The Proposed Shaft 33B to City Tunnel No. 3, Stage 2 – Manhattan Leg Draft EIS

Informational Forum

November 17 and 21, 2005

Introduction and Agenda

EIS Process

- Draft EIS public hearing on December 5th
- Draft EIS Comment Period closes on December 22nd
- Final EIS and Findings Statement due in January 2006
- The Findings Statement will include a decision on the location of the proposed Shaft 33B Site

EIS Outreach

- Presentations at Community Boards 6 and 8, November 14th
- Informational Forums, November 17th and 21st
- Draft EIS provided to repositories
- Draft EIS on CD was sent to more than 800 people, including every one who commented on the Draft Scope of Work and project and anyone who requested a CD
- Draft EIS available on DEP web page

Presentation Agenda

- CEQR Process
- Project Overview
- Traffic Analyses
- Noise Analyses

Proposed Shaft 33B to City Water Tunnel No. 3 Stage 2 – Manhattan Leg

Draft Environmental Impact Statement

CEQR NO. 05DEP010M

Prepared by New York City Department of Environmental Protection

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City Environmental Quality Review (CEQR) Process

Environmental Review Concepts

- CEQR Technical Manual
- Defining a Study Area
- Defining Future Conditions without the Project
- Defining Future Conditions with the Project
- Developing Reasonable Worst-Case Scenario
- Determining Significance
- Developing Mitigation

Reasonable Worst-Case Scenario

- Reasonably foreseeable
- Address uncertainties in data or in future scenario
- Analysis period
  - Peak hour, day/night
- Prescribed for certain assessments:
  - Traffic: AM, midday, PM peak
  - Noise: largest project increment (considering background combined with project-generated noise)

Determination of Significance

- Determining significance: According to NYS SEQRA and NYC CEQR regulations, consider:
  - probability that the adverse impact would occur;
  - the duration of the impact;
  - its irreversibility;
  - the geographic scope of the adverse impact;
  - its magnitude; and
  - the number of people affected.
- Significant vs. temporary impacts: Distinction was primarily made based on the combination of duration and severity of the effect.
- Mitigation: Where feasible, Draft EIS identifies measures to relieve significant and transient/temporary adverse effects.

Draft EIS Chapters

- Executive Summary
- Purpose and Need and Project Overview
- Potential Shaft Site, Water Main Connection and the Water Main Only Alternative Chapters contain analysis of each applicable CEQR Technical Impact area, including:
  - Land Use and Community Facilities, Zoning, and Public Policy; Open Space; Socioeconomic Conditions; Historic Resources; Urban Design and Visual Resources; Neighborhood Character; Infrastructure and Energy; Traffic and Parking; Transit and Pedestrians; Air Quality; Noise; Vibration; Hazardous Materials ; Public Health; Mitigation Measures; and Unavoidable Adverse Impacts.

Draft EIS Chapters (continued)

- No Action Alternative
- Comparison of Alternatives
- Growth-Inducing Impacts
- Irreversible and Irretrievable Commitments of Resources
- Screening Analyses
  - Shadows, Natural Resources, Solid Waste, and Sanitation

