

1.0 INTRODUCTION

The staff of the Federal Energy Regulatory Commission (Commission or FERC) has prepared this supplemental draft environmental impact statement (SDEIS) to assess the environmental impact of constructing, operating, and maintaining approximately 22.7 miles of pipeline in Westchester County, New York as proposed by Millennium Pipeline Company, L.P. (Millennium), and to address certain other issues along the route. This segment is part of a new natural gas pipeline system that Millennium proposes to construct and operate from an interconnection in Lake Erie at the Canada/United States (U.S.) border, through southern New York to Mount Vernon, Westchester County, New York.

On December 22, 1997, Millennium filed its initial application in Docket No. CP98-150-000, under section 7(c) of the Natural Gas Act (NGA) and Part 157 of the Commission's regulations for a Certificate of Public Convenience and Necessity (Certificate) to construct, acquire, own, and operate a 424-mile-long natural gas mainline that would extend from an interconnection in Lake Erie at the Canada/U. S. border, through southern New York to Mount Vernon, Westchester County, New York. In addition, Millennium requested a Presidential Permit authorizing construction, operation, and maintenance of facilities at the International Border in Lake Erie for the importation of natural gas. On the same date, Columbia Gas Transmission Corporation (Columbia) filed an application in Docket No. CP98-151-000 to abandon in place about 129.8 miles of pipeline in New York, to abandon and remove about 92.2 miles of pipeline in New York; and to abandon and convey to Millennium about 21.0 miles of pipeline and 27 measuring stations in New York, and 5.8 miles of pipeline, 1 compressor station, and 1 measuring station in Pennsylvania that would become part of the new Millennium pipeline system.

The draft environmental impact statement (DEIS) was issued on April 16, 1999. Within the 45-day comment period, we^{1/} received a total of 182 comment letters, representing 13 Federal agencies, 19 state agencies and state representatives, the Seneca Indian Nation, 27 county and municipal agencies, and 122 individuals and groups. Among these commenters were the Public Service Commission of State of New York (PSCNY) and Consolidated Edison Company (ConEd). Their primary concern was the location of the pipeline within the ConEd powerline right-of-way in Westchester County, New York. Both alleged that an accident associated with construction or operation of the pipeline within this right-of-way would result in a power outage in New York City. On March 21, 2000, we requested that Millennium resolve this issue with ConEd and the PSCNY. On June 28, 2000, Millennium filed an amendment (Docket No. CP98-150-001) to its pending certificate application to reflect a new proposed route (designated 9/9A Proposal) in Westchester County, New York.

This SDEIS is in two parts. Part I only addresses the environmental impact associated with construction of the proposed route between mileposts (MPs) 391.2 and 416.6, and includes the 22.7 miles of rerouted pipeline designated as the "9/9A Proposal" and 2.7 miles of the original proposed route between MPs 404.1 and 406.8. It does not re-address about 6.3 miles of the proposed route from the east bank of the Hudson River to the start of the 9/9A Proposal or from the end of the 9/9A Proposal to the terminus in Mount Vernon, New York (e.g., between MPs 390.1 and 391.2 and MPs 416.6 and 421.8, respectively) since they were studied in the DEIS.

Part II addresses and updates some of the major issues identified in comments on the DEIS on the remainder of the pipeline route. It only includes issues associated with the black dirt area in Orange County, waterbody crossings (e.g., surface waters, Lake Erie, and the Hudson River), crossing of the Amish lands,

^{1/}We, "us" and "our" refer to the environmental staff of the Office of Energy Projects, part of the Commission staff.

issues associated with crossing of the Catskill Aqueduct, coastal zone consistency determinations, Hudson River Alternatives, and route variations identified during the public scoping and comment period.

1.1 PURPOSE AND NEED

Millennium does not presently own any pipeline facilities but proposes to construct the above pipeline facilities and acquire others from Columbia. The purpose of the Millennium Pipeline Project would be to transport up to 700,000 decatherms (dth) per day and provide firm transportation services for eight shippers with natural gas service beginning on November 1, 2002 (see table 1.1-1).^{2/} The pipeline would be operated at a maximum allowable operating pressure (MAOP) of 1440 pounds per square inch gauge (psig). In addition, Millennium would transport 14,000 dth per day for customers on Columbia’s existing Line A-5 pipeline. Table 1.1-2 is a complete listing of Millennium’s facilities for the entire Millennium Pipeline Project including the facilities addressed in Part I of this SDEIS. Figure 1.1-1 shows the proposed Millennium pipeline system in New York.

TABLE 1.1-1
List of Millennium Pipeline Project Precedent Agreements

Customer	Firm Contract Quantity (dth per day)	Term of Service (years)
CoEnergy Trading Company	65,000	20
Engage Energy (U.S.) L.P.	235,100	10
International Business Machines Corp.	1,000	10
North East Heat & Light Company	7,500	15
Quantum Energy Services	4,000	10
PanCanadian Energy Services, Inc.	25,000	10
Stand Energy Corporation	9,000	20
TransCanada Gas Services, A Division of TransCanada Energy Ltd.	235,100	10
TOTAL	581,700 ^{a/}	

^{a/} This total plus the existing contract requirements of about 14,000 dth per day represents about 85 percent of the proposed pipeline capacity.

Millennium states that the proposed pipeline system would

be the most economic and efficient means to transport U.S. and Canadian gas to growth markets in the eastern U.S., including Pennsylvania, New York, and New Jersey;

provide a greater diversity of supply for existing customers and a new source of supply for unserved markets; and

^{2/} On October 26, 2000, Millennium filed a request to change its in-service date to November 2002

TABLE 1.1-2

Millennium Mainline Project Facilities

Facility	Pipeline Diameter	Approximate Milepost	County	State	
Mainline <u>a/</u>	36-inch	0.0 - 32.9	NA <u>b/</u>	NY, PA	
		32.9 - 72.4	Chautauqua	NY	
		72.4 - 117.2	Cattaraugus	NY	
		117.2 - 148.0	Allegany	NY	
		148.0 - 191.4	Steuben	NY	
		191.4 - 216.3	Chemung	NY	
		216.3 - 238.2	Tioga	NY	
		238.2 - 275.4	Broome	NY	
		275.4 - 298.0	Delaware	NY	
		298.0 - 333.0	Sullivan	NY	
		333.0 - 372.2	Orange	NY	
		24-inch	372.2 - 389.2 <u>c/ d/</u> 389.2 - 421.8 <u>d/</u>	Rockland Westchester	NY NY
		Sub-Total - Mainline Construction 416.7 miles <u>e/</u>			
Metering and Regulation Stations					
Wagoner Metering and Regulation Station <u>f/</u>		Pike	PA		
Union Center Regulator Station		243.5	Broome	NY	
Ramapo Metering and Regulation Station 376.4		Rockland	NY		
Mount Vernon Metering and Regulation Station		420.6	Westchester	NY	
Mainline/Block Valves and Pig Launchers/Receivers					
Mainline Valve, Lake Erie Landfall	36-inch	32.9	Chautauqua	NY	
Block Valve and Receiver/Launcher Mayville Compressor Station	--	44.4	Chautauqua	NY	
Mainline Valve, Access Road	--	59.1	Chautauqua	NY	
Mainline Valve, State Route 241	--	74.0	Cattaraugus	NY	
Mainline Valve, Little Valley Compressor Station	--	88.1	Cattaraugus	NY	
Mainline Valve, Bear Hollow Road	--	96.9 <u>g/</u>	Cattaraugus	NY	
Mainline Valve, Hinsdale Road <u>h/</u>	--	110.6	Cattaraugus	NY	
Mainline Valve, Zimmer Road	--	129.0	Allegany	NY	
Mainline Valve, Rauber Road <u>h/</u>	--	138.7	Allegany	NY	
Mainline Valve, County Route 31	--	158.4	Steuben	NY	
Mainline Valve, County Route 4	--	178.2	Steuben	NY	
Block Valve and Receiver/Launcher, Corning Compressor Station	36-inch	190.8	Steuben	NY	
Mainline Valve, Johnson Road <u>h/</u>	--	200.3	Chemung	NY	
Mainline Valve, Hagadorn Hill Road	--	221.4	Tioga	NY	
Mainline Valve, McLean Road	--	231.1	Tioga	NY	
Mainline Valve, Cummings Road <u>h/</u>	--	243.5	Broome	NY	
Mainline Valve, County Route 68	--	252.8	Broome	NY	
Mainline Valve, Thompson Road	--	260.1	Broome	NY	
Mainline Valve, Pazelli Road	--	269.3	Broome	NY	
Mainline Valve, Roods Creek Road	--	280.8	Delaware	NY	
Mainline Valve, Silas Thompkins Road	--	295.5	Delaware	NY	
Mainline Valve, County Route 114	--	310.4	Sullivan	NY	
Mainline Valve, Plank Road	--	330.3 <u>g/</u>	Sullivan	NY	

TABLE 1.1-2 (cont'd)

Facility	Pipeline Diameter	Approximate Milepost	County	State
Mainline/Block Valves and Pig Launchers/Receivers (cont'd)				
Mainline Valve, Line K Junction	--	337.9	Orange	NY
Mainline Valve, Huguenot Station	--	340.5	Orange	NY
Mainline Valve, Middletown Station	--	347.7	Orange	NY
Mainline Valve, Warwick Station	--	359.3	Orange	NY
Mainline Valve, Greenwood Lake Station	364.2	Orange	NY	
Mainline Valve, Tuxedo Station	--	367.9	Orange	NY
Mainline Valve, Sloatsburg Station	--	373.3	Rockland	NY
Block Valve and Receiver/Launcher, Ramapo Station	36-/24-inch	376.4	Rockland	NY
Mainline Valve, Buena Vista Station	24-inch	383.3	Rockland	NY
Mainline Valve, Hudson River	--	387.7	Rockland	NY
Mainline Valve, Hudson River	--	390.4	Westchester	NY
Mainline Valve, State Route 9A	--	396.8	Westchester	NY
Mainline Valve, Pleasantville Road	--	401.7	Westchester	NY
Mainline Valve, Old Saw Mill River Road	--	406.7	Westchester	NY
Mainline Valve	--	408.6	Westchester	NY
Mainline Valve	--	416.2	Westchester	NY
Block Valve and Receiver	--	420.6	Westchester	NY
Remote Cathodic Protection Rectifier Beds ^{i/}				
Conventional ground bed		34.9	Chautauqua	NY
Conventional ground bed		56.3	Chautauqua	NY
Conventional ground bed		74.7	Cattaraugus	NY
Conventional ground bed		95.7	Cattaraugus	NY
Conventional ground bed		115.3	Cattaraugus	NY
Conventional ground bed		135.9	Allegany	NY
Conventional ground bed		156.5	Steuben	NY
Conventional ground bed		176.3	Steuben	NY
Conventional ground bed		195.4	Chemung	NY
Conventional ground bed		215.1	Chemung	NY
Conventional ground bed		235.2	Tioga	NY
Conventional ground bed		254.8	Broome	NY
Conventional ground bed		276.3	Delaware	NY
Conventional ground bed		296.2	Delaware	NY
Conventional ground bed		315.9	Sullivan	NY
Conventional ground bed		336.6	Orange	NY
Conventional ground bed		359.4	Orange	NY
Conventional ground bed		369.6	Orange	NY
Deep well ground bed		390.4	Westchester	NY
Deep well ground bed		408.2	Westchester	NY
Deep well ground bed		408.6	Westchester	NY

a/ Generally, Millennium would install the new pipeline adjacent to Columbia's Line A-5 between MPs 154.3 and 285.6, and would remove and replace Columbia's Line A-5 between MPs 285.6 and 376.4.

b/ This is the 32.9-mile-long Lake Erie crossing. Landfall is in New York.

c/ Millennium would acquire 6.7 miles of Columbia's 24-inch-diameter pipeline (Line 10338) in Rockland County, between MP 376.4 and MP 383.3, as part of its mainline system. No construction would be required on this segment.

d/ Includes the 2.1-mile-long Hudson River crossing.

TABLE 1.1-2 (cont'd)

- e/ Although the mainline system would be about 423.4 miles long, actual pipeline construction is 416.7 miles, comprising 32.9 miles offshore in Lake Erie and 383.8 miles on land in New York. Mileposts cannot be used to calculate length. Actual crossing lengths have been determined from survey station numbers.
- f/ The Wagoner Station would be constructed adjacent to Columbia's Milford Compressor Station on Columbia's Line 1278 that would be conveyed by Columbia to Millennium.
- g/ Valve relocated out of floodplain from MP 95.9 to 96.9 and from MP 330.0 to 330.3.
- h/ Remote blowdown valves would be constructed outside of the permanent right-of-way in areas where mainline valves are required by the U.S. Department of Transportation regulations and the pipeline would be adjacent to a powerline. Each would require a 250- to 300-foot-long right-of-way adjacent to the existing right-of-way that allows for a 100-foot offset between the pipeline and the closest conductor.
- i/ Remote cathodic protection rectifier beds would be required where the existing beds are not sufficient for the new pipeline.

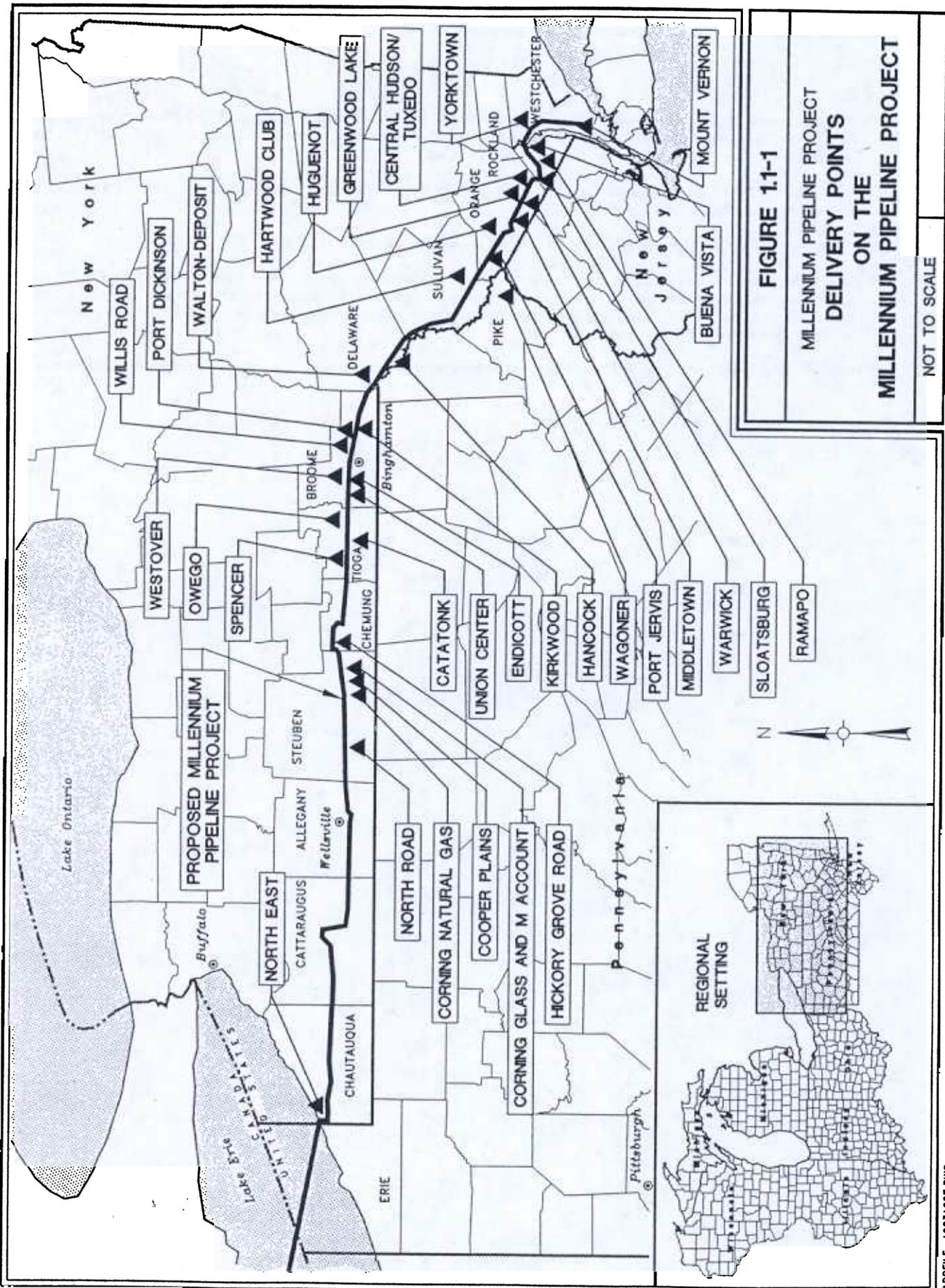


FIGURE 1.1-1

MILLENNIUM PIPELINE PROJECT
**DELIVERY POINTS
 ON THE
 MILLENNIUM PIPELINE PROJECT**

NOT TO SCALE

expand competition for emerging markets, including providing some local distribution companies with an alternative source of supply.

