



**Construction
Environmental Protection
Program**

March 2005



MTA - CAPITAL CONSTRUCTION

CM-1265 Fulton Street Transit Center

Construction Environmental Protection Program

March 2005

PB/Bovis a Joint Venture

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1. INTRODUCTION

This Construction Environmental Protection Program (CEPP) describes the Metropolitan Transportation Authority (MTA)/New York City Transit (NYCT) Fulton Street Transit Center (FSTC) project environmental management program. The CEPP is based on the continuous improvement ISO 14001 model that identifies the coordination necessary to limit potential impacts to the environment, protected resources, and communities within and abutting the project area. The mitigation measures include: permit requirements, specification requirements, site inspections, environmental compliance meetings, mitigation techniques, and training and management reporting. The objectives of the CEPP are to:

- Identify environmental requirements within the Project that require compliance to Federal, State, and local regulatory permit conditions and the procedures defined to meet them;
- Define Environmental Commitments and mitigation measures promised within the Environmental Impact Statement (EIS), and ensure these requirements are identified in both the CEPP and the Contract documents;
- Review Environmental Performance Commitments (EPCs) and the stipulations implemented by the FSTC Project in order to meet these objectives;
- Define the responsibilities and actions required to maintain compliance with environmental requirements during construction and to effectively respond to problem situations or agency/public concerns;
- Establish the necessary procedures for communication, documentation, and review of environmental compliance activities for each construction contract; and
- Describe the protected resources within the project area and the kinds of mitigation measures needed to protect them.

The CEPP is meant to be a living document that will be updated as design and construction progresses and when further environmental issues are identified. Periodic reviews of the plan and procedures will be performed to ensure continual improvement of the plan's adequacy, and it will be expanded and updated during the project duration. Because the work potentially involves both conventional design-bid-build and design/build contracts, the CEPP is intended to be flexible and tailored to match highly variable construction activities and locations throughout the Project.

The Project Management Team (PMT) is an integrated staff from MTA/NYCT, the Fulton Street Transit Center Design Team and, the CCM. The FSTC Design Team is managing the Conceptual Design, Preliminary Engineering and Final Engineering activities of the FSTC Project. The PMT will oversee environmental issues that must be managed during construction. The CEPP describes the environmental requirements that have been identified by NYCT, the FSTC Design Team and the CCM and the regulatory requirements that will need to be met during construction. These requirements include NYCT Environmental Performance Commitments (EPC's) made in the EIS and any further commitments specified in the ROD stipulations of the agreements made with outside agencies, environmental requirements and specifications made by the FSTC Design Team to avoid adverse impacts during construction or operation. Each Contractor involved in construction will be required to comply with the relevant environmental compliance requirements in this program. The PMT will be responsible for ensuring that environmental issues identified during design and preconstruction are included in the Contract Documents.

NYCT must submit the CEPP to the New York State Historic Preservation Office (SHPO) for approval prior to the commencement of all construction activities. SHPO, New York Landmarks Preservation Commission (LPC) and Lower Manhattan Emergency Preservation Fund (LMEPF) and building owners of historic properties will be provided the CEPP for their review prior to any construction or deconstruction activities. Further, NYCT will provide the public the opportunity to review the CEPP through the FSTC Project website.

2. PROJECT INFORMATION

The Fulton Street Transit Center (FSTC) is a MTA/NYCT project to design and construct a readily identified transit hub in Lower Manhattan. This transit hub services as a central connector to 12 subway lines between William Street to the east and Church Street to the west. It consists of:

- Rehabilitation of the 2/3 Fulton Street Station;
- Two new southern entrances at the 4/5 Fulton Street Station;
- Rehabilitation of the 4/5 Fulton Street Station;
- Widening of the A/C mezzanine at Fulton Street between Nassau and Broadway;
- A new A/C to 2/3 platform to platform stair;
- A new entrance pavilion at the southwest corner of Dey and Broadway;
- A new transit terminal at Broadway and Fulton which adaptively reuses the Corbin Building (a historic structure in the John Street/Maiden Lane Historic District);
- An underground connector below Dey Street that connects the new transit hub to the R/W – E Church Street Station;
- A new entrance at the corner of William and Fulton;
- And various new entrances, entrance improvements and elevators that provide ADA access throughout the project (Figure 1).

