the nature of the natural gas, an operator must protect its internal surface from internal corrosion. Subpart I of 49 CFR addresses the requirements for corrosion control on natural gas pipelines. Section 192.451 *"...prescribes minimum requirements for the protection of metallic pipelines from external, internal and atmospheric corrosion."*

Sections 192.475 and 192.477 address the general aspects and the monitoring for internal corrosion control, respectively. According to section 192.475 (a), *"Corrosive gas may not be transported by pipeline, unless the corrosive effect of the gas on the pipeline has been investigated and steps have been taken to minimize internal corrosion."* Even though the term "corrosive gas" is not defined in part 192 of 49 CFR, the analogous term "corrosive material" is defined in the hazardous materials regulations under 49 CFR § 173.136. This definition, which contains criteria for determining damage to human skin or the corrosion rate on steel or aluminum, is cross-referenced in the definition of "corrosive product" in the hazardous liquid pipeline safety standards (49 CFR section 195.2).

12. What protection is in place to ensure that only natural gas is pumped in the pipeline?

The purpose of the proposed pipeline is to transport natural gas. The FERC certificate does not allow products other than natural gas to be transported through the pipeline.

As the gas is transported through the pipeline system, the operator samples the gas at various locations to determine the BTU content and chemical composition. The shipper of the product (local distribution company, end-user, marketer, etc.) from the transmission company also assesses the quality of the gas stream to ensure that it meets their standards.

As mentioned in the previous answer, if corrosive material is found in the natural gas stream, the operator must take steps to minimize internal corrosion.

13. Is the pipeline monitored twice daily to protect against terrorism as is the Alaska Pipeline?

Section 192.705 of USDOT's regulations requires that *"Each operator shall have a patrol program to observe surface conditions on and adjacent to the transmission line right-of-way for indications of leaks,*

construction activity, and other factors affecting safety and operation." The frequencies of these patrols are a function of the population density adjacent to the pipeline and varies from a minimum of at least once per year to four times per year. Many operators, however, patrol the pipeline more often than the USDOT regulations specify.

14. Is the pipeline at road and railroad crossings buried deep enough so that it will prevent rupture and explosion in the case of tanker explosion or terrorist activity?

According to section 192.327, "*Each buried transmission line must be installed with a minimum cover...*" which again is a function of population density. In normal soil the cover varies from a minimum of 30 inches in sparsely populated areas to 36 inches in densely populated areas. When the pipeline crosses drainage ditches, public roads and railroads, the minimum cover is 36 inches. However, the minimum cover under railroads is generally higher than what is specified in the codes because railroad companies have their own requirements in their permit application. Also, as mentioned in the answer to question number 9, most companies use heavy wall pipe, casings, concrete coating, or a combination thereof under obstructions and areas that are heavily traveled or are subject to heavier loads.

15. Are local fire and disaster relief agencies funded and capable of handling a catastrophic pipe line accident (e.g., a backhoe punctured a pipe line in New Jersey, and it took several fire companies and an evacuation to control the accident)?

The capabilities of local fire and disaster relief agencies and their funding levels can best be answered by the communities themselves. In the unlikely event of a pipeline emergency, local emergency personnel will be expected to assist in the evacuation of the public during the emergency, control traffic, and if necessary, control secondary fires. It is expected that applicants will meet with emergency personnel to coordinate emergency plans, and overall responsibilities during a pipeline emergency.

16. In the event that a pipeline accident were to occur and property is damaged, would the applicant reimburse the property owner for damages? Who would be responsible for assessing damage costs?

In the unlikely result of an applicant's negligence, it would be responsible for property damage. Each applicant has stated that it will maintain adequate insurance to provide for payment for any such costs. Damage cost would be determined by negotiation among the parties, or their insurers, or, if agreement cannot be reached, by appropriate legal proceedings. If an outside third-party caused the pipeline accident, the most likely scenario would be legal proceeding to determine fault and extent of compensation.