The Canadian facilities would be constructed by St. Clair Pipelines Ltd. (St. Clair) and TransCanada Pipelines Ltd. (TransCanada) and would have an initial capacity of 700 million cubic feet per day (MMcf/d). St. Clair would construct and operate about 46.0 miles of 36-inch-diameter pipeline extending from the Dawn Compressor Station to Patrick Point and the interconnection with TransCanada (the Millennium West Pipeline). TransCanada would construct the 93.3-mile-long Lake Erie crossing that would extend from the landfall at Patrick Point, Ontario, to landfall near Ripley, New York (the Lake Erie Crossing Pipeline). In Lake Erie, about 60.4 miles of the new 36-inch-diameter pipeline would be in Canadian waters and 32.9 miles would be in Pennsylvania and New York state waters of the U.S. The St. Clair and TransCanada projects are collectively referred to as the Canadian Millennium Pipeline Project.

Ultimately the Commission will determine the need for this project in the U.S. and whether it should issue Millennium a certificate of public convenience and necessity under section 7 of the NGA. The Commission will take into account all aspects of the proposal including the customers, cost, financing, rates, engineering, economic risk, and environmental impact when weighing these factors to make that decision.

A number of comments received on the DEIS questioned the need for the proposed project and/or that the need has not been clearly demonstrated. The FERC staff has repeatedly stated at the public scoping meetings and the public meetings on the DEIS that the issue of need would be addressed primarily by the Commission in its deliberations and not in detail in the final environmental impact statement (FEIS). We repeat this information for all the readers of this SDEIS.

An environmental impact statement (EIS) must briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives, including the proposed action (Title 40, Code of Federal Regulations [CFR] Part 1502.13). However, the issue of need for the project in the larger sense raised by the commenters is principally one of regulatory policy. Therefore, our position is that, as such, the need issue is most appropriately addressed pursuant to the requirements of the NGA rather than through the EIS. The instant EIS examines the issue of need as required by the National Environmental Policy Act (NEPA) and the Council on Environmental Quality's (CEQ) regulations, and identifies where that issue is addressed. All letters and comments received on the need issue have been forwarded to the appropriate FERC staff and placed in the Commission's official public file. Proceedings under the NGA are also open to public participation. To review the need issue at length in the EIS would be duplicative and against the intent of the CEQ's regulations.

1.2 PURPOSE AND SCOPE OF THIS STATEMENT

The FERC is the Federal agency responsible for evaluating applications filed for authority to construct and operate interstate natural gas facilities. Certificates are issued under section 7(c) of the NGA and Part 157 of the Commission's regulations if the FERC determines that the project is required by the public convenience and necessity.

The FERC is the lead agency for this EIS. The U.S. Army Corps of Engineers (COE) is a cooperating Federal agency and the New York State Department of Agriculture and Markets (NYSDA&M) is also a cooperating agency for the project. A cooperating Federal agency has jurisdiction by law or special expertise with respect to any environmental impact involved with the proposal. By agreement with the Commission, a state or local agency of similar qualifications may become a cooperating agency.

Our principal purposes in preparing this SDEIS are to:

identify and assess the potential impact on the natural and human environment that would result from the implementation of the proposed project;

assess reasonable alternatives to the proposed action that would avoid or minimize adverse impact on the environment;

identify and recommend specific mitigation measures to minimize environmental impact; and

encourage and facilitate public involvement in identifying significant environmental impact.

1.3 PUBLIC REVIEW AND COMMENT

On August 9, 2000, the FERC issued a Notice of Intent to Prepare a Supplement to the Draft Environmental Impact Statement for the Proposed Millennium Pipeline Project, As Amended; Request for Comments on Environmental Issues; and Notice of Public Scoping Meeting and Site Visit (SNOI). The SNOI was sent to about 2,014 individuals and organizations, including Federal, state, county, and local agencies; state and local conservation organizations; elected officials (U.S. representatives and senators, state governors and other local and state representatives); local newspapers and libraries; potential right-of-way grantors; and other individuals. The SNOI was also published in the Federal Register. The SNOI requested written comments on the scope of the analysis for the SDEIS and also outlined how to become an intervenor in the proceeding.^{3/} A form was provided as part of the SNOI for interested parties to request a copy of the SDEIS.

A public scoping meeting to provide the general public with an opportunity to learn more about the 9/9A Proposal and to comment on environmental issues to be addressed in the SDEIS was held in Croton-On-Hudson, New York on September 14, 2000. Earlier meetings in Westchester County included a public scoping meeting on March 24, 1998, and the DEIS comment meeting on May 18, 1999. Both of these meetings were held in Yonkers, New York.

A transcript of each meeting, as well as all written comments received, are part of the public record for the Millennium Pipeline Project. We received statements from a total of 59 individuals at the Croton-on-Hudson scoping meeting and additional written comments (including 362 form letters and 4 requests to intervene) from a total of 473 individuals, primarily representing residents along or in the vicinity of the 9/9A Proposal. We also received a petition signed by over 5,400 people in opposition to the 9/9A Proposal.

The most frequently mentioned comments on the 9/9A Proposal were:

traffic impacts, and the associated increase in air and noise pollution from pipeline construction and traffic delays on U.S. Routes and State Route 9A;

third-party damage from digging or other utility work within U.S. Route 9 and State Route 9A that could cause a pipeline rupture, affecting the safety of nearby residents;

^{3/} An intervenor has the right to receive copies of case-related FERC documents and filings by other intervenors and must also provide copies of its filings to all other intervenors. Further, an intervenor has certain legal standing with respect to any hearing held by the Commission and with respect to any court review of Commission decisions.

loss of tree screening that acts as visual and noise barriers for residences that abut U.S. Route 9 and State Route 9A;

loss of property values;

safety concerns associated with an emergency at the Indian Point Nuclear Station since U.S. Route 9 and State Route 9A are designated evacuation routes;

impacts on the bicycle trail, the Van Cortlandt Manor property, and the commuter railroad;

specific concerns about the pipeline placement on certain properties;

concern that the pipeline would be too close to residences and to people;

82 percent of the commenters requested that the pipeline be sited on the ConEd right-of-way between MPs 391.2 and 402.6, thus avoiding construction along U.S. Route 9 and State Route 9A through Croton-on-Hudson, Ossining, and Briarcliff Manor;

continued concern by ConEd that the pipeline would be too close to its facilities; and

continued concern that construction and operation of the pipeline could cause a rupture of the Catskill Aqueduct which would affect water supplies to New York City.

Table 1.3-1 lists issues by resource category that were identified in the comment letters and during public scoping in response to the SNOI for this SDEIS. Since the public meeting comments mostly duplicated the written comments, we have not included a separate tabulation of the identified issues.

This SDEIS has been filed with the U.S. Environmental Protection Agency (EPA), which will issue formal notice that the SDEIS is available, and it has been mailed to the individuals on the SDEIS mailing list (see appendix A). In accordance with CEQ regulations implementing the NEPA, the public will have 45 days to comment on the SDEIS. We will review and use the comments to prepare the FEIS for the Millennium Pipeline Project. All timely comment letters received on the SDEIS will be responded to in the FEIS as appropriate.

1.4 SCOPE OF NONJURISDICTIONAL FACILITY ANALYSIS

Under section 7 of the NGA, the FERC is required to consider, as part of a decision to certificate jurisdictional facilities, all factors bearing on the public convenience and necessity. The jurisdictional facilities for the Millennium Pipeline Project are summarized at the beginning of this section and described in detail in section 2.1. Millennium has identified no nonjurisdictional facilities associated with the Millennium Pipeline Project in Westchester County, New York, with the exception of the measuring and regulation facility at Mount Vernon at the interconnection with ConEd. However, the only known construction activity at this location would be associated with the Mount Vernon Station which was analyzed in the DEIS (April 1999) as part of the jurisdictional facilities. However, Millennium states that laterals and measuring facilities would be constructed in Yorktown to serve the International Business Machines Corporation (IBM) facility. These laterals would be subject to the Commission's jurisdiction. Although Millennium has not yet filed an application for these facilities with the Commission, we have included a description of them in section 2.6 of the SDEIS.

ConEd indicated in a July 27, 2000 filing that it would need to construct pipeline facilities on its system to accommodate deliveries from Millennium at Mount Vernon, New York. We made a concerted effort to obtain data from ConEd and to evaluate the engineering requirements of the extent and location of the ConEd downstream facilities. Due to confidentiality concerns over some of this data, we were not able to obtain it.

St. Clair and TransCanada propose to construct about 106.4 miles of pipeline in Canada that would extend from the Dawn Compressor Station to the interconnection with Millennium at the Canada/U.S. border in Lake Erie. These Canadian facilities are beyond the Commission's jurisdiction and are under the jurisdiction of the Canadian National Energy Board (NEB), Canada's equivalent of the FERC. As the responsible authority under the Canadian Environmental Assessment Act, the NEB and the Canadian Environmental Assessment Agency would jointly conduct an environmental review of the St. Clair and TransCanada facilities that is similar in scope and detail to that presented in our EIS. Therefore, any analysis of the St. Clair or TransCanada facilities in the FERC document would be duplicative and is not, therefore, a part of this document. The sole authority for the analysis and approval of the facilities in Canada is the NEB.

TABLE 1.3-1

Issues Identified and Comments Received During the Public Scoping Process

Issue	Specific Comments	Number of Comments
ALTERNATIVES	Use existing ConEd right-of-way (367 comments). Find alternative routes or locations that are less dangerous. Do not cross Lockheed property. Place the pipeline in less populated areas. Use the original route, the Taconic Parkway, another ConEd interconnection, or follow an aqueduct or railroad. Do not use ConEd right-of-way.	388
CONTAMINATION	Contamination of water due to possible sewerline break. Contamination of air by fumes or leaks. Contamination of soil and natural environment. Disposal of contaminated sediments.	279
CULTURAL	Impact on the Van Cortlandt Manor and Old Croton Aqueduct.	7
CUMULATIVE IMPACT	Include an adequate analysis of cumulative impacts.	23
LAND USE	Future plans, approved developments, and present use. Questions about easements, pipeline abandonment, and establishing trails. Proposed route is close to residential areas, residences, and buildings. Sprain Ridge Park, North and South County Trails, and a ski area. Coastal zone, Croton's Local Waterfront Revitalization Program (LWRP). Use of Haverstraw Bay.	415
SAFETY	Hazards from construction under railroad, stray DC currents. Reliability of electric supplies. Design of pipe, concrete coating. Evacuation plans/routes for residents and Indian Point. Close to residences, people, and businesses. Risk assessment is needed. Inadequate safety procedures. Safety of two pipelines on property, third party damage, aging materials, aerial crossings, and sewer and gas line crossings. Must compare risk of failure and effect on community. If pipeline is not safe along ConEd right-of-way then it is not safe along Route 9. Danger if a traffic accident occurs.	419
SOCIOECONOMICS	Compensation, property value, and economic impact. Traffic hazards and congestion, commuter rail service, and garbage hauling. Only truck route, viable transportation route, and essential commuting route in area. Need traffic study. Need evaluation of effect on property values near pipeline. Disruption to quality of life, unsafe feeling in home. Fear that an accident would affect ability to evacuate. Indian Point evacuation route. Bike trail. Visual impact.	417
SOILS/GEOLOGY	Erosion of fill material along construction right-of-way. Damage to soils/geology. Ramapo Fault earthquake activity.	254
WATER	Flooding of streams and springs under Routes 9 and 9A. Silt and sedimentation into river from eroded construction right-of-way materials. Impacts to the Hudson River, the Croton River coastal zone, and the 11 crossings of the Saw Mill River and its tributaries. Impacts to the Catskill, Delaware, and New Croton Aqueducts. Floodplains and drainage changes. Possible water contamination at sewer crossings. Need more details regarding horizontal directional drilling and contingency plans at the Croton River.	275
WETLANDS	Must evaluate cover types, values, and benefits of wetlands. Disruption of drainage. Springs under Routes 9 and 9A. Possible contamination of wetlands at sewer crossings. High water table. Silting of wetlands.	259
WILDLIFE/VEGETATION AND THREATENED & ENDANGERED SPECIES	Visual, noise, air, and safety impacts due to loss of tree screen/buffer. Damage to tree and plant life, ecology, lawns, upland habitat, and general vegetation. Impacts to wildlife including the New York State Listed Kentucky Warbler.	283

TABLE 1.3-1 (cont'd)

Issue	Specific Comments	Number of Comments
OTHER	Demand for gas. Need for gas in New York City area. NEB process. Resolutions of U.S. Environmental Protection Agency 's (EPA's) objections should be in the SDEIS. Compensation for impact to ski season. Reroute is inconsistent with other PSCNY practice. ConEd constructs its pipelines on its right-of-way. Project may not be needed if alternate renewable fuels are used. Project support including: the need for competitive gas supply and infrastructure the project would provide.	18
TOTAL COMMENTS		3037

2.0 PROPOSED ACTION

2.1 PROPOSED FACILITIES

In Docket No. CP98-150-001 filed on July 28, 2000, Millennium proposes to realign approximately 22.7 miles of its previously filed route between MPs 391.2 and 416.6 in Westchester County, New York. The new proposed route is identified as the 9/9A Proposal and includes 2.7 miles of the original proposed route between MPs 404.1 and 406.8. Figure 2.1-1 shows the general location of the pipeline in Westchester County; detailed maps showing the entire route in Westchester County are in appendix B. The 9/9A Proposal would cross the municipalities of Cortlandt, Croton-on-Hudson, Ossining, Briarcliff Manor, Mount Pleasant, Greenburgh, Elmsford, Ardsley, and Dobbs Ferry. The municipalities primarily affected by the 9/9A Proposal include Croton-on-Hudson, Ossining, and Briarcliff Manor.

Approximately 88 percent of the 9/9A Proposal would parallel, or be adjacent to or within, existing utility or transportation corridors (see table C1 in appendix C). Table 2.1-1 summarizes the locations where the 9/9A Proposal would be located within U.S. Route 9, State Route 9A, State Routes 9A/100, or bicycle paths (e.g., Briarcliff-Peekskill, North County, or South County Trailways). It also identifies where the pipeline would cross or be parallel to the ConEd powerline right-of-way.

Approximate Mileposts	Road/Trailway Corridor	Adjacent or Within	Total Length (miles)
391.8 - 392.6	U.S. Route 9 (northbound lane) <u>a/</u>	within	0.8
392.9 - 394.2	U.S. Route 9 (northbound lane) <u>a/</u>	within	1.3
397.0 - 401.3	State Route 9A (northbound lane) <u>a/</u>	within	4.3
401.3 - 404.0	State Routes 9A/100 (southbound lane) <u>b/</u>	within	2.4
404.0 - 406.8	Briarcliff-Peekskill Trailway <u>c/</u>	within	2.8
409.1 - 413.5	South County Trailway <u>c/</u>	within	4.4

a/ The pipeline would be installed along the edge of the roadway and one lane would be used for the construction work area.
b/ Between MPs 401.6 and 403.4, the pipeline would be installed within the North County and Briarcliff-Peekskill Trailways. One southbound lane of State Routes 9A/100 would be used for the construction work area.
c/ The pipeline would be installed beneath and within the bicycle trails.

Note: The 9/9A Proposal would parallel the ConEd powerline right-of-way between MPs 402.7 and 405.4 for 2.7 miles and would cross the ConEd powerline right-of-way five times at MPs 402.7, 405.5, 406.9, 409.7, and 416.6.

Millennium would also install mainline valves (MLV) at MPs 396.8, MP 401.7, MP 406.7, MP 408.6, and MP 416.2. All valves would be located entirely within Millennium's right-of-way and would be buried

2.2 AND REQUIREMENTS

Millennium would install the pipeline within a construction right-of-way that would not exceed a nominal width of 35 feet. About 136.2 acres of land would be disturbed within the construction work area (or the footprint of all disturbance during construction). Slightly more land (138.0 acres) would be retained for the permanent easement and operation of the pipeline. Figures 8525-CAD-5500 through 5505 in

appendix C show typical right-of-way configurations for the construction right-of-way within the highways, roads, and Trailways, and would typically be about 35 feet in width. Millennium would minimize clearing along the road edge to the greatest extent practicable to avoid removal of trees that provide screening between residences and the highway (see section 5.7.5).

In addition to the construction right-of-way, temporary extra work space outside the construction right-of-way would be required on both sides of roads, railroads, rivers, wider stream and wetland crossings, and in areas of side slope, and for crossovers of existing pipelines. These typically would range from 25 to 215 feet in width to 35 to 900 feet in length, and generally would be on the working side of the construction right-of-way. Appendix D identifies these extra work areas by milepost, size, and existing land use.

Disturbance would also occur in areas beyond the construction right-of-way for access roads and pipe storage/contractor yards. Although access to the construction right-of-way would generally be from existing roads and along the construction right-of-way, Millennium states that three existing semi-private roads and two existing roads would be extended to the construction right-of-way, and that two new access roads would be constructed. As part of its original application, Millennium identified one potential pipe storage/contractor yard in Westchester County: 0.5 acre in an industrial site in Greenburgh (approximate MP 407.0). Additional pipe storage/contractor yards may be needed.