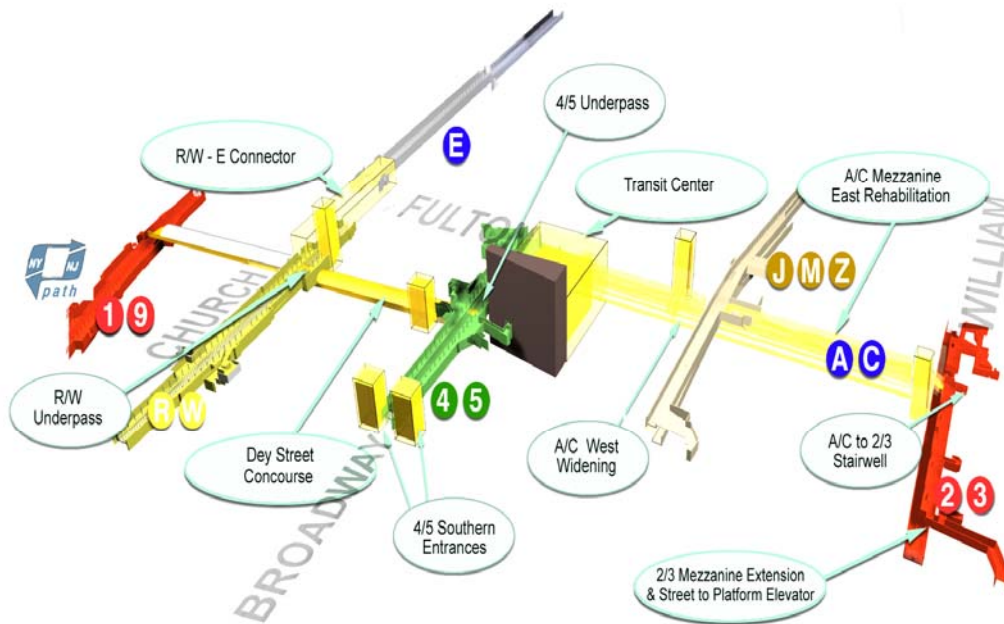


Figure 1 - Fulton Street Transit Center Project Elements

During the planning stage the FSTC project has been subdivided into six contracts. They include:

- The 2/3 Fulton Street Station & 4/5 Fulton Street southern stairs for the Categorical Exclusion package;
- Dey Street Design/Build Contract -The Deconstruction of 189 Broadway (World of Golf), the Dey Street underground corridor, the construction of the Dey Street Entrance Pavilion along with the 4/5 underpass and re-routing of the sewer along the east side of Broadway between Fulton and John Streets;
- Deconstruction Package - The deconstruction of all remaining acquired buildings between Fulton and John Streets along Broadway;
- Transit Center, A/C West widening and J/M/Z Northbound and 195 Broadway Easement work along with the Dey Street Concourse finishes;
- 4/5 Rehab & 2/3 Fulton Street Station finishes, A/C East and JMZ Southbound;
- R/W to E Connector.

3. RESPONSIBILITIES

The process of environmental compliance begins prior to construction with the Project Management Team (PMT) identifying, tracking and integrating environmental requirements during design. It also includes effective permitting and construction planning, to incorporate environmental controls and mitigation measures accepted or approved by the responsible agencies during the design phase. This section of the CEPP describes the Project team, organizational structure and interfaces of the project organization. It provides a description of the functions and major responsibilities of the key staff involved.

The FSTC will be built through the concerted efforts of various organizations and responsible parties, who will work together as an integrated team providing multiple levels of oversight to ensure a successful outcome. The team primarily includes MTA/NYCT, the FSTC Design Team, CCM and the construction contractors.

The Team also consists of other key support and oversight organizations such as the MTA and the FTA. The Project Team will work towards the common goal of successfully completing the project and meeting the federal requirements and expectations of the State of New York and the project stakeholders.

NYCT has separately engaged the services of Louis Berger Group, Inc., as the project Environmental Consultant, with responsibilities for planning and delivery of the Draft EIS (DEIS) and the preparation of a Final EIS (FEIS) for the project. The FEIS has recently (September 2004) been submitted to the FTA.

The FSTC Design Team provides the day-to-day design development for Conceptual Design Preliminary Engineering and Final Design for the construction contracts. The Design Team will also be developing, updating and maintaining the environmental compliance plans and procedures including the CEPP and the Environmental Commitments database during Preliminary and Final Engineering. The Design Team with collaboration on NYCT and the CCM will be responsible for the preparation of final designs, bid documents, design reports, construction cost estimates, construction schedules, and design calculations for each of the

subsequent construction packages. The Design Team will also be responsible for performing construction support services for the project for those packages for which they had design responsibility. This includes review of shop drawing submittals, addressing requests for information, change order support and site visits. This will be carried out in concert with the CCM and NYCT.