Project Overview

Shaft 33B Purpose and Need

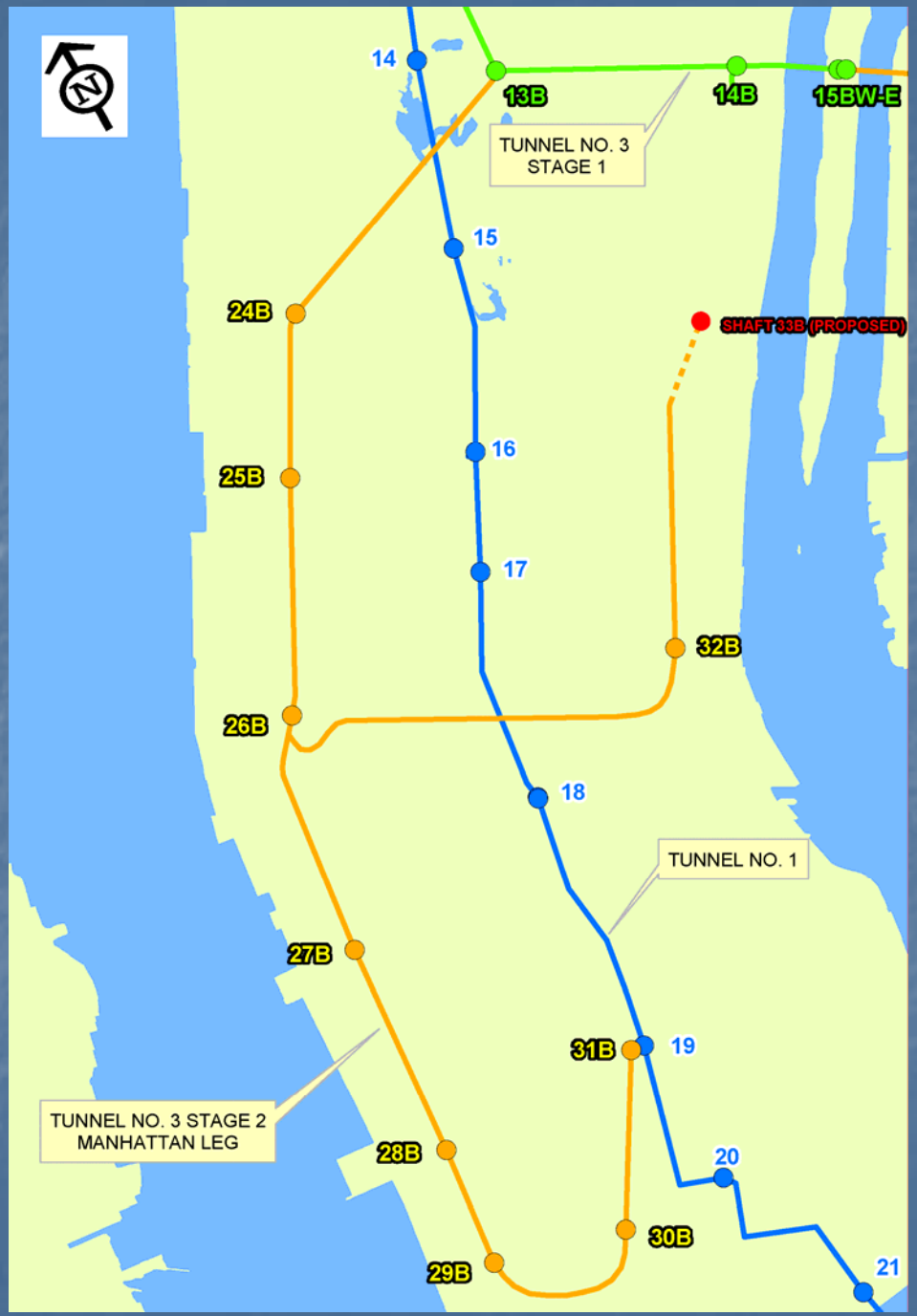
- Deliver water from City Tunnel No. 3 to the distribution system
- Allow NYCDEP to inspect and maintain City Tunnel No. 1, Manhattan's primary water supply, which has been in constant operation since 1917
- Provide needed distribution system redundancy and reliability
- Maintain sufficient water pressure in the Middle Intermediate Pressure Zone (MIPZ)
- Provide a redundant water supply to the Northern Intermediate Pressure Zone (NIPZ)

NYC Water System Downstate Overview

- 50 miles of deep rock tunnel
- 74 surface shafts
- 6,000 miles of water mains
- Manhattan primarily served by City Tunnel No. 1

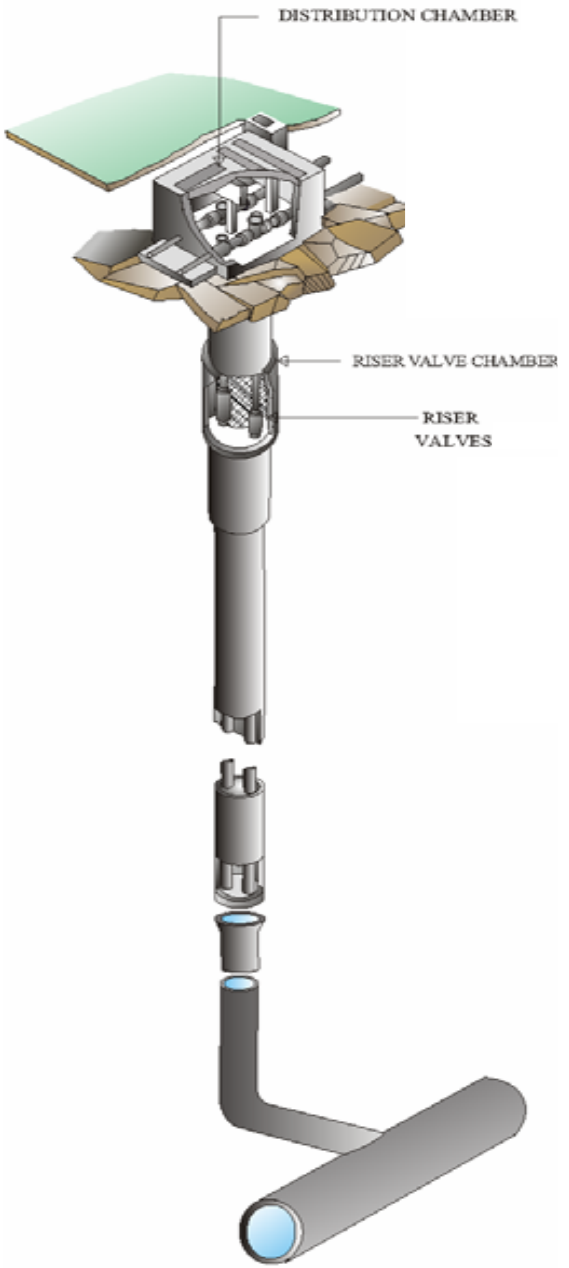
NYC Water Tunnel No. 3 Stage 2 – Manhattan Leg