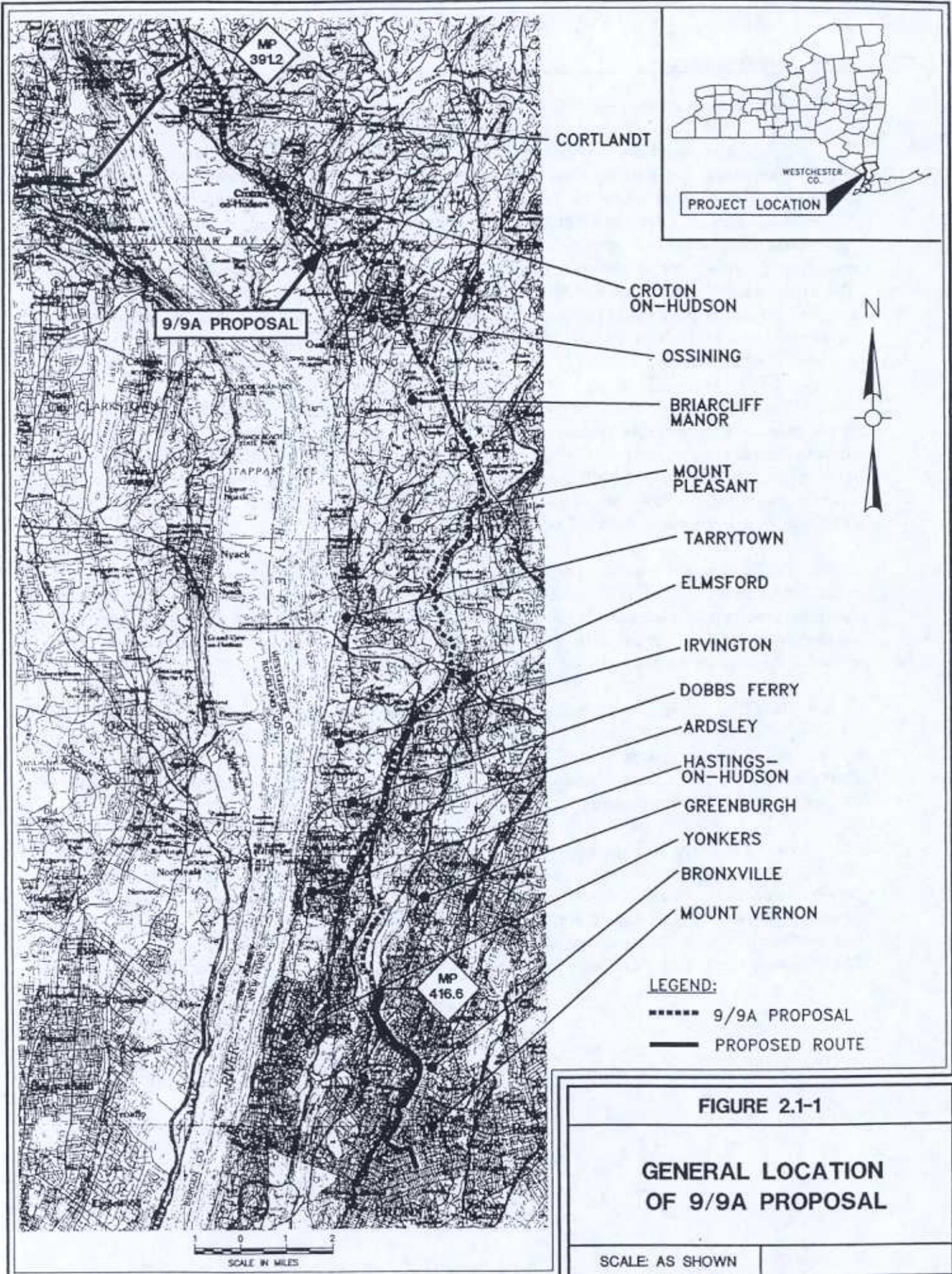
2.3 CONSTRUCTION PROCEDURES

The pipeline and aboveground facilities would be designed, constructed, operated, and maintained in accordance with:

U.S. Department of Transportation (USDOT) regulations in Title 49, CFR 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards"; and

Title 18, CFR 380.15, "Siting and Maintenance Requirements."

In addition, Millennium would implement the construction and restoration procedures identified in its Environmental Construction Standards (ECS) (July 1999) (see appendix E), which incorporates the FERC Staff's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) and Wetland and Waterbody Construction and Mitigation Procedures (Procedures) (see FERC website at www.ferc.fed.us). Millennium proposes to construct the pipeline in Westchester County (including the 9/9A Proposal) using one construction spread. However, this spread would likely be divided into smaller crews that would install the pipeline simultaneously in different locations over a period of 6 to 8 months between April and November 1, 2002.



Environmental Inspection

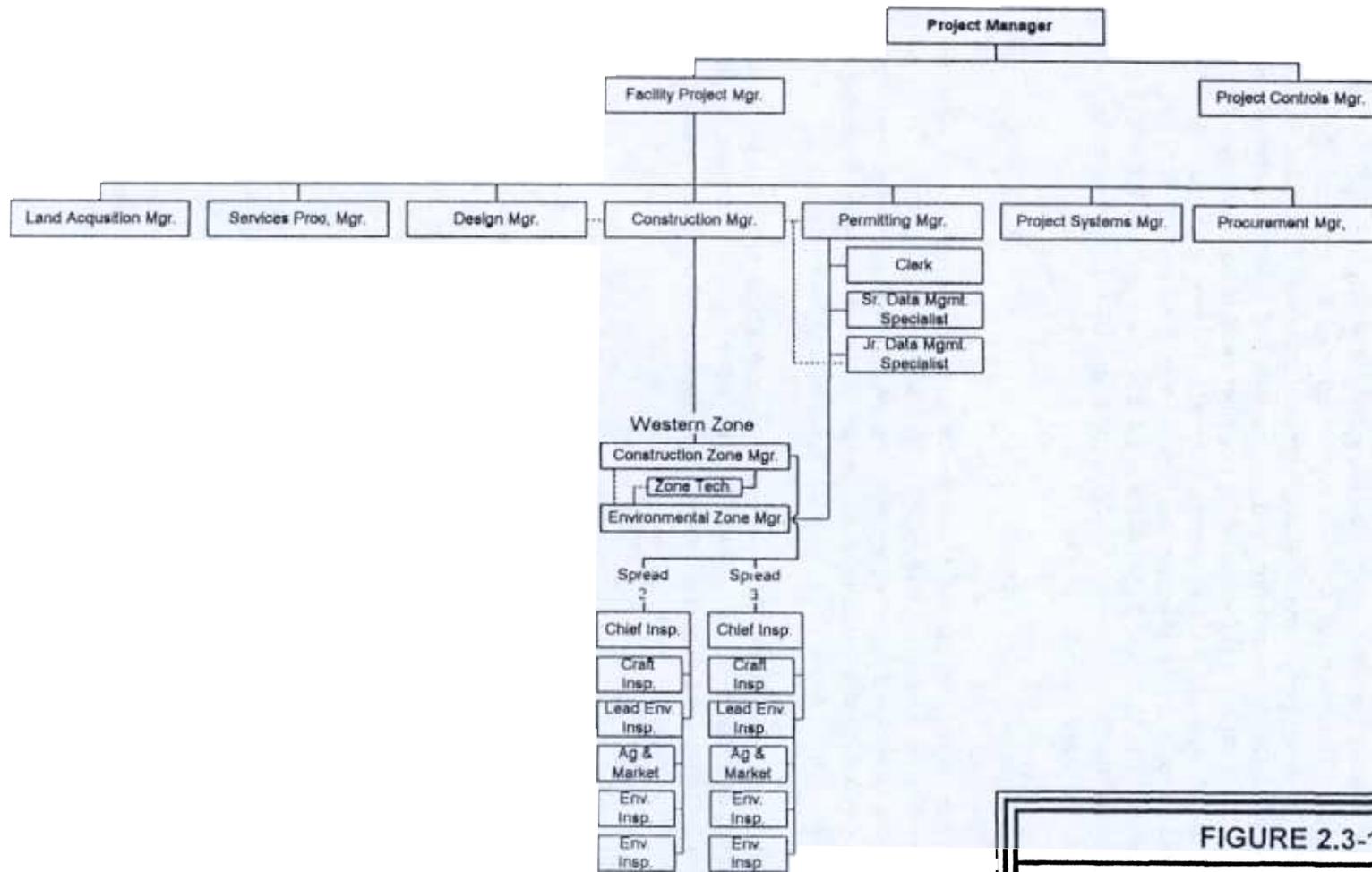
To monitor compliance with environmental requirements, Millennium would assign one full-time lead environmental specialist to each spread to support its environmental inspectors. One or more environmental inspectors would be assigned to the Westchester County spread (see section VII of Millennium's ECS for a description of the duties of these inspectors). Millennium would also require that each construction contractor provide at least one environmental compliance specialist to monitor the contractor's maintenance of erosion control devices and construction in environmentally sensitive areas. The organizational flow chart for Millennium's environmental team is shown on figure 2.3-1. All environmental inspectors would be responsible for monitoring construction activities for compliance with the conditions of the FERC certificate, the ECS, and all other applicable Federal, state, and local permits, and landowner agreements.

The FERC would also assign inspectors to monitor construction and restoration of the project. For larger projects with multiple spreads, the FERC typically assigns a team of two inspectors during construction (and one inspector during restoration) to each of the longer spreads, or to two or three spreads if the spreads are shorter in length. The inspection frequency on each spread varies, but can be as often as every week during the early phases of construction, to once or twice a month during later phases of construction, to every month or 6 to 8 weeks during restoration.

The frequency of inspections depends on the problems observed during previous inspections and the sensitivity of the resource being affected. For example, inspection frequency may increase on spreads where numerous problems have been identified, when sensitive waterbodies or wetlands are being crossed, or when landowners or regulatory agencies have identified concerns with construction or restoration. The duration of each inspection varies from 2 to 3 days to 1 week.

The FERC has also implemented a more reactive and comprehensive environmental inspection program, in which third-party environmental inspectors (reporting directly to the FERC project manager) are assigned full-time (6 days a week, 10 hours a day) to specific spreads. If used, the inspectors have limited authority to make field decisions about modifications to construction procedures that are defined in the terms of the third-party contract.

The FERC inspectors are responsible for inspecting the project to ensure that it is being constructed in compliance with the environmental conditions of the FERC certificate. They are not responsible for any permit requirements issued by other agencies. The New York State Department of Environmental Conservation (NYSDEC) in its section 401 Water Quality Certificate (issued December 8, 1999) has required that one third-party inspector, who reports directly to the NYSDEC, be assigned to each construction spread. The COE may also require third-party inspector(s) as part of its pending permit for the project.



EXAMPLE SHOWING THE WESTERN ZONE

FIGURE 2.3-1

MILLENNIUM PIPELINE PROJECT
ENVIRONMENTAL INSPECTION
ORGANIZATIONAL CHART

2.3.1 General Overland Pipeline Construction Procedures

Typical pipeline construction proceeds as a moving assembly line as shown in figure 2.3.1-1 and as summarized below. Described below are the typical activities that are required for the installation of a natural gas pipeline in an open environment and the typical sequence of activities. Additional descriptions of each phase of construction, and proposed construction and restoration procedures, are included in Millennium's ECS in appendix E. Section 2.3.2 describes construction techniques that are typically used to cross waterbodies, wetlands, residential areas, and roads. The only segments of the 9/9A Proposal where typical pipeline construction would be used are between MPs 391.2 and 391.8, 392.7 and 392.9, 396.4 and 396.6, 406.8 and 407.1, 407.4 and 407.8, 408.6 and 408.8, 414.6 and 414.7, and 416.5 and 416.6. Most construction along the 9/9A Proposal would involve specialized techniques because of its unique characteristics. These are described Section 2.3.3.

Right-of-Way Survey

Before the start of construction, Millennium would finalize land surveys, locate the centerline and construction work space boundaries, and complete land or easement acquisition. If the necessary land or easements cannot be obtained through good faith negotiations with landowners and the project has been certificated by the Commission, Millennium may use the right of eminent domain granted to it under section 7(h) of the NGA and the Rules of Civil Procedure to obtain a right-of-way.

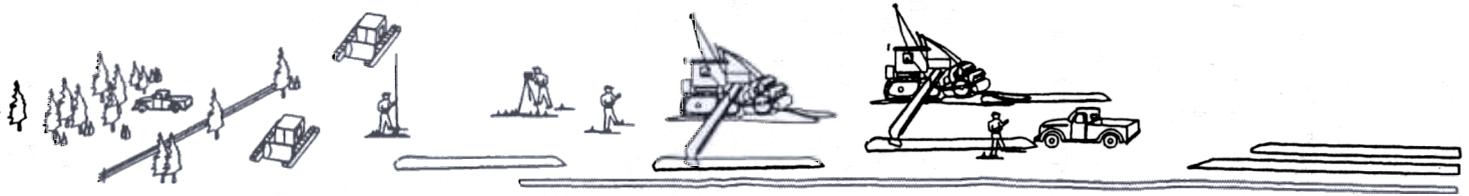
The construction work area (e.g., nominal construction right-of-way and extra work areas) would first be surveyed and staked. Existing utility lines and other sensitive resources, identified in easement agreements or by Federal and state agencies, would be located and marked to prevent accidental damage during pipeline construction.

Clearing and Grading

The construction work area would be cleared and graded to provide a relatively level surface for trench excavating equipment and a sufficiently wide work space for the passage of heavy construction equipment. Vegetation would be removed by mechanical cutting or by hand. In upland areas, brush would be disposed of by piling it adjacent to the construction work area, or it may be burned, or chipped and then given away, buried, or thinly spread across the right-of-way (less than 2 inches thick). Temporary erosion controls would be installed immediately after initial disturbance of the soils and would be maintained throughout construction.

Logs and other usable wood products would remain the property of the landowner and would not be used unless permission is granted in the easement agreement. Usable timber (over 10 inches in diameter) would be cut into even lengths and removed, unless there is room to stockpile them adjacent to the construction work area. Tree stumps and large rocks, which have been excavated or blasted from the trench, would be disposed of as agreed with the landowner and may be buried within the construction work area, windrowed adjacent to the construction work area, or removed to an approved landfill. No brush, timber, stumps, or large rocks would be stockpiled or buried within 50 feet of streams, or in wetlands, agricultural, or residential areas.

**MILLENNIUM
PIPELINE
PROJECT**



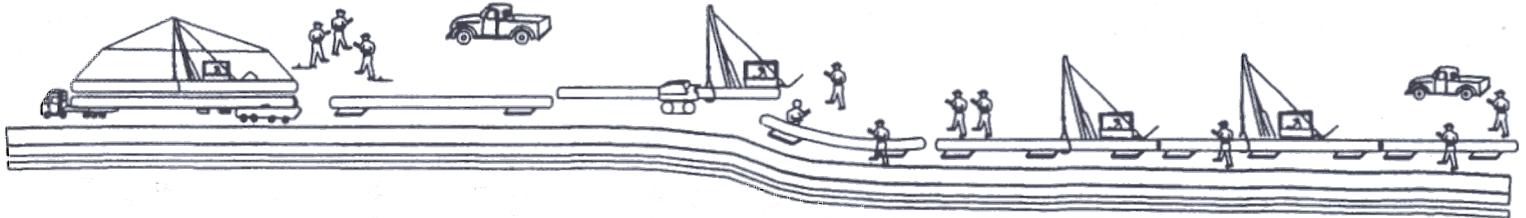
ROUTE SELECTION,
SURVEY, AND ROW
ACQUISITION

RESTAKE,
CLEARING AND
GRADING
(3500 FT. / DAY AVG.)

CENTERLINE
SURVEY
OF TRENCH

TOPSOIL SEGREGATION
(AS APPROPRIATE)
AND TRENCHING
(ROCK FREE)
(3500 FT. / DAY AVG.)

TRENCHING (ROCK)
(3800 FT. / DAY AVG.)

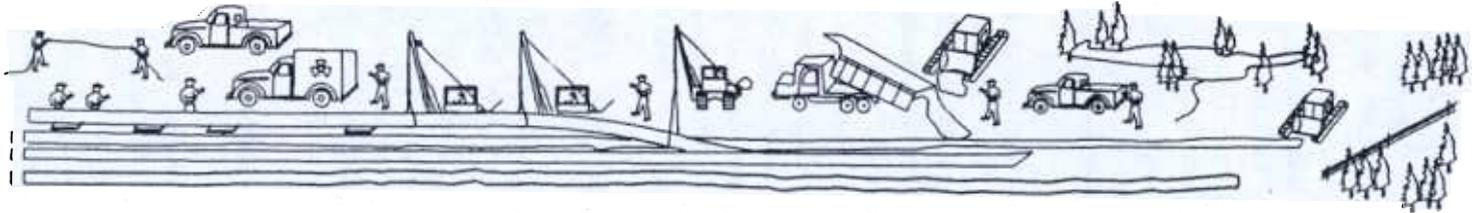


STRINGING

BENDING

LINE UP, STRINGER BEAD, AND HOT PASS
(3600 FT. / DAY AVG.)

FILL AND CAP WELD
(3500 FT. / DAY AVG.)



AS-BUILT
FOOTAGE

X-RAY AND
WELD REPAIR

COATING FIELD
AND FACTORY
WELDS

INSPECTION
(JEEPING)
AND REPAIR
OF COATING

LOWERING IN
AND TIE-INS
(3500 FT. / DAY AVG.)

PAD AND BACKFILL
(3200 FT. / DAY AVG.)

TEST AND
FINAL TIE-IN
(1300 FT. / DAY AVG.)

REPLACE TOPSOIL
AND RESTORATION
(3000 FT. / DAY AVG.)