Prior to the start of construction and during construction, the CCM, will provide management of construction contractors selected for the project's contract packages.

The roles and responsibilities of MTA/NYCT, the FSTC Design Team, CCM, and the Contractors required for maintaining environmental compliance during design and construction of the FSTC Project are described below.

3.1 Project Management Team (PMT)

The PMT will manage and develop the Preliminary and Final Engineering for the entire FSTC Project. The CCM and NYCT will develop the procurement documents for the construction contracts.

MTA and NYCT, as permit applicants for Federal and most New York State permits, will provide ongoing support and oversight of the project with regard to compliance. In particular, this includes permits or approvals issued by NYSDEC permitting administrator (SPDES permits), NYSDEC Division of Hazardous Waste Remediation (for construction in a Class II Inactive Hazardous Waste Disposal Site), New York City Department of Environmental Protection (NYCDEP) and coordination with the Federal Transit Administration (FTA) the Advisory Council for Historic Preservation (ACHP) and the State Historic Preservation Office (SHPO). MTA/NYCT will be the point of contact for communication with those agencies. The FSTC Design Team is responsible for assuring that the Final Engineering design reflects compliance with the FSTC FEIS mitigation measures and Record of Decision (ROD) requirements. The FSTC Design Team is responsible for ensuring that the environmental commitments identified in the FEIS and ROD are incorporated into the Final Engineering, and that environmental controls are incorporated into the contract documents based upon the level of engineering design completed. Once construction begins, the CCM is responsible for management of environmental issues and implementation of mitigation measures ranging from protection of cultural resources to hazardous waste management. This requires coordination, and communication among the construction team, MTA/NYCT, regulatory agencies, and local communities. It also requires the ability and flexibility to respond if problems arise.

The PMT will include a qualified Cultural Resources Management Team (CRM) for the Project, which shall comprise a team of personnel, including a historic preservation architect and archaeologist that meet The Secretary of the Interior's Professional Qualifications Standards (36 CFR 61) with appropriate experience and background in Historic Properties (including both Built Properties and Archeological Resources).

3.2 Design Managers (Arup)

The Design Managers are responsible to MTA/NYCT for ensuring that environmental controls are incorporated into design and construction documents during design.

3.3 Consultant Construction Manager (CCM)

Consultant Construction Manager (CCM) is the representative responsible to MTA/NYCT for overall construction compliance with applicable environmental commitments and requirements. The CCM is ultimately responsible for overseeing the construction organization and implementation of the requirements set forth in this CEPP. Duties include:

- Managing day-to-day construction activities project-wide;
- Enforcing environmental commitments project-wide;
- Effective and timely communication of environmental compliance issues to the NYCT and their Resident Engineers (RE)
- Serving as the primary Emergency Coordinator

3.4 CCM Project Managers

A CCM Project Manager (PM) and NYCT Resident Engineer (RE) will be assigned to each of the construction contracts for the project. They will provide direct technical oversight of construction work and ensure compliance with contract documents, including environmental requirements.

The PM duties include:

- Working with the RE to identify site-specific mitigation needs and construction sequencing to limit impacts and help ensure environmental compliance.
- Working in conjunction with the PMT in developing, implementing, and reviewing all contractor Environmental Awareness Training requirements for the contract phase.
- Assisting the PMT and Contractors in identifying and resolving environmental compliance issues and daily preparation of field reports and direction to Contractors regarding their activities and performance.
- Preparation of Deficiency Reports and Corrective Action Reports for Contractors when situations of environmental non-compliance occur (copied to the RE).
- Informing the NYCT Lead Construction Manager of contract non-compliance, so that NYCT can assess the need for payment to be withheld or for a stop-work order to be issued.
- Facilitating site access and work by NYCT and its environmental Contractors where abatement activities are to occur.
- Assisting the PMT as requested with environmental permit/regulatory support, including site inspections by regulatory agencies.
- Timely communication of environmental compliance issues to the NYCT.
- Tracking and identifying any hazardous waste issues on the work site. Ensuring that all hazardous materials present on the site have been preceded by a Material Safety Data Sheet (MSDS) and that employees are aware of the hazards present in the workplace and have access to MSDS logs.