- Shaft 33B:
  - The tenth and final shaft to be sited for Stage 2 Manhattan Leg



Shaft Definition

- Riser pipes deliver water from the tunnel to the surface
- Two risers provide system redundancy
- Distribution chamber houses valves that control water flow into distribution system
- Virtually all of the shaft is below surface



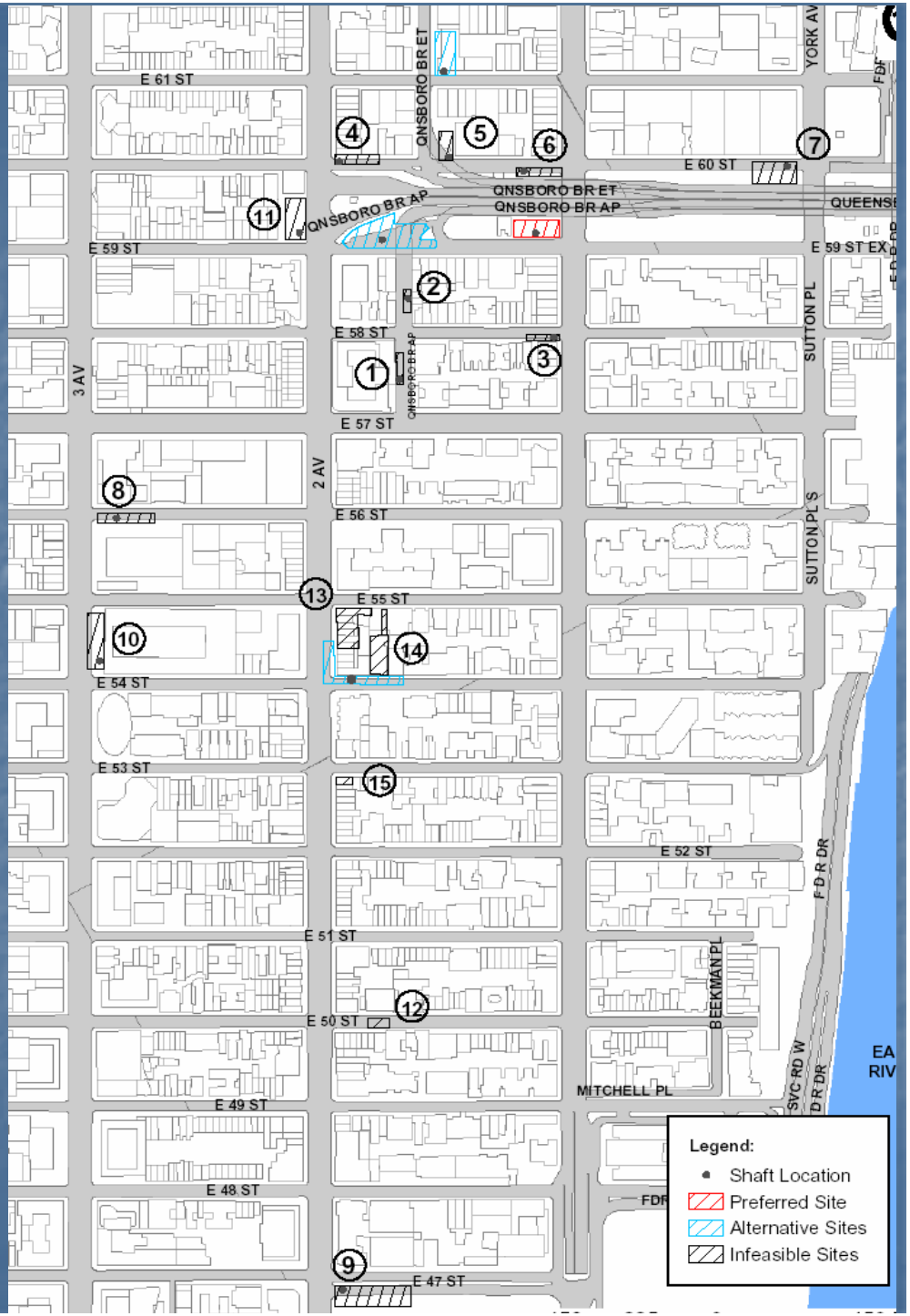
Two Riser Shaft

Shaft 33B Operational Description

- The shaft will operate continuously, unmanned
- The facility entirely below ground except one 10’ by 14” air vent and two standard hydrants
- Site to be visited a few times per week by DEP maintenance staff
- No chemicals will be stored on site