NOT TO SCALE

**TYPICAL UPLAND
PIPELINE
CONSTRUCTION
SEQUENCE**

**FIGURE
2.3.1-1**

Trenching

The trench would be excavated to a depth sufficient to provide the minimum cover required by USDOT specifications. Typically, the trench would be about 6 feet deep, to allow for about 3 feet of cover, about 6 to 8 feet wide in stable soils and rock, and up to 12 feet wide at the top in sandy and saturated soils. Trench breakers or barriers to slow the movement of water along the trench would be installed every 15 feet as soon as the trench is completed. All excavated soil would be temporarily stored on the non-working side of the right-of-way. Generally, the trench would not remain open for more than 30 days, except at hydrostatic test locations. The trench would not be excavated until the pipe is ready for installation and would be backfilled immediately at the crossings of waterbodies, roads that are open cut, residential areas, and trails. Where access across the trench is required, trench plugs or steel plates would be installed to permit safe crossing for vehicles, equipment, or people. Fencing would also be installed at the access points to the crossovers to prevent entry into the trench.

In areas where mechanical equipment cannot break up and loosen the bedrock, blasting would be required. All blasting would be conducted only during daylight hours and in accordance with applicable Federal, state, and local laws, permits, and authorizations. Landowners would be provided 1 week prior notice, with at least 1 day confirming notice, before blasting. With the landowner's approval, pre- and post-blasting inspections would be conducted of all residential or commercial structures or utilities within 150 feet of blasting. Millennium would contact all utility owners and request that an inspector from the utility be present during construction across the utility line. Generally, excavated rock would be used to backfill the trench to the top of the existing bedrock profile, except in agricultural land where specific depths of cover over excavated rock material would apply. Large rock not suitable for use as backfill material would either be windrowed along the edge of the right-of-way with the landowner's voluntary permission, or hauled off the right-of-way and disposed of in an approved disposal area.

Pipe Stringing, Bending, and Welding

After trenching, the pipe would be strung along the right-of-way and individual sections of pipe would be bent where necessary to fit the contours of the trench, aligned, welded together into long strings, and placed on temporary supports along the edge of the trench. All welds would be x-rayed to insure structural integrity and compliance with the requirements established by the American Petroleum Institute Standard 1104. Those welds that do not meet established specifications would be repaired or removed. Once the welds are approved, the welded joints would be coated with a protective coating equal to the rest of the pipeline to protect the pipeline from corrosion.

Lowering In and Backfilling

The trench would be dewatered, cleaned of debris, and padded as necessary before the pipeline is lowered into the trench. Trench barriers and breakers would be installed before backfilling to prevent water movement along the pipeline. The trench would then be backfilled using the excavated materials. If the excavated material is rocky, the pipeline would be padded with select fill from commercial borrow areas or by separating suitable material from the existing trench spoil. No topsoil would be used for pipeline padding. After the trench is backfilled, the pipeline would be cleaned of any dirt, water, or debris by pipeline "pigs" which are propelled through the pipeline.

Hydrostatic Testing

After backfill and cleaning, each segment of the pipeline would be hydrostatically tested according to USDOT specifications with water obtained from nearby surface waters or available municipal supplies. Test water would be pumped into each test section, pressurized to design test pressure, and maintained at that pressure for about 8 hours. Leaks would be repaired, and the pipeline would then be retested until the specifications are met. After testing a segment, the water may be pumped into the next test segment or discharged, either through an energy dissipater and erosion control devices off right-of-way, or back into the source waterbody through an aeration type energy dissipater, or into a transport trailer tank to be disposed of in compliance with Millennium's National Pollutant Discharge Elimination System (NPDES) permit.

Cleanup and Restoration

Within 10 days of backfilling, weather and soil conditions permitting, all work areas would be final graded and restored to preconstruction contours as reasonably as possible. Surplus construction material and debris would be removed and disposed of at appropriate sites. Restoration would begin within 6 days of final grading, weather and soil conditions permitting, and the construction work areas would be fertilized and seeded. Private property such as fences, gates, and driveways would be restored to a condition equal to or better than preconstruction condition and pipeline markers and warning signs would be installed at roads as required. In areas of new right-of-way, off-road vehicle control (trees, slash and timber barriers, gates and fencing) would be installed as agreed with each landowner or land manager.

Post Construction Monitoring

Millennium would monitor all areas disturbed by construction until the right-of-way surface conditions are similar to the adjacent undisturbed land and all temporary erosion control devices are removed. Upland revegetation would be considered successful when the density and cover of non-nuisance vegetation on the disturbed right-of-way are similar to the density and cover off the right-of-way. Wetlands would be monitored for 3 to 5 years for the reestablishment of wetland vegetation. Revegetation would be considered successful when the cover of native herbaceous and/or woody species is at least 80 percent of the total area and the diversity of native species is at least 50 percent of the diversity originally found in the wetland. Millennium would repair and correct any areas where restoration and revegetation is not successful.

2.3.2 Special Overland Construction Techniques

To minimize construction impact in sensitive areas, Millennium would implement the mitigation measures defined in the ECS, and as further described in section 5 of the SDEIS. Additional site-specific mitigation measures would be included on the construction alignment sheets (CAS). Typical construction techniques in these areas are summarized below.

Waterbodies

Construction across rivers and streams would be accomplished by either trenching across the waterbody (open-cut crossing) or using "dry crossing" construction techniques. An open-cut crossing involves trenching and installing the pipe directly across the stream flow. Proposed dry crossing techniques include directional drilling under wide waterbodies, conventional bore, a dam and pump (pumping the water flow around the trench by installing dams upstream and downstream of the crossing), or a flumed crossing (directing the water flow through flumes and excavating the trench and installing the pipe under the flumes).

A directional drill would involve drilling a pilot hole underneath the waterbody and then enlarging that hole until the hole is large enough to accommodate the pipe. Pipe sections would be staged and welded along the right-of-way and then pulled through the drilled hole. Because the pipe must be pulled down and through this hole, bending naturally to fit the contour of the hole, this technique is not effective for minor streams and is usually only used for wider waterbody crossings, where geologic conditions are acceptable. Millennium proposes to use a directional drill for the Croton River crossing at MP 396.8.

Wetlands

Construction across drier wetlands would be accomplished by conventional pipeline construction techniques. In saturated wetlands, the push-pull method would be used. This involves assembling the pipeline in an upland area, pushing/pulling it along the flooded trench through the wetland, and then lowering it into the trench. Mats or timber riprap would be used to stabilize the travel lane for passage of construction equipment. Wetlands, with standing water or saturated soils, would be constructed separately to minimize the duration of construction disturbance.

Residential Areas

Construction in residential areas (e.g., properties where the construction work area [construction right-of-way and extra work area] would be within 50 feet of a residence) would be accomplished by conventional pipeline, stove-pipe, or drag-section construction techniques. For stove-pipe construction, a short section of trench is dug, a section of pipe is laid and welded into place, and that section of the trench is backfilled immediately. For drag-section construction, a separate work space is required for prefabrication of short pipeline segments consisting of several sections of pipe. Once the trench has been dug, the prefabricated pipeline segments are moved into place, laid in the trench, welded into place, and the trench is backfilled. Both techniques limit the amount of land required for construction and the time the trench is left open in the vicinity of the affected residences.

Roads, Highways, and Railroads

Construction across roads, highways, and railroads would be in accordance with requirements of applicable permits or approvals. Railroads, highways, and most paved roads would be crossed by boring underneath the crossing (bored crossing) and installing the pipe within a casing if required by the permitting authority. A road bore requires excavating pits on both sides of the road at the depth of the pipeline and boring a hole large enough for the diameter of the pipe or casing. The depth of the pits depends on topography and the depth required to cross under the road, but is usually at least 10 feet deep. A boring machine would be lowered into the bore pit and a casing advanced through the soil with an auger that removes soil from within the casing. Spoil would be removed from the bore pit, and excess spoil typically would be hauled off site for disposal. Once the casing is in place, the pipe would be placed through the casing. If additional pipe sections are required, they are usually welded to the first section of pipe in the bore pit before being pushed through the bore hole. When the pipe is in place, the casing would be removed, the pipe welded to the adjacent pipe sections, and the pits would be filled in and restored. There would be little or no disruption of traffic on roads that are bored. Other roads and driveways may be crossed by trenching across the road (open-cut crossing). Any open trenches would be either fenced or covered with steel plates during non-working hours.

Powerlines

The 9/9A Proposal would cross the ConEd right-of-way five times and would parallel this right-of-way for 2.7 miles between MPs 402.7 and 405.4. Safety and design considerations for construction under or near these powerlines are addressed in a memorandum of understanding between the PSCNY and Millennium Memorandum of Understanding (MOU) (see appendix F). This specifies techniques that would be used when installing the pipeline within or adjacent to the ConEd powerline, as well as specifications for maintaining the pipeline.

2.3.3 Special Construction Techniques for the 9/9A Proposal

Where the pipeline would be installed within U.S. Route 9 (MPs 391.8 to 392.6 and MPs 392.9 to 394.2) and State Route 9A (MPs 397.0 and 401.3), Millennium would use a construction work area approximately 35 feet wide. One lane of the roadway and the adjacent shoulder would be used as construction workspace (see figure 2.3.3-1). One northbound and two southbound lanes would remain open during construction. Millennium plans to construct 20 hours a day and would avoid construction during the 4-hour peak weekday evening traffic period (3 to 7 p.m.).

Along State Routes 9A/100 (MPs 401.3 - 404.0), Millennium would install the pipeline within the Briarcliff-Peekskill Trailway, using the adjacent southbound lane of the roadway for construction work space. Millennium plans to construct 20 hours a day along State Routes 9A/100, but it would not construct during the 4-hour peak weekday morning traffic period (6 to 10 a.m.).

Millennium states that it would install the pipeline in compliance with traffic control and maintenance plans that would be prepared in consultation with the New York State Department of Transportation (NYSDOT) to maintain safe and effective traffic control during construction activities. These plans would be approved by the NYSDOT before construction.

Millennium would use stove pipe construction methods to install the pipeline in these segments along roadways. Progress is anticipated to be about 400 feet per day, using two separate work crews. The first crew would set up traffic control and maintenance devices, excavate the trench, and haul off excess spoil. The second crew would string, bend, weld, and tie-in the pipeline segment to that which was previously installed. This crew would then backfill the trench with a low-strength concrete mixture (called flowable fill) and place steel plates over the trench until it cures (about 24 hours). A distance of about 1,500 feet of the road would be affected by the two work crews, but only 400 feet of trench would be open at any one time. All construction would be during off-peak hours.

Construction under the bridges would be accomplished using the same procedures except that the construction work area immediately under the bridge would be restricted to approximately 15 feet in width. Spoil would be conveyed to a dump truck positioned directly in front of the excavation equipment. Other equipment operation and construction activities would occur from either end of the relatively short length under the bridge, thus ensuring that only one lane is temporarily closed in the area of construction.

Millennium proposes to use specialized equipment (e.g., a rocsaw trencher) for construction in selected locations along the 9/9A Proposal (see appendix G for information on the rocsaw trencher). The primary limitation of the equipment would be the need for a relatively level working area across the construction right-of-way to allow for a vertical trench. However, Millennium expects that nearly all of the 9/9A Proposal, including the old railroad right-of-way now used as a bicycle path for the North and South County Trailways, could be excavated with a rocsaw trencher since the terrain is nearly level throughout.

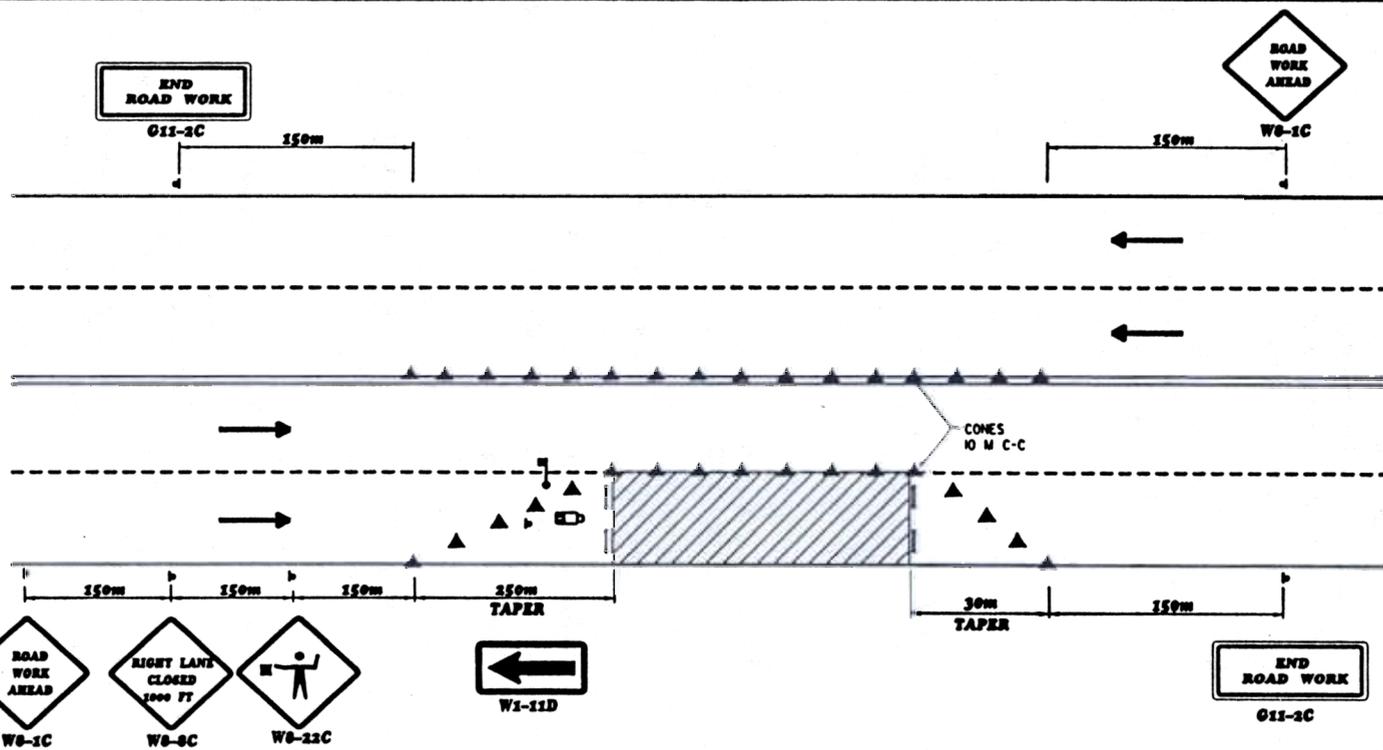
The exception would be on the Trailway between MPs 413.6 and 416.0, particularly the section adjacent to the New York State Thruway (MPs 413.6 to 414.5), where it is too steep for rock trenching equipment and would require alternative excavation methods.

The rocsaw trencher excavates rock using a grinding action created by heavy-duty tooth blocks on a digging chain that is pressed against the rock or other consolidated materials. The cutting speed of the trencher is adjusted depending on the hardness of the rock material and depth of trench being excavated. Since these machines are normally used in consolidated materials, spoil generation is minimized, as the trench walls are nearly vertical. Millennium expects that the trench would be approximately 4 feet wide at the top and bottom and that approximately 30 cubic feet of spoil per linear foot of trench would be generated. Spoil material would be deposited on a conveyor belt that would discharge the material into a pile along the trench or into a receiving dump truck.

Where dump trucks would be used, trench spoil material would be loaded directly into the trucks via the conveyor belt discharge from the rocsaw trencher or directly from excavating equipment where the rocsaw trencher is not employed. A truck would be positioned either to the right or immediately ahead of the rocsaw trencher, and would move slowly along the trencher until it is filled with spoil. The trucks would be emptied at designated fill sites. On the return trip, some trucks would transport the padding material to be used as protective backfill around the pipe. Flowable fill, a low-strength concrete poured from concrete mixer trucks, would be used as backfill for the remainder of the trench. The trucks containing either the padding material or the flowable fill would be positioned on the right of the trench as their material is discharged. If the spoil meets the sieve analysis requirements, it would be mixed on-site with the concrete to become part of the flowable backfill. This would reduce the quantity of spoil needing to be hauled off site (see figure 2.3.3-1).

Between 30 to 40 truck trips per day would be needed to haul off spoil, assuming a rate of advance of 400 feet per day. About 4 dump trucks would be required, assuming 10 loads per truck per day. Truck and spoil holding areas would be determined before construction and would include areas such as abandoned quarries or construction sites needing clean fill material. If the spoil material can be incorporated into the flowable backfill material, the number of truck trips will be reduced to approximately 30.

The engine and other mechanical parts of the trencher produce about the same amount of noise as other heavy equipment, about 87 to 92 decibels (dBA) at 50 feet. During operation, the trenching noise is about 98 dBA at 50 feet ("Transit Noise and Vibration Impact" guidance manual, DOT-T-95-16, April 1995). See additional noise discussion in section 5.10.2 of this SDEIS.



NOTES:

1. ALL MAINTENANCE AND PROTECTION OF TRAFFIC NPT SITE WORK SHALL CONFORM TO THE LATEST NEW YORK STATE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, EXCEPT AS MODIFIED BY THE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL SUBMIT AN NPT PLAN TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCING HIS SITE WORK.
2. ALL SIGNS MAY BE FOUND IN THE NEW YORK STATE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (N.Y.T.C.D.). ALL "W" SERIES SIGNS SHALL BE BLACK ON FLUORESCENT ORANGE. ALL REFLECTORIZED SIGN BACK GROUNDING SHALL BE CLASS "B" OR "C" REFLECTIVE SHEETING.
3. WORK ZONES SHOULD BE LIMITED TO ONE SIDE OF THE TRAVELED WAY AT A TIME UNLESS APPROVED BY THE E.I.C. WORK ZONES ON OPPOSITE SIDES OF THE ROAD SHALL NOT OVERLAP. WORK ZONE IS DEFINED AS THAT AREA IN WHICH TRAFFIC IS RESTRICTED BECAUSE OF CONSTRUCTION ACTIVITIES OR THAT AREA WHICH INVOLVES A DROP-OFF NEXT TO THE PAVEMENT.