The PM is also responsible for ensuring effective written communication with the contractor(s), transmittal of information on environmental requirements and compliance, and:

- Enforcing contract language that clearly states that the contractor(s) is responsible for complying with all Federal, State, and local environmental regulations and plans and procedures.
- Transmitting Deficiency Reports and Corrective Action Reports to the contractor(s).
- Notifying contractors of withheld payments or stop-work orders for non-compliance with contract and environmental requirements.

- Requiring that the contractor submit information on their activities that involve the use or generation of hazardous substances and wastes, or that can potentially violate the provisions of existing permits, or that have the potential to detrimentally effect the environment.
- Informing the contractor that if they must acquire, handle, transport, and/or store regulated substances (e.g., hazardous wastes), which trigger worker health or safety and/or environmental concerns, such substances must be treated in a safe, appropriate manner as defined by the applicable laws and regulations and the project-specific plans/procedures.
- Informing the contractor that they are responsible for familiarity with all environmental permits, plans, and procedures, as stated in their contracts

3.5 Design Team

During Final Design, the FSTC Design Team and CCM will be responsible for the preparation of final designs, bid documents, design reports, construction cost estimates, construction schedules, and design calculations for each of the construction packages. Final design and construction sequencing will be prepared to minimize disruption to the operations of the MTA New York City Transit (NYCT), and the affected business and residential communities.

Responsibilities related to environmental compliance include:

- Preparation of environmental technical specifications;
- Permitting support services and preparation of environmental permitting reports for each construction package (containing lists of required project-related information, drawings, data reports and procedures to prepare a complete permit application and/or regulatory compliance document);

During construction, the FSTC Design Team will be responsible for performing construction support services for the project for those packages for which they have design responsibility. This includes review of shop drawing submittals, addressing requests for information, change order support, and performing construction site visits as requested by NYCT.

3.6 Cultural Resources Management Team

Prior to construction, NYCT will retain a CRM throughout the period of design and active construction that might impact historical or archeological resources or as otherwise agreed to by the NYCT and the SHPO.

- The CRM will establish a single point of contact for Built Properties and Archaeological Resources.
- The CRM will be required to assist in the resolution of disputes that may be brought by the public during the review of preliminary plans.
- The CRM will be required to assist NYCT and the FTA in the preparation of status reports related to historic preservation issues.
- The CRM will be on-site at all times where there is a potential for Historic Properties (including both Built Properties and Archeological Resources) to be affected by the construction and will undertake responsibility to monitor all construction activities that may affect historic resources.
- For archaeological resources, the CRM will be on-site for all excavation activities throughout the areas of archaeological sensitivity, as identified within the Fulton Street Transit Center Phase 1A Archaeological Assessment.

- The CRM will obtain, review, and hold on site, the Fulton Street Transit Center Phase 1A Archaeological Assessment and any documents for historic built properties that may be affected by the Project. The CRM will also have on file at the project site detailed maps that indicate areas of potential archaeological sensitivity.
- The CRM will brief the on-site contractor of the stipulations outlined in the Programmatic Agreement and any documents that pertain to the protection of historic resources. A requirement to cooperate with the CRM and inspector will be included in all design and construction contracts related to the FSTC Project.

3.7 Contractors

All contractors are responsible for compliance with all environmental regulatory requirements and contained in the contract. This includes but is not limited to the protection of historic and cultural resources, air quality, implementation of effective noise and traffic controls, and proper management of soils, hazardous materials, and waste.

All Contractors will be required to perform their work in accordance with all applicable contract plans, specifications, procedures, permit conditions, and project commitments. Specifically, this includes being fully cognizant of, and sensitive to, the commitments, procedures, restrictions, permit conditions, and guidance identified in the contract. Contractors will be required to cooperate fully in implementing any project-specific procedures and guidelines developed with regard to environmental compliance. They also will identify their own point of contact for environmental issues.

- Contractor actions as part of the CEPP include:
- Maintaining a quality control program as part of construction operations, including environmental aspects of the work.
- Providing signage and way finding that will inform the public of temporarily closed areas and alternate routes.
- Evaluating in advance the need for site-specific mitigation measures, and tailoring mitigation measures to the need prior to initiating construction activities.
- Incorporating environmental issues into daily planning, in a similar way as done for safety planning.
- Communicating in a timely manner any environmental problems to the assigned CCM and PM.
- Initiating timely corrective actions to protect communities and environmental resources.
- The Contractor shall follow the protocol outlined in the contract to ensure that the necessary engineering and scientific methods, practices, procedures and resources essential to be employed throughout the design and construction will conform with the applicable requirements of the National Historic Preservation Act, New York State Historic Preservation Office and New York City Landmarks Preservation Commission.