Initial Sites Considered

- 19 sites evaluated
- 15 infeasible sites eliminated using three criteria:
  - Site could not accommodate construction (e.g., width)
  - Actively used private property
  - Closure of an entire street or avenue



Shaft Sites Analyzed in EIS

- E. 59th Street at First Avenue (Preferred Site)
- Three alternative sites:
  - E. 59th Street at Second Avenue
  - E. 54th Street at Second Avenue
  - E. 61st Street between First and Second Avenues

Site Characteristics and Engineering Issues

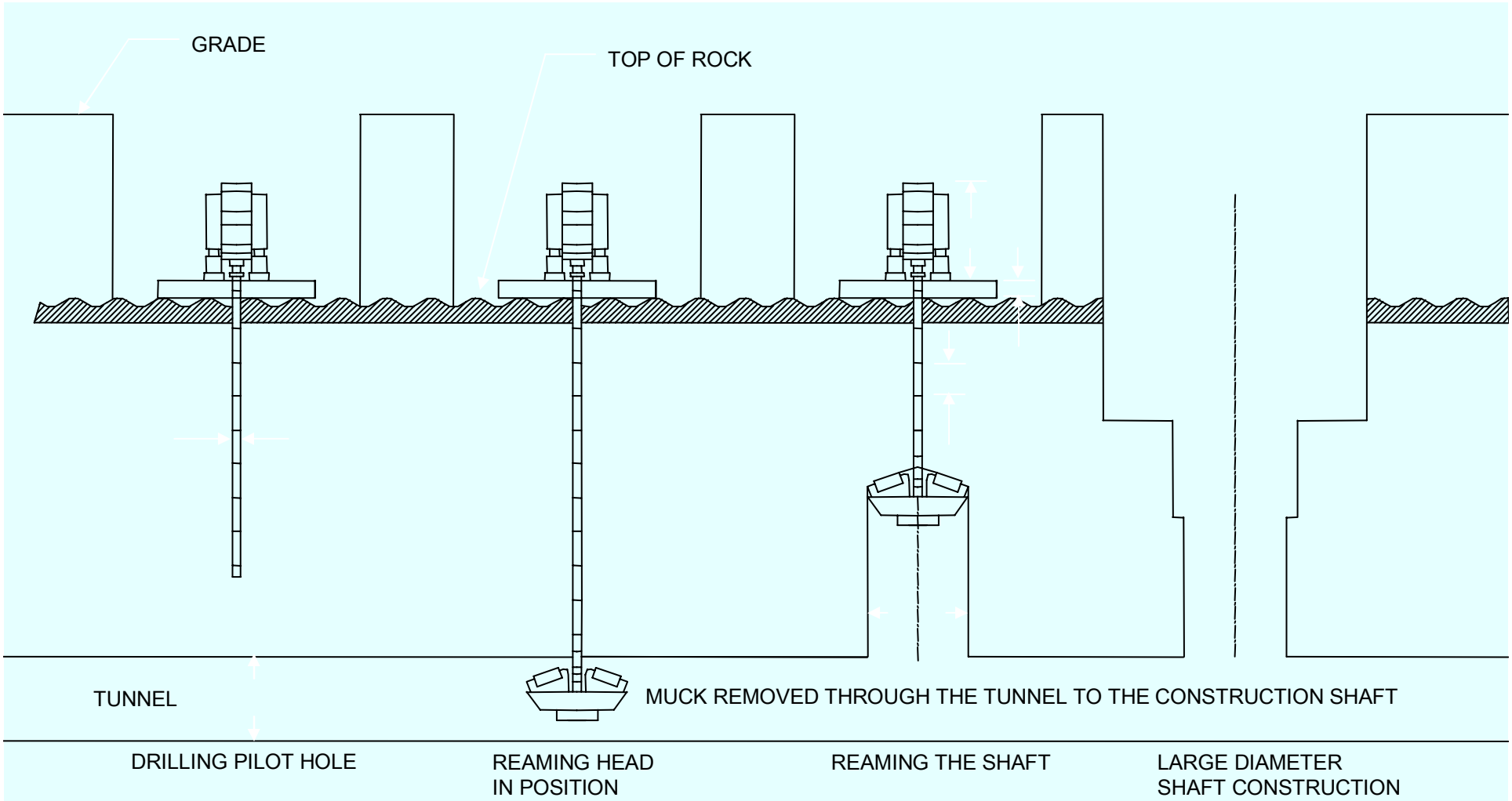
Issue	Shaft Site			
	Preferred	E. 59th St./ Second Ave	E. 61st St	E. 54th St/ Second Ave
Property Owner/Type	City-owned mapped street	City-owned mapped street	Archdiocese of New York (private lot)	City-owned mapped street (const. easement may be required)
Site Size (square feet)	7,200-10,400	15,000	9,000	8,500
Site Shape	Regular	Slightly irregular	Regular	Irregular (L shaped)
Number of Risers	2	1	2	1
Major Utility Disruption	None	Relocate Con Ed oil-o-static line	None	None
Distance to Nearest Sensitive Use	77 feet	86 feet	38 feet	11 feet
Other Construction Issues	Requires use of multi-use area during Stages 2 & 3 and coordination with NYCDOT and DSNY	Relocate Con Ed oil-o-static line; bisected site	Requires land acquisition	Requires removal of sidewalk cafe, potential easement for temporary sidewalk; disruption to construction for garage access