4. THE TRAVEL LANE SHALL BE SWEEPED CLEAN BY THE CONTRACTOR BEFORE THE LANE IS RE-OPENED TO TRAFFIC.
5. FOR NIGHTTIME OPERATIONS, THE SPACING OF CHANNELIZING DEVICES FOR LANE CLOSURE TAPERS AND TANGENTS SHALL BE IN ACCORDANCE WITH SECTION 619-3.13C OF THE STANDARD SPECIFICATIONS AND AGENDA AT INTERSECTING ACCESSORY RAMP, GORES AND OTHER CRITICAL AREAS, THE SPACING SHALL BE HALF THE TANGENT SPACING SPECIFIED IN SECTION 619-3.13C ABOVE.
6. IF CONES ARE TO BE PLACED DIRECTLY OPPOSITE SHOULDER TAPER, PROVIDE AN ADDITIONAL 30 m MINIMUM BETWEEN FLAGGER AND START OF LANE TAPER.

LEGEND:

AS ORDERED BY ENGINEER	TYPE 3 CONSTRUCTION BARRICADE WITH EDGE INTENSITY LIGHTING
◯	30° CONICAL CONE 7 LB MIN. AT 30m INTERVALS MAX ON CENTER
—	TEMPORARY CONCRETE BARRIER
---	EXISTING PAVEMENT MARKINGS
⊙	TRAFFIC SIGN WITH FLASHING LIGHT
+	CONSTRUCTION SIGN, ITEM 661.04 M
←	FLASHING ARROW BOARD
*	FLASHING LIGHT. USE TYPE "V" LIGHTS WHEN SPECIFIED FOR USE IN DAYLIGHT APPLICATIONS. USE TYPE "L" LOW INTENSITY STEADY BURNING LIGHTS FOR CHANNELIZATION.
—	DIRECTION OF TRAFFIC
⊙	FLAGGER
⊙	TRUCK MOUNTED ATTENUATOR
▨	WORK AREA
Y	FLAGGER TREE

BAKER ENGINEERING NY, INC.	MAINTENANCE AND PROTECTION OF TRAFFIC ONE-LANE CLOSURE ON FOUR-LANE ROADWAY	
MILLENNIUM PIPELINE	06-21-00 ISSUE A	FIGURE 2.3.3-1
Approved		

2.4 OPERATION AND MAINTENANCE

Millennium would operate and maintain the pipeline in accordance with applicable Federal and state regulations. The right-of-way would be patrolled by air and on the ground on a routine basis, and erosion or unstable conditions repaired as necessary. Routine vegetation maintenance would be in accordance with the ECS and our Plan and Procedures, and would include annual mowing or hand clearing of a 10-foot-wide corridor centered over the pipe for the entire length of the pipeline to permit access, facilitate periodic corrosion and leak surveys, and allow visibility of the right-of-way during aerial monitoring.

Periodic vegetation maintenance would be done no more frequently than once every 3 years and would be limited to a 50-foot-wide corridor in upland areas. In wetlands and within 25 feet of waterbodies, annual maintenance would be confined to the 10-foot-wide corridor centered over the pipe and periodic maintenance would be confined to the removal of trees over 15 feet in height within a 30-foot-wide corridor centered over the pipeline.

The valve settings and associated valves on the MLVs would be inspected at least once per year and no less frequently than every 15 months. During the inspection, the valve would be greased and partially operated. Other maintenance activities may include isolating a section of pipeline, evacuating the gas from that section, and painting of aboveground piping on an as-needed basis.

2.5 SAFETY CONTROLS

Section 5.11 of this SDEIS describes the USDOT safety regulations and requirements for natural gas transmission systems. Among other requirements, the USDOT specifies class locations for pipe wall thickness. These class locations are based on population density, as determined by the number of buildings intended for human occupancy within 220 yards of the pipeline for any continuous 1-mile length of pipeline. Class 1 pipe is specified for 10 or fewer buildings, Class 2 pipe for more than 10 but fewer than 46 buildings, Class 3 pipe for 46 or more buildings intended for human occupation, and Class 4 for buildings with four or more stories aboveground. In addition, block valves to shut off gas flow in the event of an emergency must be spaced at regular intervals as determined by class locations.

All external pipe surfaces would be coated with a fusion-bonded epoxy corrosion coating. Concrete coating would be applied over the corrosion coating in locations where weight is required for buoyancy control. The pipeline would be installed within a casing at road and railroad crossings when required by a permitting agency.

The pipeline system would be monitored and controlled 24 hours a day by gas controllers that detect pressure drops in the pipeline that could indicate a leak. Leak patrols would be conducted at least once a year and more often in areas specified in USDOT regulations. These patrols would observe surface conditions on and adjacent to the pipeline right-of-way and identify any indications of leaks, construction activity, or other factors that may affect the safety and operation of the pipeline. In addition, every year, Millennium would provide educational information on how to identify and report leaks to landowners along the pipeline.

In the event of an emergency, trained Millennium personnel would be available in Westchester County to work with local emergency response organizations and public officials to coordinate the response and protect the safety of the public. Public safety presentations to local emergency response officials would be conducted before the pipeline goes into service and every 2 years thereafter. Millennium would also

establish general service agreements with pipeline contractors to provide supplementary manpower and equipment if needed to respond to an emergency.

2.6 FUTURE PLANS AND ABANDONMENT

Millennium has identified no future plans for additional facilities on the Millennium Pipeline Project. However, interconnecting pipelines and meter stations could be proposed in the future to serve local distribution systems, electric power plants, and other natural gas customers.

Millennium is developing plans to construct a lateral to the IBM facility in Westchester County. As originally proposed, the lateral would consist of about 2.2 miles of 2-inch-diameter pipeline and about 0.5 mile of low pressure piping and a measurement station within the IBM facility. It would be built from MP 397.8 of the original route (in the vicinity of Pines Bridge Road) and would generally follow powerline and road rights-of-way to the terminus in the IBM facility (see figure 2.6-1). Millennium has not indicated how this lateral would be constructed from the 9/9A Proposal, but it would likely a similar though possibly longer route. This facility would be subject to the Commission's jurisdiction and appropriate environmental review.

Millennium has no plans for abandonment of the Millennium Pipeline Project facilities, which have an estimated life of at least 20 years. Any abandonment of the facilities would be subject to the approval of the Commission under section 7(b) of the NGA, and would comply with USDOT regulations and specific agreements or stipulations applicable to a specific segment of the right-of-way. Future abandonments would be reviewed as required by the regulations at the time of the abandonment.

2.7 PERMITS, APPROVALS, AND REGULATORY REQUIREMENTS

The Commission is required to ensure compliance with section 7 of the Endangered Species Act (ESA) and section 106 of the National Historic Preservation Act (NHPA).

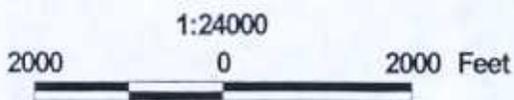
Section 7 of the ESA, as amended, states that any project authorized, funded, or conducted by any Federal agency (e.g., the Commission) should not "...jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined ... to be critical ..." (16 U.S. Code §1536(a)(2) 1988). The Commission is required to consult with the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) to determine whether any federally listed or proposed endangered or threatened species or their designated critical habitat occur in the vicinity of the project. If, upon review of existing data, the Commission determines that these species or habitats may be affected by the project, the Commission is required to prepare a biological assessment to identify the nature and extent of adverse impact, and to recommend mitigation measures that would avoid the habitat and/or species, or reduce potential impact to acceptable levels. If, however, the Commission determines that no federally listed or proposed endangered or threatened species or their designated critical habitat would be affected by the project, no further action is necessary. See sections 4.6 and 5.6 of this SDEIS for the status of this review.



FIGURE 2.6-1

IBM FACILITY
LOCATION

SHEET 1



Base: USGS 7.5 Minute Topographic Quadrangles: Mount Vernon and White Plains, New York.

Section 106 of the NHPA requires the FERC to take into account the effects of its undertakings on any prehistoric or historic sites, districts, buildings, structures, objects, or properties of traditional religious or cultural importance to Native Americans, listed on or eligible for listing on the National Register of Historic Places (NRHP), and to afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the undertaking. The Commission has requested that Millennium, as a non-Federal party, assist it in meeting its obligations under section 106 by preparing the necessary information and analyses as required by the ACHP procedures in 36 CFR Part 800. The FERC is required to consult with the appropriate state historic preservation officer (SHPO) regarding the NRHP eligibility of cultural resources and the potential effects of the proposed undertaking on any NRHP-listed or -eligible cultural resources. See sections 4.8 and 5.8 of this SDEIS for the status of this review.

In addition to the FERC's requirement for a Certificate, other Federal, state, or local regulatory agencies may have environmental permit or approval authority over portions of the proposed project (see table 2.7-1). The Commission states in its orders that applicants should cooperate with state and local agencies. However, any state or local permits issued with respect to the jurisdictional facilities must be consistent with the conditions of any Certificate the Commission may issue. Although the Commission encourages cooperation between interstate pipelines and local authorities, this does not mean that state and local agencies, through application of state or local laws, may prohibit or unreasonably delay the construction or operation of facilities approved by the Commission.

At the Federal level, required environmental permits and approval authority outside the FERC's jurisdiction include compliance with the regulations of the Clean Water Act (CWA), the Rivers and Harbors Act, and the Coastal Zone Management (CZM) Act. Each of these statutes has been taken into account in the preparation of this document. Federal requirements of the CWA include compliance with sections 401, 402, and 404. Water quality certification (section 401) has been delegated to state jurisdiction. On December 8, 1999, the NYSDEC issued its section 401 Water Quality Certificate for the Millennium Pipeline Project (as amended on February 14, 2000). This certificate contains project-wide conditions that would also apply to the 9/9A Proposal. Millennium has not yet requested a modification to amend the Water Quality Certificate to incorporate the 9/9A Proposal.

A NPDES permit (section 402) would be needed for discharge of stormwater from construction areas or discharge of hydrostatic test water. New York has been delegated NPDES permitting authority.

The COE has responsibility for determining compliance with all regulatory requirements associated with section 10 of the Rivers and Harbors Act and section 404 of the CWA. Section 10 permits would be required for all construction activities that occur in navigable waterways. The section 404 permitting process regulates the excavation or discharge of dredged or fill material associated with the construction of pipelines across streams or in wetlands. The 9/9A Proposal would cross the New York, New York COE district. The COE has indicated that an individual section 404 permit would be required for this project.

Before an individual section 404 permit can be issued, the CWA requires that a section 404(b)(1) guidelines analysis be completed. The FERC, in the NEPA review required to prepare this SDEIS, has analyzed all technical aspects required for the section 404(b)(1) guidelines analysis, including analysis of natural resources and cultural resources affected by the project, as well as analyses of alternatives and route variations that would eliminate or minimize the discharge of fill material into waters of the U.S. The results of these studies are presented in this SDEIS. In addition, Millennium's ECS and our Procedures constitute a set of best management practices that Millennium would implement during construction to minimize adverse impact on waters of the U.S. (see appendix E).

The 9/9A Proposal would be within the coastal zone of New York where it parallels the Hudson River and crosses the Croton River. In New York, the New York State Department of State (NYS DOS) commented that a consistency determination would be based on review of this EIS and the requirements outlined in 15 CFR Part 930, Subpart D and 6 New York Code of Rules and Regulations Part 617.11. See section 5.7.1 of the SDEIS for the status of this review.

TABLE 2.7-1 Major Environmental Permits and Reviews for the Millennium Pipeline Project	
Agency	Permit/Clearance
FEDERAL	
Advisory Council on Historic Preservation	Comment on the project and its effects on historic properties.
Federal Energy Regulatory Commission	Certificate of Public Convenience and Necessity
U.S. Department of the Army Army Corps of Engineers	Section 10 Permit Section 404 Permit
U.S. Department of the Interior Fish and Wildlife Service	Endangered and Threatened Species Biological Opinion, if needed.
National Park Service	Comments on the project with respect to the Wild and Scenic Rivers and the Upper Delaware Scenic and Recreational River Acts
U.S. Department of Commerce National Marine Fisheries Service	Endangered and Threatened Species Biological Opinion, if needed.
U.S. Department of Transportation Federal Aviation Administration	Notice of Filing where pipeline facilities or construction equipment may create a hazard to air traffic near airports, if needed.
NEW YORK	
Department of Environmental Conservation	Section 401 Water Quality Certificate Hydrostatic Test Water Discharge Permit (NPDES, section 402) Stormwater Discharge Permit (section 402)
Department of State	Coastal Zone Management Consistency Determination
Office of Parks, Recreation, and Historic Preservation	Review/comments on construction activities affecting cultural resources (section 106, NHPA)
New York State Thruway Authority	Occupancy or Work permits for construction in interstate roadways

3.0 ALTERNATIVES

In accordance with NEPA and Commission Policy, we evaluated alternatives to the 9/9A Proposal to determine whether they would be reasonable and environmentally preferable to the proposed action. These alternatives include the no action or postponed action alternative, system alternatives, major route alternatives, and route variations. The full range of alternatives considered for the Millennium Pipeline Project is discussed below where appropriate.

Local government officials in Westchester County suggest that the Commission establish a process for developing joint pipeline projects as an alternative to the Millennium Pipeline Project and the 9/9A Proposal. They also suggest that Millennium's application be processed not as a stand-alone project but in the context of a regional demand analysis. They list actual or potential pipeline interconnects which could be used for such a joint project, including an interconnect with Algonquin, potential interconnects with Tennessee and Iroquois, and an existing interconnect of the systems of Tennessee and Transco. The Commission encourages projects involving the least environmental disruption, and the DEIS and the SDEIS have explored various system alternatives to achieve the Millennium deliveries. However, the Natural Gas Act and its implementing regulations do not mandate projects by parties who have not agreed to own and operate facilities on a joint basis. Also, no competing application has been filed. Therefore, the Millennium application, which proposes specific facilities, with markets supported by executed precedent agreements, must be processed as a stand-alone proposal.

3. NO ACTION OR POSTPONED ACTION

The Commission has three alternate courses of action in processing an application for a Certificate. It may: 1) grant the Certificate with or without conditions, 2) deny the Certificate, or 3) postpone action pending further study. The course of action that would best serve the public convenience and necessity will be the selected alternative. Since the 9/9A Proposal is part of a larger project, the discussion in this section is primarily relevant to the Millennium Pipeline Project as a whole.

If the Commission postpones or denies the application, the short- and long-term environmental impacts identified for the 9/9A Proposal in this SDEIS would not occur. However, potential natural gas customers would be forced either to use (or continue to use) alternative fuel sources (i.e., fuel oil, coal, wood, etc.) or to make other arrangements to obtain natural gas service. Burning natural gas produces relatively low levels of "greenhouse gasses" and nitrogen oxides (NO_x), and virtually no emissions of sulfur dioxide (SO₂) or particulate matter.

Denial of the application could prevent a potential improvement in regional air quality or energy supply and availability. Compared with other fossil fuels, natural gas is a relatively clean-burning and efficient fuel that can reduce many pollutants. For example, a natural gas turbine cogeneration plant would require about 25 percent less input energy than a combination new coal-fired electric power plant with an oil-fired boiler producing steam. A gas-fired cogeneration plant would also emit less than 1 percent of the SO₂, 27 percent of the particulates, and 50 percent of the NO_x produced by a comparably-sized conventional coal and oil-based cogeneration plant with pollution control equipment.

If the project were postponed or denied, one or more alternative natural gas projects could be implemented to provide expanded natural gas service to the region. The implementation of alternative projects would require the construction of additional and/or new pipeline facilities in the same or other locations to transport natural gas supplies. Alternative natural gas projects would result in their own set of specific environmental impacts, which could be lesser or greater than those associated with the current proposal.

It would be purely speculative and beyond the scope of this SDEIS to attempt to predict what actions may be taken by policy makers or end users in response to the no-action or postponed-action alternative. Therefore, the assessment of impacts associated with these scenarios would also be speculative.

In considering Millennium's proposal, the Commission will review both the environmental and non-environmental record, including alternatives, in deciding whether issuance of a Certificate is in the public convenience and necessity (see section 1.1). This process will include weighing the benefits associated with the project, such as the need to meet the growing fuel requirements in the northeast and mid-Atlantic region with competitively priced natural gas, against the environmental impacts associated with the proposed project including the recommended mitigation and alternatives discussed in this SDEIS.

3.2 PROJECT SYSTEM ALTERNATIVES

System alternatives are alternatives to the proposed action that would make use of other existing, modified, or proposed pipeline systems to meet the stated objective of the proposed project. A project system alternative would make it unnecessary to construct all or part of the proposed project, although some modifications or additions to another existing pipeline system may be required to increase its capacity, or another entirely new system may be required. Although these modifications or additions also could result in environmental impact, this impact may be less, similar to, or greater than that associated with construction of the proposed project.