17. What percent of failures occur where pipelines are constructed within roadbeds?

The USDOT's Office of Pipeline Safety maintains statistical information with respect to gas pipeline incidents. That information provides pipeline incident information in broad categories. One of these categories identifies incidents "under pavement." This category appears to be the most analogous to the question. While not defined, "under pavement" could include, in addition to roadbeds, parking lots, driveways, and sidewalks. Based on the statistics for this category, 1.54 percent of all gas transmission incidents occurred "under pavement."

18. What additional safety measures are required for construction under roads? Are there any additional requirements if such construction is in an urban setting?

The USDOT, the Federal agency charged with the responsibility for pipeline safety, has specific requirements for construction under 49 CFR part 192.

In addition, the safety regulations specify certain requirements in urban settings which would include These requirements are determined by population density. The relevant section of the code is as follows:

192.111 DESIGN FACTOR(F) FOR STEEL PIPE

- (A) Except as otherwise provided in paragraphs (b), (c), and (d) of this section, the design factor to be used in the design formula in section 192.105 is determined in accordance with the following table:

<u>Class Location</u>	<u>Design Factor</u>
	0.72
2	0.60
3	0.50
4	0.40

- (B) A design factor of 0.60 or less must be used in the design formula in section 192.105 for steel pipe in Class 1 locations that:
- (1) crosses the right-of-way of an unimproved road, without a casing;
 - (2) crosses without a casing, or makes a parallel encroachment on, the right-of-way of either a hard surfaced road, a highway, a public street, or a railroad;
 - (3) is supported by a vehicular, pedestrian, railroad, or pipeline bridge; or
 - (4) is used in a fabricated assembly, (including separators, mainline valve assemblies, cross connections, and river crossing headers) or is used within five pipe diameters, in any direction from the last fitting of a fabricated assembly, other than a transition piece or an elbow used in place of a pipe bend which is not associated with a fabricated assembly.
- (C) For Class 2 locations, a design factor of 0.50 or less must be used in the design formula in section 192.105 for uncased steel pipe that crosses the right-of-way of a hard surfaced road, a highway, a public street, or a railroad.
- (D) For Class 1 and Class 2 locations, a design factor of 0.50 or less must be used in design formula in section 192.105 for:
- (1) steel pipe in a compressor station, regulating station, or measuring station; and
 - (2) steel pipe, including riser pipe, on a platform located offshore or in inland navigable waters.

19. How does USDOT evaluate natural gas pipelines and enforce their safety standards?

The USDOT conducts periodic audits of pipeline companies, both during and after construction. One of the tools it uses is a checklist known as an "Evaluation Report of Gas Transmission Pipeline" which can be found on the USDOT's Internet web site <http://ops.usdot.gov>.

CUMULATIVE IMPACT

NEPA requires the lead Federal agency to consider the cumulative impacts of proposals under their review. Cumulative impacts are the incremental impacts of the proposed action, when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other

actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

There is one other major project that has been approved for construction in the same general region as the Millennium Pipeline Project. This project, the ANR Supply Link/Independence Pipeline and Market Link Expansion Projects, would move natural gas from the Chicago to the New York City area (see section 3.2.5.2). The project would consist of construction of new and loop pipeline and compressor stations along a route that would extend through northern Illinois, Indiana, Ohio, Pennsylvania, and New Jersey. The segment in northern Pennsylvania would be south of, but would generally parallel the Millennium pipeline. Although the two major projects would be parallel, the projects would not be constructed in the same counties and would be separated by 40 miles at the closest point (Allegany County, New York, for the Millennium and Independence Projects and Potter County, Pennsylvania, for Millennium and Market Link Expansion Projects). The ANR Supply Link/Independence Pipeline and Market Link Expansion Projects would affect a total of about 8,664.1 acres of land. Although these projects received certificates in early 2000, ANR/Independence have not yet built their pipeline. The majority of the Market Link Expansion Project is under construction this year with a second phase planned for next year.

Another project that recently received FERC certification is the eCORP Stagecoach Project (see section 3.2.6.2). This project would consist of the development of a gas storage field by CYNOC in Tioga County, New York, and pipeline expansion by Tennessee in Pennsylvania, New York, and New Jersey. The storage field compressor station, which is centrally located in the storage field, would be about 8.9 miles south of Millennium MP 231.0. The storage field's wells, gathering system, compressor station, and associated facilities would affect about 313.4 acres of land. Tennessee's related pipeline expansion would affect about 574 acres, for a project total of about 887.4 acres. These projects are under construction this year.