Site Characteristics and Engineering Issues (cont.)

Issue	Shaft Site			
	Preferred	E. 59th St./ Second Ave	E. 61st St	E. 54th St/ Second Ave
Construction Technique	Raise Bore	Surface excavation potentially required	Surface excavation potentially required	Surface excavation potentially required
Shaft Construction Duration (Raise Bore)	52 months	52 months	52 months	61 months
Shaft Construction Duration (Surface Excavation)	NA	65 months	65 months	70 months
Estimated Shaft Completion	June 2010	April 2011 (raise bore); May 2012 (surface excavation)	April 2011 (raise bore): May 2012 (surface excavation)	September 2011 (raise bore); June 2012 (surface excavation)

Shaft Site Construction Techniques

- Raise Bore Construction:
  - Stage 1: Site preparation
  - Stage 2:
    - Drill “pilot hole” down to City Water Tunnel No. 3
    - Use “raise bore” machine to excavate shaft from below
    - Blasting to excavate chamber near surface and to widen shaft
    - Line shaft with concrete
  - Stage 3: Install riser piping and chamber walls
  - Stage 4: Install pipes and valves, restore site



SHAFT LENGTHS ARE NOT TO SCALE

FIGURE 1. RAISE BORING PROCEDURE

Shaft Site Construction Techniques

- Surface Excavation:
  - To be used at alternative Shaft Sites if longer construction schedule means City Tunnel No. 3 is not available for removing rock and soil from Shaft
  - Stage 1: Site preparation
  - Stage 2: Excavate chamber and shaft via blasting (at 54th Street Site, use alternate techniques near surface)
  - Stage 3: Install riser piping and chamber walls
  - Stage 4: Install pipes and valves, restore site

Blasting – Shaft Sites

- Blasting required to excavate chamber and shaft
- NYCDEP has extensive experience with blasting at other shaft sites
- To be conducted in coordination with FDNY
- No more than two blasts per day
  - First blast typically not before 10:00 am
  - Second blast typically around 3:00 pm or near the end of the evening traffic peak, i.e., 6:30 pm
- Blasting has instantaneous effect

Measures to Minimize Blasting Effects

- Vibration and noise levels depend on amount of explosive, geological conditions, and distance
- NYCDEP will implement protective measures and a noise and vibration control plan to avoid structural damage from vibration:
  - Blasting/vibration expert
  - NYCDEP will consult with Landmarks Preservation Commission on Queensboro Bridge and any other potentially affected historic structure
  - Structure survey/crack gauges
  - Neighborhood notification program
  - Vibration monitoring
  - Vibration levels will be limited
  - Initial small explosive charges to refine blasting procedures
  - Use of timed multiple charges and blast mats

Blasting Process

- Setting the blast
  - Placement of explosives (1 to 2 hours)
  - Placement of blasting mats (1 hour)
  - Detonation of explosives (instantaneous)
  - Removal of blast mats (1 hour)
- Whistle warnings to notify community when blast is about to occur
  - 1 long whistle – vehicular and pedestrian traffic stopped
  - 2 short whistles – blast will commence
  - 2 long whistles – all clear: blast is complete and traffic flow may resume
  - Traffic and pedestrians could be stopped for less than 5 minutes for blasts less than 100 feet deep
  - NYCDEP will apply for whistle waiver from FDNY to reduce stoppage to 1 minute

Duration of Blasting Activities Shaft Sites

Activity	Shaft Site			
	Preferred	E. 59th St / Second Ave	E. 61st St	E. 54th St / Second Ave
Raise Bore Technique				
Duration of Blasting	8 months	8 months	8 months	6 months
Potential Traffic Stoppages (top 100 feet)	4 months	4 months	4 months	2 months
Surface Excavation Technique				
Duration of Blasting	NA	24 months	24 months	15 months
Potential Traffic Stoppages (top 100 feet)	NA	12 months	12 months	3 months

Note: NA = Not applicable. Surface excavation would not occur at the Preferred Shaft Site. The E. 54th Street Site would also require 12 months of hydraulic splitting using the raise bore technique or 15 months of hydraulic splitting using surface excavation.