Contractors will be notified by the PMs when environmental non-compliance is observed. In all cases, Contractors will be required to immediately implement and maintain corrective actions or potentially be subject to withheld payments or stop-work orders.

3.8 Maintenance & Protection of Traffic Engineer

The CCM Maintenance & Protection of Traffic Engineer along with the field staff assigned to support the PM will be responsible for monitoring field activities related to the approved

Maintenance of Traffic Plan, monitoring contractor permit acquisition and supporting the community outreach process.

3.9 Resident Engineer

A NYCT Resident Engineers (RE) will be assigned to each of the construction contracts for duration of construction. They will provide direct oversight to the CCM and ensure compliance with contract documents, including environmental requirements.

The RE will oversee the CCM PM for the following:

- Ensuring that all aspects of the Cultural Resource Management Plan are followed.
- Assisting the Contractors in identifying and resolving environmental compliance issues. Daily preparation of field reports and direction to Contractors regarding their activities and performance, including environmental compliance.
- Preparation of Deficiency Reports and Corrective Action Reports for Contractors when situations of environmental non-compliance occur.
- Informing the PM of contract non-compliance, so that the PM can assess the need for payment to be withheld or for a stop-work order to be issued.
- Facilitating site access and work by the Contractors.
- Assisting the PM as requested with environmental permit/regulatory support, including site inspections by regulatory agencies.
- Timely communication of environmental compliance issues to the PM.
- Tracking and identifying any hazardous waste issues on the work site.
- The RE is also responsible for ensuring effective written communication with the Contractor, transmittal of information on environmental requirements and compliance.
- Enforcing contract language that clearly states that the Contractor is responsible for complying with all federal, state, and local environmental regulations and plans and procedures.
- Transmitting Deficiency Reports and Corrective Action Reports to the PM.
- Notifying PM of withheld payments or stop-work orders for non-compliance with contract and environmental requirements.
- Requiring that the Contractor submit information on their activities which involve the use or generation of hazardous substances and wastes, or that can potentially violate the provisions of existing permits, or that have the potential to detrimentally effect the environment.
- Informing the Contractor that if they must acquire, handle, transport, and/or store regulated substances (e.g., hazardous wastes), which trigger worker health or safety and/or environmental concerns, such substances must be treated in a safe, appropriate manner as defined by the applicable laws and regulations and the project-specific plans/procedures.

3.10 Interested Parties

SHPO, LPC and LMEPF will respond within 10 calendar days after receipt of the CEPP. Should SHPO fail to respond within the 10 calendar day period, the CEPP will be deemed approved. Once the document is approved, the document will be made available to the public on the Project website.

4. ENVIRONMENTAL MANAGEMENT CONTROLS

4.1 Environmental Compliance Process

The environmental management objectives of the CEPP, as described in Section 1.0, will be achieved through:

- Incorporation of all applicable environmental requirements (e.g., EPCs, commitments in the EIS & ROD, permit conditions, laws/ regulations, community commitments) into project design specifications, construction planning and construction contract documents.
- Promotion of environmental awareness among all project participants.
- Regular, ongoing, and comprehensive oversight of all construction activities and their cumulative effect, to help ensure and enhance environmental compliance.
- Regular, open, and timely interface and communication with NYCT and regulatory agencies.
- Establishment of procedures, responsibilities, and accountability for project-wide environmental compliance and problem resolution.

The process for achieving these objectives include:

- Developing a database that defines project commitments and documents how and where they will be fulfilled.
- Review of project designs and construction planning for environmental elements and mitigation measures tailored to the particular work sites.
- Procurement and involvement of environmental consultants with technical expertise and problem-solving capability as required.
- Site environmental compliance inspections and management of construction Contractors.
- Communication and teamwork within and external to the project team.

4.2 Compliance Tracking and Reports

Environmental restrictions and measures to mitigate adverse effects to the environment have been identified and are described in the Environmental Impact Statement (EIS). The project's Environmental Requirements summarizes project requirements and the types of actions necessary for achieving compliance. Incorporation of commitments into construction planning and field implementation should be tracked. This is a living document that will be updated as contracts are refined, design evolves and additional information becomes available. Although the Public Authorities Law Section 1266(8) exempts MTA/NYCT from requiring local permits, the project will coordinate with city agencies and comply with local requirements as necessary.