The objective of identifying and evaluating system alternatives is to avoid or reduce the potential impact associated with construction and operation of the proposed facilities while still allowing the stated objective of the project to be met. Potential impact factors considered may include new right-of-way requirements, land use effects (including those associated with residences and public interest areas), stream and wetland disturbance, and effect on endangered and threatened species.

The only single pipeline company system alternative that was identified for the 9/9A Proposal would involve using the Eastchester Expansion Project as proposed by Iroquois Gas Transmission System (Iroquois) in Docket No. CP00-232-000, as amended.^{1/} Iroquois is planning a pipeline project that would provide between 220,000 to 230,000 dth per day of natural gas to the New York City area. The project would require construction of about 32.8 miles of 24-inch-diameter pipeline that would be operated at 1,440 psig, facilities at three existing and two new compressor stations, and appurtenant pipeline facilities. The Eastchester Expansion Project is currently under FERC review.

The proposed pipeline extension would originate in Northport, New York, on Long Island, would cross Long Island Sound in a westerly direction, would come onshore near Locust Point, and would terminate at a new interconnection with the facilities of ConEd in Bronx, New York. About 30.7 miles of the project would be installed on the bottom of Long Island Sound with the remaining construction on shore in Eastchester, New York. Onshore construction would be primarily within or along streets. Further, capacity expansion of the existing mainline would be accomplished by the addition of compression at four locations. The targeted inservice date would be November 1, 2002.

We evaluated whether the Eastchester Expansion Project might serve as an alternative to delivering the proposed Millennium volumes to Mount Vernon, New York; and we evaluated whether the Millennium Pipeline Project could serve as an alternative for the Eastchester Expansion Project. Both delivery points

On April 28, 2000, Iroquois filed an application in Docket No. CP00-232-000 to construct the Eastchester Expansion Project. On December 15, 2000, Iroquois amended its application changing a portion of the pipeline route.

could serve the New York City market area providing similar pipeline capacity. Millennium's proposal would provide up to 350,000 dth per day at Mount Vernon. Iroquois' proposal would provide between 220,000 to 230,000 dth per day at the Bronx. The Eastchester Expansion Project would require construction of about 32.8 miles of pipeline, compared with the 31.7 miles of pipeline construction in Westchester County proposed by Millennium (including the 9/9A Proposal) that would extend from the east bank of the Hudson River to the terminus at Mount Vernon. A system alternative would have to provide the proposed transportation of both projects, or between 570,000 and 580,000 dth per day.

Our analysis of these two system alternatives showed that the system alternative replacing Iroquois' capacity as proposed in the Eastchester Expansion Project with additional capacity on the proposed Millennium Pipeline Project would be less costly and would have less environmental impact. Expansion of Millennium's system to carry the Iroquois volumes could be accomplished by the addition of compression and construction of its proposed 31.7 miles of pipeline in Westchester County. Whereas, construction of a system alternative on Iroquois' system would require construction of the proposed Eastchester Expansion Project and additional pipeline looping compression on other parts of Iroquois' system upstream of Long Island. Since a potential system alternative using the proposed Millennium Pipeline Project would be less costly and would have less environmental impact than a system alternative which used a combination of the proposed Eastchester Expansion Project and Iroquois' existing facilities, we conducted no further analysis.

We also analyzed a system alternative using the Iroquois and Algonquin Gas Transmission Company (Algonquin) pipeline systems to replace the Hudson River/Westchester County segment of the larger Millennium Pipeline Project. See section 3.3 of Part II of this SDEIS.

Staff evaluated several system alternatives to the Millennium Pipeline Project for the DEIS. Staff's alternatives include using the pipeline systems of:

Texas Eastern Transmission System (Texas Eastern) and Algonquin to replace the entire project;

Tennessee Gas Pipeline Company (Tennessee) and National Fuel Gas Supply Corporation (National Fuel) to replace the western portion of Millennium; and

Algonquin to transport Millennium's gas volumes across the Hudson River.

In each alternative, staff's analysis concentrated on system alternatives that represented the most direct path through the existing interstate pipeline grid that could potentially provide reasonable solutions to the concerns raised in the Millennium proceeding. Based on our analysis of these alternatives, staff concluded that although some of the alternatives were feasible, most were more costly and/or relied upon high levels of speculative turnback capacity.

In a February 23, 2001 letter, the Villages of Croton-on-Hudson, Ossining, and Briarcliff Manor, New York, expressed concern that not all possible alternatives have been evaluated by staff. Specifically, they suggest the use of either the Tennessee system or the Transcontinental Gas Pipe Line Corporation (Transco) system as an alternative to either the eastern portion of Millennium's system in New York or its Hudson River crossing. Staff did not use Tennessee's facilities between its interconnects with Algonquin at Mahwah in Bergen County, New Jersey, and ConEd at White Plains in Westchester County, New York, as an alternative because of the distance between compressor stations (160 miles), the length of haul (about 63 miles) and the relatively small pipeline diameter (24 inches) of Tennessee's mainline. In comparison, the portion of the Algonquin system used in staff's alternative is a more direct route with other pipeline facility advantages. Specifically, Algonquin's system offers the following advantages over Tennessee's system: a

shorter distance between compressor stations (about 70 miles); a shorter length of haul^{2/}; and a dual 26-inch-diameter and 30-inch-diameter mainline. Because of the longer haul and the smaller diameter pipeline on Tennessee's single mainline system, staff's preliminary analysis showed that substantially more facilities, including but not limited to new compressor station(s) and extensive pipeline looping, would have been required on Tennessee's system. Therefore, staff did not believe that using the Tennessee system was a viable alternative.

In order to use the Transco system to effectuate the delivery of Millennium's 350,000 dth per day of gas volumes to ConEd, staff would have had to develop a pipeline route through four different interstate pipelines. Millennium's system would have to transport the gas volumes to the proposed interconnect with Algonquin at Ramapo in Rockland County, New York. Then, Algonquin would transport the gas via backhaul from Ramapo to Tennessee's upstream interconnect with Algonquin at Mahwah, New Jersey. Tennessee would have to transport the gas on its 24-inch-diameter mainline from Mahwah to its interconnect with Transco at Rivervale in Bergen County, New Jersey. Finally, Transco would have to transport the gas volumes, possibly via a combination of forward haul and backhaul, from Rivervale to ConEd. Staff's preliminary analysis shows that Tennessee and Transco would need additional facilities. Tennessee would need additional facilities because of the reasons discussed above and Transco would need facilities, at a minimum, to transport the gas volumes across the Hudson River. Because of the possible operational problems that might exist by requiring potentially two or more interstate pipelines to design a backhaul and to add facilities to accommodate Millennium's requirement of 350,000 dth per day, staff did not consider this alternative as being feasible.

System alternative analyses conducted for the project, as defined in the DEIS, would remain the same for the amended project which now includes the 9/9A Proposal. The project delivery points have not changed, so the same pipeline systems would be used for this analysis would remain the same.

3.3 MAJOR ROUTE ALTERNATIVES

Geographic or major route alternatives are identified to determine if these alternatives could avoid or reduce impact on environmentally sensitive resources, such as large population centers, scenic areas, wildlife management areas, etc., that would be crossed by the proposed pipeline. Route alternatives generally do not change the origin and delivery points for natural gas along the proposed pipeline. Although route alternatives may follow routes significantly different from those proposed, they would not make use of another existing or modified pipeline system, as would a system alternative.

In accordance with Commission regulations (18 CFR, 380.15), primary consideration in identifying potential route alternatives is given to the use, enlargement, or extension of existing rights-of-way to avoid sensitive resources. In general, installation of new pipeline along or within existing, cleared rights-of-way (e.g., pipeline, powerline, road, railroad, etc.) is environmentally preferable to the clearing of new rights-of-way. The partial use of previously cleared rights-of-way can reduce construction effects by avoiding creation of new right-of-way through previously unaffected areas.

Several major route alternatives were identified in comments received on the SNOI. Commenters suggested that the pipeline be routed through Rockland County and northeast New Jersey to avoid all construction in Westchester County. Millennium states that the Millennium Pipeline Project was designed

Staff's alternatives would transport Millennium's gas volumes from the proposed interconnect with Algonquin at Ramapo to Algonquin's existing interconnect with either ConEd at Peekskill (47 miles away) or Iroquois at Brookfield, Connecticut (62 miles away).

to serve Westchester County and that a route in New Jersey would involve an entirely different project. We agree, although we did evaluate a southern alternate crossing of the Hudson River at the Tappan Zee Bridge (see section 3.2 of Part II of this SDEIS).

Commenters also suggested that the pipeline be laid in the Hudson River from the proposed crossing point on the west side of the Hudson River in Haverstraw, New York, to a new landfall on the east side of the Hudson River as far south as the Tappan Zee Bridge. Any route that would increase the number of miles of pipeline within Haverstraw Bay would also increase impacts on designated essential fish habitat and fishery concerns identified by the NMFS. Therefore, we did no further analysis of this alternative.

An alternative using State Route 134 was identified by a commenter to minimize construction disturbance in Ossining and Briarcliff Manor. It would deviate from the proposed route at approximate MP 398.5 and would follow State Route 134 northeast for about 2.0 miles to the ConEd powerline right-of-way. From there, it would continue along the original proposed route (e.g., the ConEd powerline) for about 5.9 miles to MP 402.8. The primary advantage of this alternative would be that it would avoid residential areas in Ossining and Briarcliff Manor that abut the northbound side of State Route 9A. However, this alternative would require construction adjacent to or within the ConEd right-of-way, an issue of significant concern for ConEd (see discussion in section 6.1.1). In addition, State Route 134 is a two-lane road with numerous residences and trees along both sides of the road, as well as utilities. Also, it is significantly longer (7.9 miles versus 4.3 miles) than the corresponding segment of the 9/9A Proposal. For this reason, we did not conduct further analyses of this alternative.

We did conduct an analysis of two major route alternatives. The first alternative is the original proposed route, where the pipeline would be placed within the ConEd powerline right-of-way (Original Proposed Route Alternative). The second alternative uses an offset alignment along the ConEd powerline right-of-way to State Route 100 and then continues south adjacent to State Route 100 to the 9/9A Proposal near MP 401.3 (ConEd Offset/State Route 100 Alternative). See section 6.1 of Part I of this SDEIS.

3.4 ROUTE VARIATIONS

Route variations differ from system or major route alternatives in that they are identified to resolve or reduce construction impacts on localized, specific resource issues, including wetlands areas, residences, landowner requests, and terrain conditions. While some variations are a number of miles in length, most are short and close to the proposed route. A number of factors are considered in identifying and evaluating route variations.

First, as described in section 3.3, Major Route Alternatives, primary consideration in identifying potential route variations is given to the use, enlargement, or extension of existing rights-of-way to avoid sensitive resources. Millennium's proposed route would be adjacent to or within existing rights-of-way for 88 percent of its entire length. Many of the areas of new right-of-way are the result of the built-up urban environment along the proposed route, or are needed to connect existing corridors along the proposed route and cannot be avoided.

Second, to comply with NEPA and section 404(b)(1) guidelines requiring analysis of the use of practicable alternatives that would eliminate or minimize the discharge of dredged or fill material into wetlands or other waters of the U.S. (40 CFR 230.10), we reviewed the need for route variations that would avoid or minimize disturbance to wetland resources. Because about 88 percent of the pipeline route would be constructed adjacent to existing rights-of-way, the need for clearing of forested wetland vegetation would be considerably reduced compared to the use of new right-of-way. Also, since placement of the pipeline adjacent to existing rights-of-way usually allows for some overlap of the existing cleared and maintained

rights-of-way, some of the wetland area that would be affected by construction of the 9/9A Proposal are previously disturbed wetlands. As discussed in section 5.3.3, Wetlands, Millennium proposes to implement construction and restoration procedures that would minimize, to the extent practicable, impact on the wetlands that would be crossed.

Third, we reviewed comment letters and the proposed route to identify other issues or concerns that warranted further analysis, as well as route variations that were identified in comments on the 9/9A Proposal. These include minor variations on specific properties that were requested by landowners in their comments to avoid specific features, primarily new development plans. As a result of these comments and continuing discussions between Millennium and affected landowners, two route variations (Briarcliff Commons and Persico) were identified. These are discussed further in section 6.2 of Part I of this SDEIS.

4.0 AFFECTED ENVIRONMENT

4.1 Geology

4.1.1 Physiography

The 9/9A Proposal would be located in the Manhattan Hills portion of the New England Uplands physiographic province. This geological complex exhibits moderate relief and contains landforms that show a strong correlation to the relative hardness of the underlying bedrock. The topographic pattern was highly modified by intense glacial erosion as the continental glaciers moved southward as far as Long Island, and subsequently as the melting, receding glaciers deposited enormous amounts of unconsolidated materials.

Elevations along the pipeline route range from 10 feet above sea level, where the Croton River joins the Hudson River near MP 396.8, to 325 feet above sea level in Sprain Ridge County Park west of the Grassy Sprain Reservoir near MP 416.6. Relief ranges from nearly level at the mouth of the Croton River to about 185 feet in Sprain Ridge County Park at MP 414.6.

According to soil surveys, blasting may be required along the entire proposed route except for about 1.3 miles between MPs 391.3 and 391.6, MPs 396.0 and 396.2, MPs 396.2 and 396.4, MPs 401.3 and 401.6, and MPs 407.4 and 407.7. However, since 88 percent of the proposed route would be adjacent to or within a road or the abandoned railroad right-of-way (e.g., bicycle path), Millennium believes that there may be sufficient cover in these areas so that blasting would not be necessary.

Mineral Resources

The pipeline would cross no mineral resource areas.

Geologic Hazards

Geologic hazards that can effect underground pipelines and appurtenant facilities include seismicity, landslides, and karst terrain.

Seismicity is the most widespread geologic hazard for the proposed pipeline. While earthquakes are common throughout the northeastern U.S., their distribution is far from uniform. The largest earthquake recorded in the New York and the Lake Erie region was a Modified Mercalli Intensity VIII event in Massena, New York in 1944. Three other large earthquakes of Modified Mercalli Intensity VII (Rockaway Beach [1884], Attica [1929], Warrensburg [1931]) have also been documented. A series of earthquakes near Ardsley occurred in October 1985, and consisted of a foreshock, mainshock, and aftershocks that continued intermittently for months. The mainshock had a magnitude of about 4, and was the largest earthquake to occur in the southeastern New York and northern New Jersey region in at least 50 years.

Seismically induced soil liquefaction is not considered to be a major risk to the pipeline and appurtenant facilities. Soil liquefaction can occur when soft, unconsolidated sands and silts are water saturated and subjected to intense seismic shaking. If these conditions exist and there is a 90 percent probability of horizontal ground accelerations of greater than 10 percent of gravity in a 50-year period as indicated by U.S. Geological Survey (USGS) Open File Report 82-1033 (Algermissen, et al., 1982), the area is defined as having potential for soil liquefaction. This report indicates that only those facilities in southeastern New York in the vicinity of the Ramapo fault have probability values greater than 10 percent. Since there would be no construction in the immediate vicinity of the Ramapo fault, soil liquefaction risk is negligible.

Landslide hazards are not found in the project area.

Karst terrain develops in regions that are underlain by carbonate rocks and evaporites where weathering and erosion produce a high degree of rock solubility. The resulting landforms include sinkholes, caves, and irregular topography. None are known to be located along the proposed pipeline route.

Geologic hazards were not identified along the 9/9A Proposal. Geologic hazards were not crossed by the filed Westchester County route.

4.2 SOILS

The U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS) (formerly the Soil Conservation Service) soil surveys, developed in cooperation with Cornell University Agricultural Experiment Station, were used to determine and characterize the soils that would be crossed by the pipeline and aboveground facilities. In addition, the NRCS maintains the State Soil Geographic database to collect, store, maintain, and distribute soil survey information. This database also provided information on characteristics of the soils that would be crossed by the pipeline or affected by the aboveground facilities.

The NRCS data specifically addresses soil-related limitations associated with the construction of shallow excavations which directly relate to pipeline trenching and include: steep slopes which can increase the difficulty of trenching and backfilling in areas of side slope construction; shallow to bedrock soils or high rock content which can increase the difficulty of trenching; severe erosion which presents greater sediment control problems during construction; and a high seasonal water table or potential for flooding which could result in the need for trench dewatering, a greater potential for soil rutting, soil horizon inversion, loss of fertility, or a greater potential for soil compaction.

The soils in the project area formed in a variety of glacially influenced parent materials; including glacial till, glaciofluvial (outwash) and glaciolacustrine (lake deposited). The pipeline would cross the Charlton-Chatfield and Paxton-Woodbridge general soil map units, either by themselves or in association with Urban Land (U.S. Department of Agriculture, 1994). Both of these map units are dominated by soils with medium to moderately coarse texture formed in glacial till on uplands.

The Charlton-Chatfield map unit consists of very deep and moderately deep, well-drained and somewhat excessively-drained, medium-textured soils, formed in glacial till, on a landscape characterized by hills and rolling uplands with complex topography. The map unit consists of about 40 percent Charlton soils, 20 percent Chatfield soils, and 40 percent of soils of minor extent. The Charlton soils are on hilltops and hillsides and are greater than 60 inches deep to bedrock. The Chatfield soils are on the same landscape but are only 20 to 40 inches deep to bedrock. Minor soils include the shallow to bedrock Hollis soils on hilltops, the very deep Sutton soils at the base of hill-slopes, the very deep Leicester soils along small drainageways and in depressions, the very deep Sun soils in depressions, and the very deep, very poorly drained Carlisle and Palms soils formed in organic materials in depressions.