Significant Adverse Construction Impacts - Potential Shaft Sites

- Potentially Significant Adverse Noise Impacts at all sites
  - Preferred Site - two buildings
  - E. 59th Street and Second Ave - three buildings
  - E. 61st Street - receptors between Shaft and First Ave
  - E. 54th Street and Second Avenue - between First Ave and midblock to Third Ave and along Second Ave between E. 53rd and E. 55th Streets
- Potential Significant Adverse Open Space Impacts
  - E. 54th Street and Second Avenue – Connaught Tower Plaza
- Potential Significant Adverse Land Use Impacts
  - E. 61st Street - Potential significant noise impacts at early education facility adjacent to site would result in a significant conflict with this noise-sensitive land use

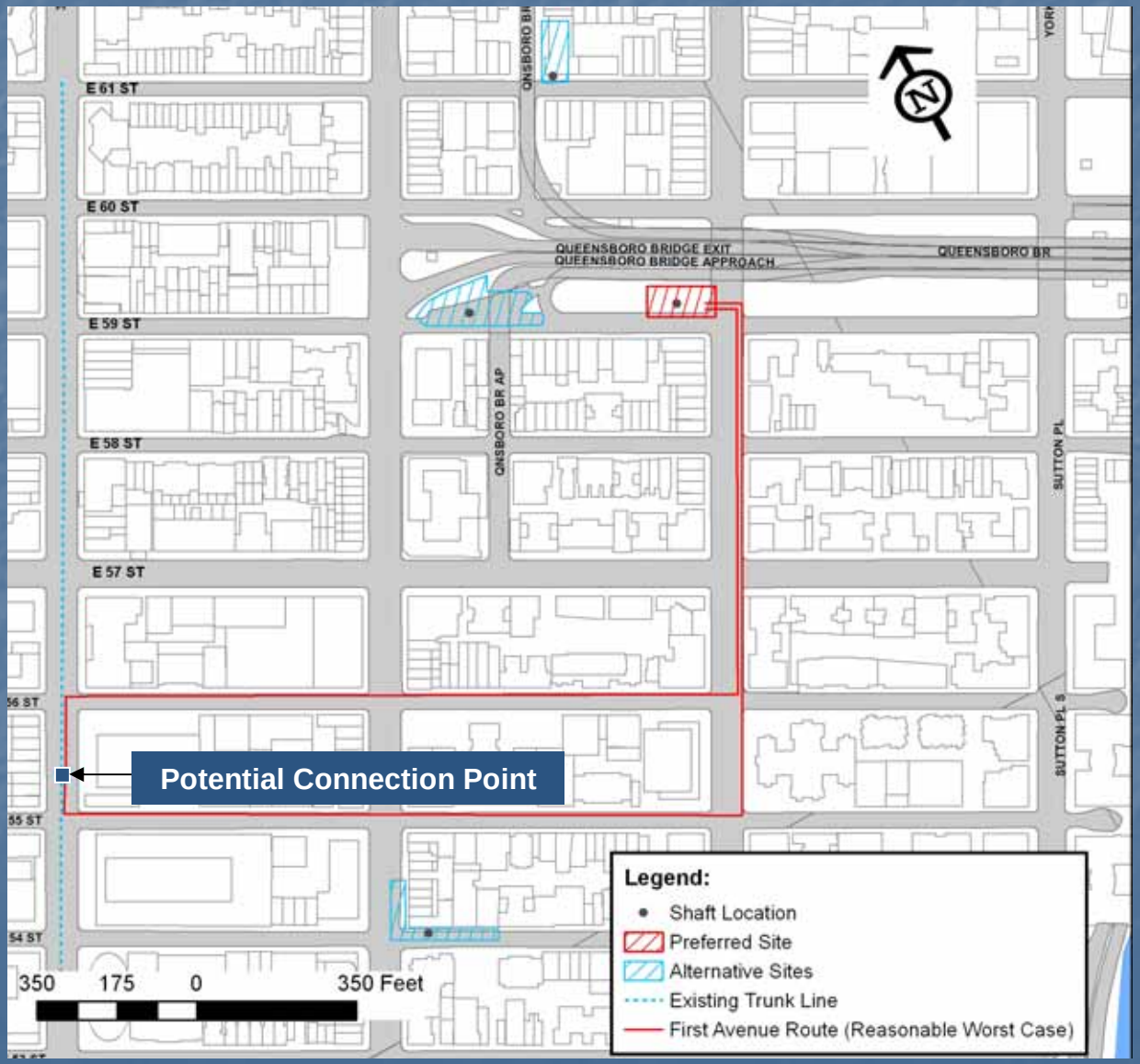
Water Main Connections

- Required to connect shaft to trunk main at Third Avenue
- Two mains required, to connect to two pressure zones
- To be constructed by NYC Department of Design and Construction (NYCDDC)
- NYCDDC will select route and staging once Shaft Site is selected, in coordination with agency plans so that disruptions can be minimized
- NYCDDC's Office of Community Outreach will coordinate with Community Boards