4.3 Environmental Specifications and Construction Planning

Environmental requirements are being incorporated into design and construction specifications and planning. Design and construction personnel and the Contractors are required to be familiar with project commitments and requirements for the locations where they are working. They will incorporate and tailor mitigation measures to particular work site locations as required and appropriate.

As part of construction planning, numerous and detailed construction work plans will be sequentially prepared that cover specific portions of the project. These plans will identify key

construction activities, staging sequence, schedules, and work locations within specific work sites.

Construction planning compliance with environmental requirements and mitigation measures will be assessed by the PM prior to commencement of any major construction activity or work at any new construction site. The CCM will confirm Contractor awareness of these environmental requirements.

4.4 Environmental Inspections (Contractors)

Each Contractor will perform their own inspections and monitoring daily to confirm compliance with environmental requirements. They will adjust and deploy mitigation measures based on observations made and upcoming scheduled activities.

A Contractor representative will be requested to participate during any environmental compliance inspections performed by outside agencies. They also will be invited to participate during spot checks for environmental compliance as performed by CCM and the RE. This joint inspection process will be used to help ensure communication, and timely action at the work site.

4.5 Environmental QA Inspections (Contract Managers)

Each PM, or designated inspector (Insp), will be responsible for conducting daily field inspections of construction activities in a quality assurance (QA) role. As part of that inspection, they will confirm that work areas remain in compliance with all applicable permit conditions, project commitments, contractual obligations, and applicable Federal, State, and local laws and regulations. Each PM will have the authority to stop work if environmental non-compliance is observed and the Contractor does not correct the deficiency. A daily Field Logbook will be used by the PMs (or Insp) to document observations, including those related to environmental compliance.

The PM (or Insp) will give verbal direction on-site to the applicable Contractor to initiate corrective actions when problems are observed. Copies of all daily Field Logbooks will be available for review by the RE. In circumstances where repeated or serious problems are observed, the PM (or Insp) will prepare a Deficiency Report for transmittal by the Subcontracts Administrator to the offending Contractor. Corrective actions and the applicable permit or contract condition will be cited on the Deficiency Report. Upon initiation of corrective action, the PM will inspect the site and sign a copy of the Deficiency Report, confirming that compliance has been achieved.

The PM will use a Spill Report Form to describe a hazardous material spill. That form will be attached to field reports, deficiency reports, or corrective action reports as warranted.

The PM will review anticipated work with the Contractors as part of the inspection process, so that the need for mitigation measures can be effectively recognized, planned, and implemented in advance.

4.6 Emergency and Complaint Response

The Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1910.120(a)(3) defines emergency response as any "response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual-aid groups, local fire departments,

etc.) to an occurrence that results, or is likely to result, in an uncontrolled release of a hazardous substance.”

The FSTC Design Team, in compliance with OSHA 29 CFR 1910.120 and 1926.65, will establish the procedures that will be followed by the CCM and the Contractors in a project specific Emergency Response Plan. The role of the CCM will typically be limited to public protection, site evacuation, notification of emergency response personnel, notification of responsible officials, and limited medical/first aid, as may be necessary and appropriate. A summary of anticipated hazards and hazard prevention is provided in the project Health and Safety Plan (HASP). All inquiries by media representatives and/or the public will be directed to Adrienne Taub at (718) 694-5125, who is the designated NYCT representative. Other than as necessary to effect evacuation or secure the site of a release, CCM and FSTC Project Team employees will NOT communicate with the media or the public, unless authorized by NYCT.

5. ENVIRONMENTAL CONTROLS

5.1 Community Outreach

The objectives of the community outreach program is to encourage an exchange of ideas and information on issues related to the Project, and to generate interest in, and support for, the FSTC project. Contact with elected officials and federal, state, and local agencies is the responsibility of the MTA/NYCT. The goals of the plan are to:

- Educate the public about the Fulton Street Transit Center project in general;
- Provide a forum for gathering information, identifying and resolving public issues and concerns as they arise.
- Provide the public with the opportunity to share their perspectives in order to help shape the results of the planning process.
- Build a constituency for the project.

5.1.1 Basic Requirements of the Plan

- Comprehensive mailing list of stakeholders, interested citizens, civic and business groups, major institutions, community-based organizations, professional and trade organizations, advocacy groups and elected officials.
- Notice of public involvement activities with sufficient time to review and comment at key decision points in the study.
- Reasonable public access to reports, project updates and other important publications by and about the project.
- Documentation of all public outreach activities and comments received.