The Paxton-Woodbridge map unit consists of very deep, well-drained and moderately well-drained, medium-textured and moderately coarse-textured soils formed in glacial till derived from granite, gneiss, and schist. These soils occur on smoothly sloping hillsides and broad hilltops in the uplands. The map unit contains about 65 percent Paxton soils, 15 percent Woodbridge soils, and 20 percent soils of minor extent. The Paxton soils are well-drained and greater than 60 inches to bedrock. The Woodbridge soils occur on low, broad hilltops and the lower parts of hillsides and are greater than 60 inches deep to bedrock. Minor soils in this map unit include Ridgebury soils that are somewhat poorly drained and form on the lower

portions of hill-slopes and along drainageways, Sun soils that are poorly drained and occur in small drainageways and in depressions, and the Carlisle and Palms soils formed in organic materials in depressions.

Where the 9/9A Proposal would be within the Urban land-Charlton-Chatfield or Urban land-Paxton-Woodbridge map units, Urban land makes up at least 50 percent of the area in the unit. Urban land consists of areas covered by buildings, streets, parking lots, and other impervious surfaces, and where natural soil layers have been altered or mixed with other material such as bricks, broken concrete, or cinders.

4.3 WATER RESOURCES

Groundwater

A primary aquifer is defined in Title 6 New York Codes, Rules and Regulations Part 360-1.2(b)(10) as a highly productive aquifer which is presently used as a source of public water supply by major municipal water supply systems. To determine if an aquifer qualifies as a primary aquifer, the NYSDEC Division of Water uses the following guidelines from the Technical and Operational Guidance Series (TOGS) Document 2.1.3 relating specifically to the question of aquifer productivity:

the aquifer should occupy at least 5 to 10 square miles of contiguous area at a minimum;

saturated deposits of highly permeable materials should average at least 20 feet thick through much of the area, with some locations at least 50 feet thick; and

sustained yields to individual wells should be at least 50 gallons per minute or more from sizable areas (2 square miles or greater) throughout the aquifer.

While the TOGS allows for some degree of flexibility in applying the above guidelines, the document states, "In all cases, however, the general level of water resource capability suggested by these three guidelines should be met."

The 9/9A Proposal would cross one primary aquifer that includes the Croton River and adjacent land on both banks beginning at MP 394.5. This aquifer is identified by the NYSDEC, Division of Water/Technical Services (1997) as an aquifer for use by community water systems to serve large populations. It is used for public water supply, although no public wells have been identified near the proposed route or its area of impact.

The major criteria for sole source aquifer designation are that the aquifer provide 50 percent or more of the drinking water for the aquifer service area, and that the volume of water that could be provided by alternative supplies is insufficient to meet demand. No sole-source aquifers would be crossed by the pipeline.

Millennium has contacted Westchester County and local agencies in the 13 communities crossed by the 9/9A Proposal for information concerning public water supply wells and springs. Millennium would also obtain additional information concerning water supplies from landowners during right-of-way acquisition. To date, no wells or springs have been identified within 150 feet of the pipeline construction right-of-way.

4.3.2 Surface Water

The pipeline would cross 31 waterbodies, comprising 27 perennial and 4 intermittent streams (see table 4.3.2-1).^{1/} All streams or rivers would be within the Hudson River drainage basin.

New York State classifies and protects certain waterbodies on the basis of existing or expected best usage of these waters (NYSDEC, 1994). These classifications include "AA", "A", "B", "C" and those designated as trout "(T)" or trout spawning "(TS)" streams. These waters are collectively referred to as protected waters and are subject to the state's stream protection restrictions. The 9/9A Proposal would cross 24 streams that are classified B or C, and 7 that are classified D (see table 4.3.2-1). The Saw Mill River and most of its tributaries are classified as trout waters, although the Saw Mill River has a fish consumption advisory due to toxic organics.

Millennium consulted the National Sediment Inventory data sites to identify potential locations of contaminated sediments. Based on these data, Millennium found that none of the streams crossed by the 9/9A Proposal were identified as containing contaminated sediments at the crossing locations.

The Croton River crossing (MP 396.8) would be along an abandoned section of U.S. Route 9 that is about 600 feet east of the existing highway. At the proposed crossing, the Croton River is within the Croton River and Bay Significant Coastal Fish and Wildlife Habitat as designated under the New York State Coastal Management Program, the Significant Habitats and Habitat Complexes of the New York Bight Watershed as designated by the FWS, and Essential Fish Habitat (EFH) designated by the NMFS under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA).

The 9/9A Proposal would cross the Grassy Sprain Reservoir watershed, which is part of the New York City water supply system, for approximately 750 feet near MP 416.5. However, according to the City of Yonkers, no public water intakes are located within 3 miles downstream of any waterbody that would be crossed by the 9/9A Proposal (New York State Department of Health, 1982).

The Old Croton Aqueduct and State Park crossing on the proposed route would occur about 1,500 feet east of the U.S. Route 9 and State Route 9A interchange at MP 397.4. At this location, the terrain is relatively flat and the buried aqueduct is protected by mounded soil. The 9/9A Proposal would cross the New Croton Aqueduct at three locations: about 1,100 feet north/northwest of the State Route 9A/100 interchange (MP 401.2); on the South County Trail about 200 feet south/southwest of the Interstate 87 overpass in Greenburgh (MP 410.3); and on new right-of-way between State Route 9A and Interstate 87, north of the Mount Hope Cemetery (MP 413.8).

^{1/}

We note that some waterbodies are crossed repeatedly (e. g., crossings of the Saw Mill River constitute 11 of the 31 crossings).

TABLE 4.3.2-1

Waterbodies Crossed by the 9/9A Proposal

Approximate MP	Waterbody Name	Type <u>a/</u>	Crossing Width (feet)	State Water Quality Classification <u>b/</u>	Fishery Type <u>c/</u>	Special Fishery Regulations <u>d/</u>
391.6	Trib. Hudson River	P	7	D	WW	LMB, SMB
392.3	Trib. Hudson River	P	2	B	WW	LMB, SMB
392.8	Furnace Brook	P	25	B	WW	LMB, SMB
393.6	Trib. Hudson River	P	2	B	WW	LMB, SMB
393.8	Trib. Hudson River	I	3	D	WW	--
394.2	Pond	P	85	D	WW	LMB, SMB
395.1	Trib. Hudson River	P	2	SC	WW	LMB, SMB
396.8	Croton River	P	290	SC	WW	LMB, SMB
396.9	Trib. Croton River	P	5	D	WW	--
398.3	Trib. Hudson River	P	3	B	WW	LMB, SMB
399.3	Trib. Hudson River	P	6	B	WW	LMB, SMB
399.4	Trib. Hudson River	P	3	D	WW	LMB, SMB
399.8	Trib. Hudson River	P	9	B	WW	LMB, SMB
401.4	Trib. Pocantico River	P	8	B	WW	LMB, SMB
402.6	Pocantico River	P	25	B	WW	LMB, SMB
402.7	Trib. Pocantico River	P	5	B	WW	LMB, SMB
406.9	Saw Mill River	P	30	B(T)	CW	T, LMB, SMB
407.7	Saw Mill River	P	40	B(T)	CW	T, LMB, SMB
408.6	Saw Mill River	P	35	B(T)	CW	T, LMB, SMB
409.4	Saw Mill River	P	30	B(T)	CW	T, LMB, SMB
409.9	Saw Mill River	P	35	B(T)	CW	T, LMB, SMB
410.2	Saw Mill River	P	20	B(T)	CW	T, LMB, SMB
410.8	Saw Mill River	P	40	B(T)	CW	T, LMB, SMB
411.5	Trib. Saw Mill River	I	4	D	WW	--
411.7	Saw Mill River	P	45	B(T)	CW	T, LMB, SMB
411.9	Trib. Saw Mill River	P	3	D	WW	--
412.7	Saw Mill River	P	40	B(T)	CW	T, LMB, SMB
413.0	Saw Mill River	P	30	B(T)	CW	T, LMB, SMB
413.5	Saw Mill River	P	30	B(T)	CW	T, LMB, SMB
414.4	Trib. Sprain Brook	P	6	C	WW	LMB, SMB
414.5	Sprain Brook	P	5	C	WW	LMB, SMB

a/ P = Perennial; I = Intermittent.

b/ State Water Use Classification:

- SC Saline Surface Water. Best usages: fishing. These waters shall be suitable for fish propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.
- B Fresh Surface Water. Best usages: primary and secondary contact recreation and fishing. These waters shall be suitable for fish propagation and survival.
- C Fresh Surface Water. Best usages: fishing. These waters shall be suitable for fish propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.
- D Fresh Surface Water. Best usages: fishing. Due to natural conditions, these waters will not support fish propagation. These water shall be suitable for fish survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.
- T Stream designated as trout water.

c/ WW = Warmwater; CW = Coolwater.

d/ LMB = Largemouth bass; SMB = Smallmouth bass; T = Trout

4.3.3 Wetlands

Wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of wetland vegetation typically adapted for life in saturated soil conditions (COE, 1987). Millennium used the 1987 COE Wetlands Delineation Manual to identify and delineate most of the wetlands that would be crossed by the project. These delineations were conducted in areas for which access permission was available. National Wetlands Inventory (NWI) mapping and aerial photography was used to identify one wetland (W11WCR) where access was not granted. Field delineation of this wetland would be conducted before construction.

The 9/9A Proposal would cross a total of 12 wetlands comprising 3 palustrine emergent (PEM) wetlands, 2 palustrine open water (POW) wetlands, 5 palustrine forested wetlands (PFO), and 1 each palustrine forested/emergent (PFO/PEM) and palustrine forested/palustrine open water (PFO/POW) wetlands (see table 4.3.3-1). Both the POW wetlands (MPs 403.6 and 412.7) are ponded areas that receive surface water drainage from the highway or bicycle path, respectively.

TABLE 4.3.3-1

Wetlands Crossed by the 9/9A Proposal

Approximate Milepost	Wetland Number	NWI Classification ^{a/}	Length of Crossing (feet)
399.4	W04WCR	PFO	135
400.1	WWJW2000-01	PEM	950
401.4	W05WCR	PEM	45
401.4	W06WCR	PFO/PEM	860
402.7	W07WCR	PEM	310
403.6	WWJW2000-04	POW	1,250
409.9	W08WCR	PFO	160
412.7	W09WCR	POW	160
413.0	W10WCR	PFO	160
414.4	W03WCR	PFO	65
414.4	W11WCR ^{b/}	PFO	490
415.7	W02WCR	PFO/POW	135

^{a/} Classification: PEM = palustrine emergent
PFO = palustrine forest
POW = palustrine open water

^{b/} Identified using NWI mapping.

In addition to the wetland crossings identified above, the 9/9A Proposal would also pass through the buffer zone of five NYSDEC regulated wetlands:

Buffer zone of NYSDEC Wetland H-3 (MPs 396.3 to 396.4 and MPs 396.6 to 396.8). The first crossing includes the southeastern portion of the parking lot for the railroad station at Croton-on-Hudson. The second crossing would be along the abandoned railroad on the north bank of the Croton River.

Buffer zone of NYSDEC Wetland O-18 (MPs 400.0 to 400.4). This wetland is west of State Route 9A, while the proposed pipeline and construction work space would be along the east shoulder of the road.

Buffer zone of NYSDEC Wetland O-24 (MP 400.5 to MP 400.6). Both the wetland and the construction work area are east of State Route 9A.

Buffer zone of NYSDEC Wetland O-16 (MPs 402.3 to 402.5 and MPs 402.8 to MP 403.1). This wetland is east of State Routes 9A/100, while the pipeline and the construction work area would be on the west shoulder of the road.

Buffer zone for NYSDEC Wetland O-9 (MPs 402.5 to 402.6). Both the wetland and the construction work area would be west of State Routes 9A/100.

No wetlands would be affected by the MLVs.

4.4 FISHERIES AND WILDLIFE RESOURCES

4.4.1 Fisheries

Surface waters crossed by the 9/9A Proposal support a variety of fish species. Representative warmwater species include bluegill, smallmouth and largemouth bass, and black crappie; coldwater species include northern pike, brown and brook trout, black nosed dace, and walleye; and estuarine species include American shad, blueback herring, striped bass, and Atlantic tomcod. Fishery classifications for each waterbody crossed are included in table 4.3.2-1.

Warmwater streams and rivers are typically slow moving waterbodies that are less oxygenated than coldwater streams with soft substrates of sand and silt. They are normally found in the flatter coastal plains, but may be found in low gradient plateau and mountain valleys or in reaches of rivers that have been impounded. Coldwater streams are typically fast moving, well-oxygenated, low temperature waterbodies with hard substrates of gravel, cobble, or rock.

The 9/9A Proposal would cross one trout stream (Saw Mill River and its tributaries) a total of 11 times (NYSDEC, 1991). However, special trout regulations apply to anglers fishing in the Saw Mill River due to toxic organics (NYSDEC, 1997). Special largemouth and smallmouth bass regulations apply to 27 of the 31 waterbody crossings on the 9/9A Proposal.

The 9/9A Proposal would cross the Croton River within the area designated by the NYSDOS under the New York State Coastal Management Program as the Croton Bay Significant Coastal Fish and Wildlife Habitat; by the FWS as the Significant Habitats and Habitat Complexes of the New York Bight Watershed; and by the NMFS as a component of the Haverstraw Bay/Lower Hudson River EFH. This area includes the tidal portions of the river that provide a productive habitat for largemouth bass, striped bass, brown bullhead, carp, panfish, and other fish. The designated habitat includes an approximate 1-mile-long segment of the river (within the tidal reach of the Hudson River) and the approximate 1,200-acre shallow bay and mudflat area south of Croton Point. Upstream from there, the Croton River is a relatively large, warmwater stream, with a drainage area of over 375 square miles. Since most of the freshwater flow is diverted out of the Croton River for municipal water supplies, only the tidal portion of the river is included in the area of designated habitat.

The Croton River and Bay have been subjected to considerable habitat disturbances, including filling of wetlands for waste disposal, discharges of stormwater runoff, and industrial and residential development. The substrate of the Croton River in the vicinity of the proposed crossing appears to be composed primarily of silt and boulders. Tidal wetlands adjacent to the north side of the river are emergent wetlands dominated

by common reed (*Phragmites australis*), an introduced nuisance plant species. Substrate within the wetlands appears to consist of silt.

Despite the significant habitat alterations affecting the area, tidal portions of the Croton River and Bay remain important as fish and wildlife habitats in the lower Hudson Valley. This area comprises one of the largest shallow bay areas in the lower Hudson River and is sheltered from strong river currents, and to some extent, from prevailing winds. Although no unusual concentrations of any fish or wildlife have been documented in the Croton River or Bay, it is a productive year-round habitat for resident fish species and serves as a resting, foraging and nursery area for anadromous species. The lower portion of the Croton River is identified as an important local fishery for striped bass and is reported as being important habitat for largemouth bass, alewife, blueback herring, and carp. The habitat is not noted for importance for waterfowl.

The Croton River embayment is a component of the Haverstraw Bay/Lower Hudson River EFH as designated under the MSFCMA. EFH applies to species for which there are approved management plans. The NMFS has identified Atlantic butterfish, Atlantic herring, bluefish, red hake, summer flounder, windowpane and winter flounder as species having EFH in the Croton River and Bay.

4.4.2 Wildlife Resources

Wildlife habitat adjacent to the 9/9A Proposal pipeline corridor can be characterized as primarily open land, industrial/commercial land, upland forest, or wetland. Most (88 percent) of the route would be adjacent to or within existing or abandoned transportation corridors where land affected by construction would consist of partially paved surfaces (identified as industrial/commercial land) and adjacent open or forested land.

Open land that would be affected by the 9/9A Proposal includes grassy shoulders adjacent to highways and undeveloped commercial and/or industrial lots. Many of the extra work spaces would be in open land along highways and bicycle paths. In general, open land that would be affected by the 9/9A Proposal provides habitat for wildlife adapted to urban settings, including woodchuck, common crow, American robin, European starling, and black rat snake. Wildlife observed during field surveys included eastern cottontails, woodchuck, and various birds.

Most of the industrial/commercial land crossed by the 9/9A Proposal would be paved highway or parking lot surfaces. This land is not habitat to wildlife species. However, a large population of Canada geese use the remaining open areas in commercial and industrial parks in the vicinity of Elmsford.

Upland forest that would be affected by the 9/9A Proposal would be primarily in locations where the pipeline deviates from existing highway or bicycle path corridors. Much of the land adjacent to the paved bicycle path is forested, as well as the land adjacent to Interstate 87 and within Sprain Ridge County Park. Wildlife species expected within these areas include grey squirrel, white-tailed deer, racoon, and various birds. These species are typically adapted to a high level of human activity and disturbance. Species observed during field work included white-tailed deer, grey squirrel, eastern chipmunk, common crow, various songbirds, and red-tailed hawk.

Most of the wetlands that would be affected by the 9/9A Proposal would be forested and emergent wetlands. Representative species include box turtle, muskrat, song sparrow, and meadow vole. Wildlife observed within the emergent wetlands included red-winged blackbird, various songbirds, Canada geese, and box turtle.