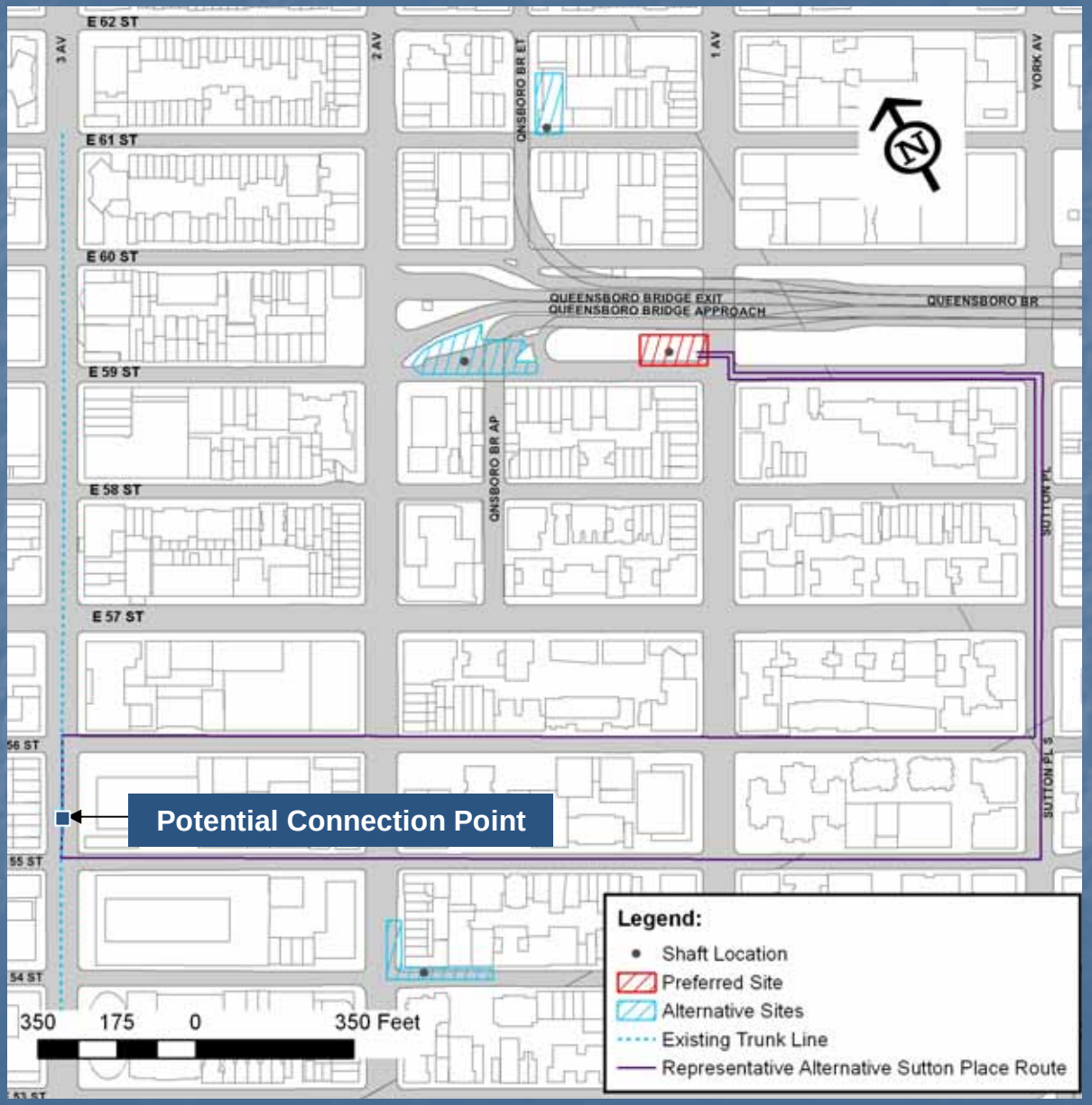
Water Main Routes in the EIS

- Three possible routes:
  - Reasonable Worst-Case Route: First Avenue
  - Additional Representative Route: Sutton Place
  - Additional Representative Route: E. 59th/E.61st Street
- Two mains side by side on avenues
- Single mains on side streets