5.1.2 Activities/Materials:

5.1.2.1 General public meetings

Beginning with the scoping meeting and concluding with a public meeting to discuss the final version of the DEIS, these public meetings will be held to provide updates and to discuss important issues in the Fulton Street Transit Center project as they are reached. All persons included in the comprehensive mailing list will be invited to attend. In addition, the media (including newspapers) will be used to advertise the meetings.

General public meetings will typically be held on weekday evenings at venues convenient to Lower Manhattan.

5.1.2.2 Meetings by request

Every effort will be made to honor requests by elected officials and the community board to brief them on the project and to present updates.

5.1.2.3 Ongoing communications

The outreach effort may include any or all of the following methods for maintaining ongoing communications with the public:

- Website & Newsletters
- E-mail address
- Media coverage

5.1.3 Informational materials

The outreach effort may include any or all of the following printed and other information materials in order to distribute information about the project to the public:

- Brochure & Fact sheets
- Reports on specific concerns
- Display boards and other presentation materials

Target audiences and interested citizens include:

- Elected officials
- Community board
- Community-based organizations
- Business Improvement Districts (BIDs)
- Residents of study area/concerned citizens
- Schools, hospitals, and other institutions (public and private)
- Private professional/technical/business associations/groups
- Urban/transit planners/ transit advocates
- Environmentalists

5.1.4 Timing of meetings and other activities

The scheduling of public meetings, public hearings, and the distribution of materials will depend to a great degree on the following factors:

- Achieving milestones and new phases of the project
- New and/or unanticipated developments in the DEIS
- Requests from elected officials and other interested parties
- Schedule of special events/meetings that may provide outreach opportunities.

5.1.5 Staffing

MTA NYC Transit Government & Community Relations will oversee public involvement. This effort will be supported by the MTA and MTA NYC Transit Press Offices, MTA Capital Construction, the project team and consultants.

5.1.6 Future Activities

5.1.6.1 Community Task Force:

Modeled on our success with other major rehabilitation projects, a community task force will be established forming a partnership with the public including, but not limited to Community Board #1, local elected officials, the Downtown Alliance, the Lower Manhattan Development Corporation and the project mailing list. Community task force meetings will be held to provide a forum to receive comments from the public and assess community-based issues. These meetings would be scheduled to coincide with project milestones, typically on a quarterly basis. The FSTC mailing list is comprised of those who have attended a public meeting for this project or who have requested information about the project via a written request or through the MTA website. It is expected that the first meeting will be held in Fall 2004, following the award of the first construction contract. NYC agencies, such as the NYC Department of Transportation, may be invited as needed to attend the community task force meetings. In addition to a meeting notice that will be sent to the project mailing list, the meeting will be advertised on the MTA and Downtown Alliance websites as well as local newspapers.

5.1.6.2 Informational Take-One:

A summary overview of the project, in the form of a take-one flyer, will be available in subway stations throughout the study area. This information will be periodically updated and made available to the public.

5.1.6.3 Meet the Planners:

A "Meet the Planners" session, where the public will have an opportunity to speak one-on-one with members of the project team, may be conducted. This event would be held at the Fulton Street-Broadway Nassau Station.

5.2 Cultural Resources Management Plan

5.2.1 Historic Resources

Within the Area of Potential Effect (APE) for the FSTC project, several properties are National Historic Landmarks, are National Register-eligible or eligible for NYC Landmark Designation. They include:

- The World Trade Center Site, bounded by West, Liberty, Church, and Vesey Streets. National Register eligible;
- Corbin Building, 192 Broadway, listed on the National Register of Historic Places;
- Fulton Street IRT Station, Fulton Street at Broadway, National Register-eligible;
- The Former AT&T Building, 195 Broadway, National Register-eligible;
- Bennett Building, 139 Fulton Street, National Register-eligible as part of the John Street/Maiden Lane Historic District and New York City Landmark;
- The former East River Savings Bank, 26 Cortlandt Street at Church Street, National Register-eligible;
- John Street/Maiden Lane Historic District, roughly bounded by John and Fulton Streets to the north, Liberty Street to the south, Broadway to the west and Dutch and Nassau Streets to the east, National Register-eligible;
- St. Paul's Chapel and Graveyard, 162 Fulton Street, National Historic Landmark and New York City Landmark;

- The Keuffel Esser Building, 127 Fulton Street, eligible for NYC Landmark designation; and
- Royal Insurance Building, 150 William Street, eligible for NYC Landmark designation.