Locally significant numbers of waterfowl use the Hudson River, the Croton River and associated tidal wetlands during spring and fall migration. Fish populations in the Croton River may be important for piscivorous birds (e.g., osprey) during migration.

4.5 VEGETATION

The 9/9A Proposal would cross vegetation communities typical of those found in urban and industrial/commercial areas. Open land that would be affected by the 9/9A Proposal primarily includes grassy highway shoulders, weedy vacant lots, and lawn areas adjacent to commercial and industrial buildings. Representative species include multiflora rose, bluegrasses, and goldenrod.

Forest land affected by the 9/9A Proposal includes forest adjacent to highways and bicycle paths, forested areas in local or county parks, and undeveloped forested parcels in otherwise relatively developed areas. Representative species observed in these areas included Northern red oak, yellow poplar, red maple, and sugar maple. In general, forested areas that would be affected by the 9/9A Proposal consist of pole-sized scrub and smaller second growth. Forested areas along the bicycle path in the Briarcliff-Peekskill Trailway and Sprain Ridge County Park include more mature trees with a 36- to 48-inch diameter at breast height (dbh).

Other land affected by the 9/9A Proposal includes the North County Trail and South County Trail bicycle paths that cross through forest of varying age. However, substantial segments of these paths are on paved highway shoulders or within commercial and/or industrial developments.

The 9/9A Proposal would cross no unique vegetation communities.

4.6 ENDANGERED AND THREATENED SPECIES

To comply with the requirements of section 7 of the ESA, we have conducted informal consultation with the FWS and NMFS, and have reviewed threatened and endangered species databases maintained by appropriate state agencies regarding the presence of federally listed or proposed species and state-listed species in the vicinity of the project. In addition, Millennium, as a non-Federal party, is assisting the Commission in meeting section 7 requirements by conducting informal consultation with the FWS and NMFS, and by reviewing rare and endangered species databases maintained by the New York Natural Heritage Program (NYNHP). Millennium contacted the FWS, NMFS, and the NYNHP in May 2000 regarding the 9/9A Proposal.

The FWS identified no additional federally listed endangered or threatened species in the vicinity of the 9/9A Proposal (FWS, 2000). The NMFS has not yet responded, but previous correspondence from NMFS for the filed route in Westchester County indicates that the shortnose sturgeon, which is known to occur in the Hudson River/Haverstraw Bay, may also occur in the Croton River. The NYNHP indicated that the Federal and state listed bald eagle, the state listed least bittern, and the state endangered Torrey's mountain mint may occur in the vicinity of the 9/9A Proposal. The NYNHP also identified three state-protected species (the Kentucky warbler, round field beadgrass, and reflexed sedge) that may occur in the project area.

Bald Eagle

The NYSDEC reports that the federally threatened bald eagle (*Haliaeetus leucocephalus*) uses the Hudson River Valley in the vicinity of the 9/9A Proposal for overwintering. However, the closest recent

siting (1998) was at Croton Point, about 2,400 feet downstream of the proposed crossing of the Croton River. No nesting sites were reported along the 9/9A Proposal.

Shortnose Sturgeon

The federally and state listed endangered shortnose sturgeon (*Acipenser brevirostrum*) could potentially be impacted by the 9/9A Proposal. The only suitable habitat for the shortnose sturgeon along the proposed route is the Croton River.

Least Bittern

The state threatened least bittern (*Irobrychus exilis*) is a coastal plain bird that was last reported in the project vicinity at Croton-on-Hudson in 1981. Breeding and wintering least bitterns inhabit freshwater and brackish wetlands with dense, tall emergent vegetation over relatively deep water (FWS, 1992). The only suitable habitat in the vicinity of the 9/9A Proposal is within the Croton River wetland complex.

Torrey's Mountain Mint

The state endangered Torrey's mountain-mint (*Pycnanthemum toriei*) was last observed in the vicinity of the 9/9A Proposal in 1898 at a location in East Hastings approximately 2,300 feet west of the proposed route. The habitat for this species is dry, rocky woodlands and meadows over ultramafic or calcareous rock (Georgia National Heritage Program, 2000). Ultramafic rock is characteristically high in iron and manganese, producing reddish cast overlying soils. There are several locations along the 9/9A Proposal where reddish cast soils have been observed.

4.7 LAND USE, RECREATION, AND PUBLIC INTEREST AREAS

4.7.1 Land Use

Land uses crossed by the 9/9A Proposal include industrial/commercial (9.2 miles, 40 percent), other mixed land (5.9 miles, 26 percent), open land (5.2 miles, 23 percent), forest (2.4 miles, 11 percent), and residential (0.1 miles, <1 percent). No agricultural land would be crossed. Most of the forest would be in the Briarcliff-Peekskill Trailway and Sprain Ridge County Park. Open land consists primarily of land adjacent to highway shoulders. Industrial/commercial land includes portions of highways that would be used during construction. Open water consists of the Croton River crossing.

The 9/9A Proposal would be installed within U.S. Route 9 for 2.1 miles, State Route 9A for 4.3 miles, and bicycle paths for 9.6 miles, or about 63 percent of its total length. Between MPs 402.7 and 405.4, the pipeline would be installed within the bicycle path that parallels the ConEd powerline. Throughout this 2.7-mile-long segment, the bicycle path is between 0 and 500 feet from the edge of the ConEd powerline right-of-way.

The southbound lanes of U.S. Route 9 and State Route 9A are a designated evacuation route for the Indian Point Nuclear Power Plant that is about 2.3 miles northwest of MP 391.2. Between MPs 401.6 and 404.0, about 2.4 miles of the 9/9A Proposal would be adjacent to the southbound lane of State Routes 9A and 100.

The 9/9A Proposal would involve a 6.2-mile-long crossing of the coastal zone as identified by the New York Division of Coastal Programs and Waterfront Revitalization (MP 391.2 to 397.4). The crossing would include that segment along the Hudson River from the start of the 9/9A Proposal to about 1 mile south of the Croton River crossing.

4.7.2 Residential and Commercial/Industrial Areas

The 9/9A Proposal would involve construction within 50 feet of 4 residences and 33 businesses (see table 4.7.2-1). All four residences would be within a 1-mile-long segment between MPs 399.8 and 400.8 in Ossining where the pipeline would be installed within State Route 9A.

No planned residential or commercial developments were identified although some owners are considering expansion within commercial properties (see section 5.7.2). Since the 9/9A Proposal would closely parallel highways and bicycle paths for much of its length and these properties are public property, it is unlikely that additional commercial or industrial development would occur in these areas. In other areas where survey permission was obtained and, based on discussions with the landowners, the pipeline alignment was placed to avoid conflict with potential future development of the property. Many of these alignments are near property lines, along the edge of parking lots, or down existing access roads through the property.

Name	Approximate MP	Distance from Construction Work Area (ft)	Distance from Pipeline Centerline (ft)
Conrail	394.8	27	46
Max Finkelstein, Inc.	395.5	37	50
Metro Enviro, Inc.	395.7	33	48
Village of Croton-on-Hudson	396.2	31	56
Shop-Rite	396.4	25	47
Residence	399.8	45	59
Residence	399.9	48	62
Residence	400.8	32	40
Residence	400.8	42	50
Coca Cola	407.8	7	167
Perbar Associates	408.8	27	68
Perbar Associates	408.8	49	63
Rini's Restaurant	409.0	33	51
Current Solutions, Inc.	409.0	33	51
999Software.com	409.1	29	36
Herrs Snack Foods	409.1	44	66
Hardwood Flooring, Inc.	409.1	44	66
Brennan Restaurant Builder & Eq	409.1	25	45
Colortone	409.1	26	46
A. R. M. Roofing Co.	409.1	39	63
Custom Architectural Products	409.2	42	68
Launder Centers	409.2	29	45
Digital Ink Ltd.	409.2	29	45
S&L Land Development	409.2	29	45
J&B Auto Body	409.2	32	46
AT&T Wireless	409.2	27	48
Wonder Bread Bakery Outlet	409.3	47	75
Ardsley Bus Corp.	412.4	41	63
Giampiccolo Auto Body	412.4	31	56
The Selecto Corp.	412.6	27	30
Ardsley Acres Motel	412.7	48	52
Akzo Nobel	413.2	48	51
Akzo Nobel	413.3	39	75
Alvin Last, Inc.	413.5	30	47
Purdue	413.9	27	83
Lockheed-Martin	416.4	49	66
Lockheed-Martin	416.5	27	42

4.7.3 Recreation and Public Interest Areas

The 9/9A Proposal would cross five parks (Senasqua Town Park, Van Cortlandt Manor, Old Croton Aqueduct State Historic Park, West Rumbrook Park, and Sprain Ridge Park) and various public properties that are part of the North County, South County, and Briarcliff-Peekskill Trailways bicycle paths (see table 4.7.3-1). Senasqua Town Park is a small park on the east bank of the Hudson River in Croton-on-Hudson and would be crossed within the road. Van Cortlandt Manor, a National Historic Landmark that is managed by the Historic Hudson Valley Group, would be crossed on the abandoned U.S. Route 9 right-of-way. The Old Croton Aqueduct State Historic Park would be crossed along State Route 9A and the West Rumbrook Park would be crossed along the abandoned railroad right-of-way. Nearly all the Sprain Ridge County Park crossing would be within a dirt road.

**TABLE 4.7.3-1
Recreation and Public Interest Areas Crossed**

Milepost	Area Name	Crossing Length (ft)
394.3 - 395.3	Senasqua Town Park	5,544
396.5 - 396.8	Van Cortlandt Manor	1,901
397.0 - 401.3	Briarcliff-Peekskill Trailway	22,810
397.4 - 397.4	Old Croton Aqueduct State Historic Park	158
401.6 - 401.9	North County Trail	1,584
401.8 - 404.1	Briarcliff-Peekskill Trailway	11,287
404.0 - 404.1	North County Trail	317
406.8 - 406.9	Briarcliff-Peekskill Trailway	264
409.1 - 410.1	South County Trail	5,280
410.1 - 410.1	West Rumbrook Park	53
410.1 - 411.3	South County Trail	6,072
411.6 - 413.5	South County Trail	9,874
414.6 - 416.1	Sprain Ridge Park	8,078
416.6 - 416.6	Sprain Brook Parkway	370

Millennium identified 9 locations (all businesses) that are or have been identified as generators of hazardous waste or sites with the potential to contain hazardous waste in the vicinity of the 9/9A Proposal (see table 4.7.3-2). The boundaries of the facility and additional information regarding the type and extent of contamination were not available. However, based on the topographic location and proximity to the 9/9A Proposal, Millennium assumed that there might be a potential for contamination from these facilities.

**TABLE 4.7.3-2
Hazardous Waste Sites Known to Be Near the 9/9A Proposal**

Approximate MP	Site Name	Site Location
395.7	Atro Collision Center	South River Side Ave. - Village of Croton-on-Hudson
395.8	J&E Service Station	South River Side Ave. - Village of Croton-on-Hudson
396.2	Harmon Parking	Gateway Plaza - Village of Croton-on-Hudson
409.0	Sylvania Lighting Services	West Main St. - Village of Elmsford
409.2	Mr. Stripper of Westchester	Saw Mill River Rd. - Village of Elmsford
409.2	Clubertson Restoration	North Central Ave. - Village of Elmsford
409.3	Amoco	North Central Ave. - Village of Elmsford
409.5	Continental Baking Co.	South Central Ave. - Village of Elmsford
412.8	O C G Microelectronic Materials	Saw Mill River Rd. - Village of Ardsley

4.8 CULTURAL RESOURCES

Section 106 of the NHPA, as amended, requires the Commission to take into account the effect of its undertakings (including issuance of certificates) on properties that are listed on the NRHP or that meet the criteria for listing on the NRHP, and to afford the ACHP an opportunity to comment on the undertaking. Millennium, as a non-Federal party, is assisting the Commission in meeting its obligations under section 106 and the ACHP's regulations, set forth in 36 CFR 800.

Millennium completed the cultural resources overview and background review for the 9/9A Proposal. In addition, a cultural resources walkover survey of the construction right-of-way, extra work areas, and access roads was conducted in May and June 2000, except for approximately 1 mile where access was denied on five properties. A total of 44 cultural resources were discussed in the report. Of the 44 resources, 35 were either not eligible for the NRHP or were outside of the right-of-way, 4 areas require additional deep testing, 4 areas would require monitoring during construction (including 1 where access was denied), and 4 areas were not assessed because access was denied. Locations and properties requiring additional cultural resources investigation and areas requiring monitoring are listed in table 4.8-1. The November 13, 2000 comments of the New York SHPO are included in table 4.8-1.

The 9/9A Proposal would also cross the New Croton Aqueduct, a NRHP eligible property, three times at MPs 401.2, 410.3, and 413.8. However, the Aqueduct is at the depths of 93, 40, and 140 feet, respectively, at these locations. We and the New York SHPO believe that pipeline construction and operation would not affect the New Croton Aqueduct.

Unanticipated Discovery Plan

Millennium prepared and filed an Unanticipated Discovery Plan with its original application to address inadvertent discoveries of cultural resources, including human remains, during construction of the project. This initial plan has been reviewed by FERC and the New York SHPO, and is acceptable.

Native American Consultation

The 9/9A Proposal would not cross any federally designated Native American reservations. Millennium previously has contacted the Seneca, Delaware, and Ramapo tribes requesting input concerning the presence of traditional use or sacred Native American areas in the project area. Each of these tribes has been notified of the 9/9A Proposal. No responses have been received to date.

TABLE 4.8-1

**Locations/Properties Requiring Additional Cultural Resources Investigations
(includes recommendations of Millennium, the FERC, and the SHPO)**

Approximate MP	Site Number (if assigned)	Site Type	Comments
392.8		Furnace Brook crossing	Deep testing.
	WES-029	Residence No. 3, Warren Road	Access denied.
395.5 - 396.0		Finklestein's Goodyear-Metro Environmental	Access denied. Archaeological monitoring for areas under pavement.
	WES-025	Van Cortlandt Manor	NRHP-Eligible, NHL- work plan.
396.9	WES-020	Pumping Station, Croton River Road	NRHP-eligible. Additional work to assess effects.
	WES-004	Old Croton Aqueduct Historic District	NRHP-Eligible, NHL- work plan.
	WES-026	Residence No. 6, State Route 9A	Access denied.
		Pocantico River crossing	Deep testing.
401.6 - 401.7		Railway/Trailway segment, east of Briarcliff Manor railroad	Archaeological monitoring under pavement.
		Pocantico River crossing	Deep testing.
405.2	WES-9801/104	North County Trailway, abandoned railroad	Assess trailway for eligibility.
407.0 - 413.0		Crossings of the Saw Mill River and tributaries	Deep testing at various locations to be determined.
407.7 - 407.8		Elmsford Fairview Industrial Park, 3 bore pits	Archaeological monitoring under pavement.
408.6 - 408.7		Parcel in Elmsford	Access denied.
411.6	WES-002	V. Everitt Macy Park, Saw Mill River Parkway	NRHP-eligible. Additional work to assess effects.
411.7	WES-001	Bridge, south of dam at Woodland lake	NRHP-Eligible. Additional information to assess effects.
	WES-201	Concrete foundation remains	Fence and avoid.
413.5 - 413.5		Alvin Last, Inc., parking lot	Archaeological monitoring under pavement.
414.6 - 416.1		Sprain Ridge Park	Evaluate park as a whole for NRHP-eligibility.
	WES-031	Lockheed Martin Facility	Access denied.

4.9 SOCIOECONOMICS

In 1995, Westchester County had a population of 893,412 persons and a population density of 2,063 persons per square mile (see table 4.9-1). However, population in Westchester County ranges from towns with a population of 2,902 persons per square mile (Yorktown) in the northern end of the county to cities with populations of 10,404 persons per square mile (Yonkers) and 15,321 persons per square mile (Mount Vernon) in the southern end of the county. In 1994, per capita income was \$37,324 in Westchester County, which is above the state wide per capita income of \$25,720. In 1990, housing vacancy rates were 5 percent.

A wide range of public services and facilities is offered throughout the project area. The urbanized project area offers full-service law enforcement and fire districts, schools, hospitals, emergency response services, water and sewer services, road and bridge departments, solid waste disposal, recreation programs, library systems, and social services. Larger urban areas near the project include Briarcliff Manor, Mount Pleasant, Elmsford, Yonkers, and Mount Vernon.

TABLE 4.9-1
Selected Demographic Statistics

	New York State	Westchester County
1990 land area (square miles)	47,224	433
1995 total population	18,136,081	893,412
Percent change (1980 to 1995)	3.3%	+3.1%
1995 persons per square mile	386	2,063
1995 civilian labor force	8,493,429	446,200
Percent unemployment rate	6.3%	3.7%
1994 per capita income	\$25,720	\$37,324
1993 total non-farm establishments	3,215	28,897
Percent retail trade	29.5%	21.3%
Percent services	32.8%	38.5%
1992 number of farms	1,679	97
Percent of total land	38%	2%
1990 total housing units	7,226,891	336,727
Percent change (1980 to 1995)	+5.2%	+6.3%
Percent vacant	8.1%	5.0%
Percent mobile home/trailer	2.7%	0.1%
Percent owner-occupied	52.2%	59.7%

SOURCE: U.S. Bureau of the Census: 1990 U.S. Census and County and City Data Book, 1994.
U.S. Bureau of the Census: 1994 County Business Patterns
U.S. Bureau of the Census: USA Counties 1996