There are two pipeline projects that are proposed for construction in the same general region as the Millennium Pipeline Project. The Iroquois Eastchester Expansion Project (Docket No CP00-232-000, as amended), would move natural gas from Northport, New York, on Long Island to Bronx, New York, and would include pipeline and compression facilities on Iroquois' system upstream of Northport. Pipeline construction of both the Eastchester Expansion Project and the Millennium Pipeline Project are proposed for 2002 (see section 3.2 for additional details).

A second project with proposed construction in New York has recently been filed with the Commission. This project is the Islander East Pipeline Project (proposed by Islander East in Docket Nos. CP01-384-000, CP01-385-000, CP01-386-000, and by Algonquin in Docket No. CP01-387-000). It would move 285,000 dth per day of natural gas from Algonquin's existing C-1 mainline near North Haven, Connecticut, to new electric generating plants on Long Island, New York. The project would require Algonquin to uprate about 27.4 miles of 10 and 16-inch-diameter pipeline from Cheshire to North Haven, Connecticut, and to construct a new 10,310 hp compressor station in Cheshire. Islander East would need to construct about 50.4 miles of new 24-inch-diameter pipeline and meter stations. The new pipeline route would extend south from North Haven, Connecticut, would cross Long Island Sound, come onshore at a point east of Shoreham, New York (more than 25 miles east of the landing for the Eastchester Expansion Project), and would terminate at Medford, New York, on Long Island. About 22.6 miles of offshore and 27.8 miles of onshore pipeline would be constructed. Construction would impact 536.0 acres and operation would impact 195.1 acres. Islander East proposes to begin construction in the winter of 2002/2003.

These projects and related filings can be viewed on the FERC website at the RIMS link on www.ferc.gov.

In addition to proposed projects under FERC review, we also reviewed the scoping comments to determine if other projects were identified for construction within the project area. While we did not specifically contact each county and state or other utilities regarding plans for new or expanded utility or road projects, we did specifically request information on other projects in our NOI. Some information on future development plans, both

residential and commercial, is discussed in sections 4 and 5 of the FEIS. Other highway and utility (sewer, water, etc.) upgrade projects may be planned throughout the project area, but have not been identified through the scoping process or comment letters.

The greatest potential negative cumulative impacts would primarily be the fragmentation of continuous forest and loss of mature trees, due to the long-term recovery period for restoring these impacts. Numerous species of wildlife depend on mature contiguous forest to sustain their evolutionary migratory and/or reproductive strategies. These species include dozens of neotropical migratory songbirds and terrestrial carnivores that are not migratory but require large tracts of forest to support their home ranges. The effects of these impacts can be immediate and significant, since population levels for many of these species are currently low and declining further. However, about 87 percent of the Millennium Pipeline Project would be collocated within or adjacent to existing rights-of-way. This would minimize the impact of fragmentation of continuous forest.

Generally, we believe that cumulative impacts could result only from the construction of other projects in the same vicinity and time frame as the proposed facilities. In such a situation, although the impact associated with each project might be minor, the cumulative impact resulting from all projects being constructed in the same general area could be greater. In its January 13, 1989, Order Affirming the Administrative Law Judge's Initial Decision for the Mojave-Kern River-El Dorado Project, the Commission concluded that the general impact of building more than one pipeline would be primarily additive, and that the cumulative impact may be calculated simply by adding together the impact of each individual project. Based on the available information, a total of about 16,441.5 acres (including 3,138.7 acres for the proposed Millennium Project) would be affected by the filed natural gas projects if they are approved and constructed as proposed. We do not believe it is necessary to speculate on the acreage that may be impacted by future projects because we have no control over their actual route, facilities, or if they will advance past the planning stages. However, we have identified the presently known anticipated natural gas projects in this region, and will update this information as it becomes available in the environmental impact statements that are prepared for other major Federal actions in the region.