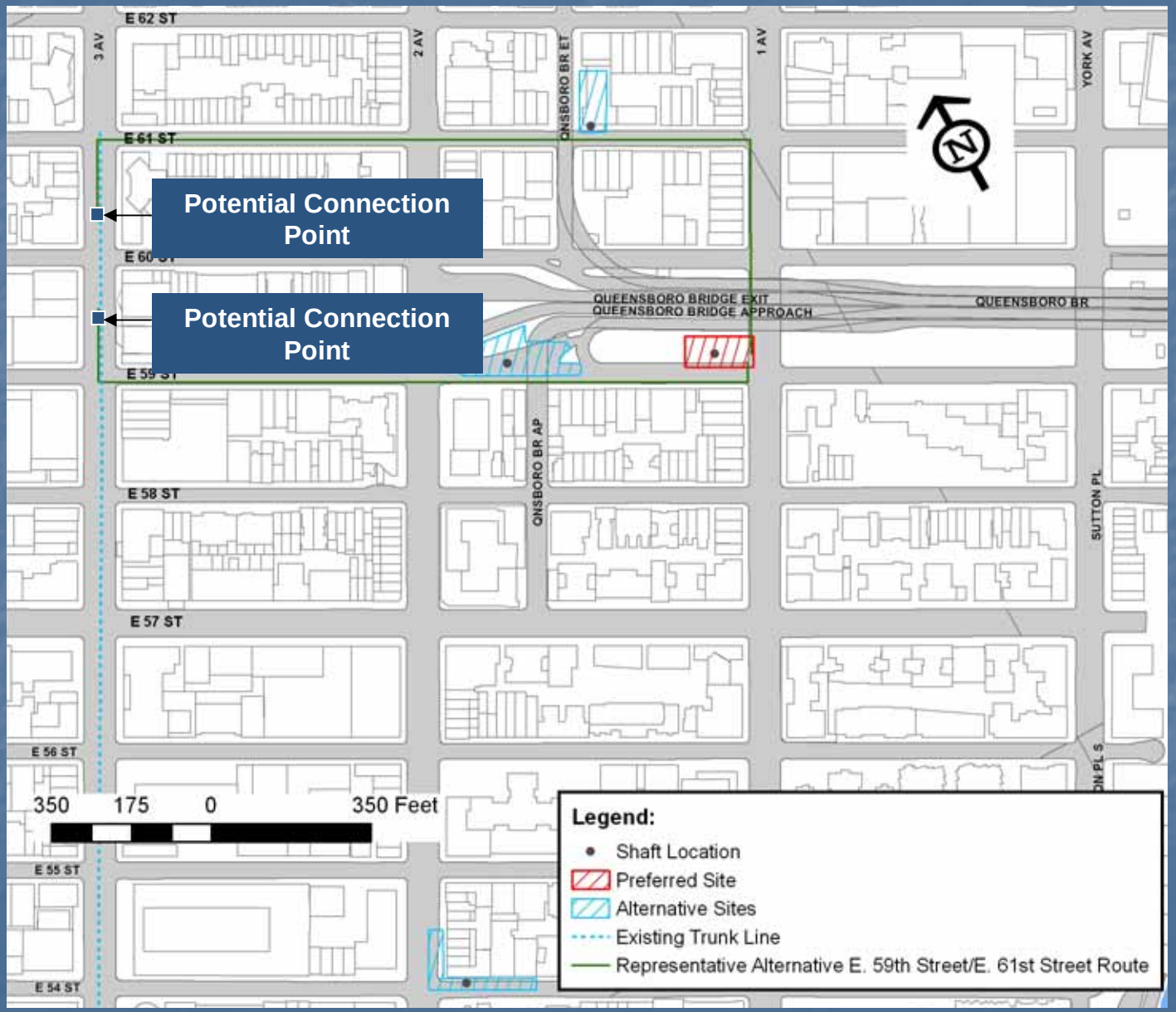
First Avenue Route (reasonable worst-case route)



Sutton Place Route



E. 59th Street/E. 61st Street Route



Estimated Months of Construction, Water Main Connection Routes for Shaft Sites

Water Main Route	Shaft Site			
	Preferred	E. 59th St / Second Ave	E. 61st St	E. 54th St / Second Ave
First Avenue Route	**41**	**47**	**46**	**22**
Sutton Place Route	**51**	**57**	**56**	**N/A**
E. 59th /E. 61st Street Route	**31**	**31**	**31**	**N/A**

Notes: Durations are in months and include holiday black-out dates.
N/A = This route is not applicable for this Shaft Site.
The water main connection route from the E. 54th Street/Second Avenue Shaft Site is considered to be the "First Avenue" route for presentation purposes in this table.

Temporary Adverse Construction Impacts – Water Main Connection Routes

- Each route will experience temporary adverse construction impacts associated with:
  - Traffic
  - Noise
  - Urban design – Possible loss of street trees

Questions