The design and construction of the Fulton Street Transit Center project will be completed in accordance with the stipulations and protocols found or referenced in the Programmatic Agreement executed between the Federal Transit Administration, the Metropolitan Transportation Authority, New York City Transit, MTA Capital Construction Company, the New York State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation (ACHP) Office.

The Project will develop design criteria to ensure that new above ground elements constructed as part of the Fulton Street Transit Center project are compatible with the historic and architectural qualities of the areas in which they are situated. Any construction conducted within 90 feet of an historic resource will have vibration monitoring.

5.2.2 Archaeological Resources

The results of Archaeological Research are summarized below.

5.2.2.1 FSTC Area of Potential Effects (APE)

Since subsurface investigations within the APE have been limited to selected test pits, archaeological resources cannot be completely ruled out. Typically, archaeological assessments consider the likelihood of finding prehistoric resources. Moreover, in a historical urban context, the focus is often on the backyard privy pit and cistern. The privy pit—the underground component of an outdoor toilet facility—and the in-ground cistern, also located in backyards and used to collect and store water, are the usual archaeological encountered in an urban context. But in several areas of the APE, the main archaeological concern is neither prehistoric deposits nor the privies and cisterns found in 18th and 19th century urban backyards. Instead, since the area of impact is mainly where previous construction has occurred, archaeological concerns center on those pockets of the APE where evidence of early urban infrastructure may remain under the streets and sidewalks, particularly where these historic streets have been widened over time. More specifically, these resources could include the following:

- Hollowed-out log water mains dating the turn of the 19th century associated with the Manhattan Water Company
- Round, oval, or elliptical brick sewers dating to the earliest attempts to manage New York City's growing sewage problems
- Street and sidewalk pumps, wells, and cisterns
- Brick sidewalk vaults meant for storage
- Early (19th-and early-20th century) fireplugs and hydrants.

The types of resources that may be present in the project APE are described below in more detail.

Although most of the 2/3 and 4/5 Cat Ex archaeological APE comprises existing subway lines, a test pit located just west of Broadway at the Cortlandt Street and Broadway intersection exposed a brick feature that was conceivably a sidewalk vault, although its size (only about 4 feet wide) makes this identification questionable. A brick sewer installed in 1848 is a potential street element in this part of the APE. Street features identified on William Street include a pump and at least one sidewalk vault, but their exact locations are unknown. Yet, remnants of these and similar features as well as a brick sewer introduced in 1848 could remain despite the disturbance

associated with subway construction. Should these or other similar features be encountered during construction, work should halt to allow an assessment of the resource by the project archaeologist and at least minimal documentation (photographs and measurements). If a significant feature, or part of a significant feature is encountered, time should be allotted for consultation with the appropriate parties while work continues elsewhere.

The design and construction of the Fulton Street Transit Center project will be completed in accordance with the stipulations and protocols referenced in the Programmatic Agreement .

5.2.2.2 Stipulation - Monitoring

- Archaeological monitoring of excavations within the areas of archaeological sensitivity will be followed for the Project.
- Monitoring will be conducted by the CRM to ensure that all archaeological resources encountered are protected from impacts until they have been properly assessed and addressed including mitigation measures or avoidance as appropriate.
- The CRM and the CCM engineer will be present to monitor the excavation during all ground intrusive activities within the areas of archaeological sensitivity. To ensure real-time communication among the contractor, NYCT Engineer and CRM, a NYCT Engineer will be assigned to inspect the same location concurrently with the CRM.
- All monitoring conducted by the CRM and all hand excavation of archaeological deposits by the CRM will follow the standards established by LPC, the New York Archaeological Council (NYAC) and the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716).

5.2.2.3 Stipulations - Documentation Protocol

If archaeological resources are exposed during monitoring, the following protocol, detailing how such resources will be documented during construction, will be followed:

- The CRM will communicate to the NYCT/CCM Engineer that excavations must cease, without compromising worker safety.
- The CRM will then inspect the archaeological resource by entering the excavation area, clearing away any loose soil (with hand tools) to fully expose the archaeological resource, clearing the profile closest to the archaeological resource and collecting any archaeological material in association with the archaeological resource.
- The archaeological resource may also be drawn or photographed.
- Inspection of the archaeological resource will require a minimum of 30 minutes.

If, at the end of the inspection of the archaeological resource, the CRM determines that additional time is required to evaluate the archaeological resource, the protocol established in the Programmatic Agreement for archaeological discovery will be followed.

5.2.2.4 Stipulations - Disposition of Archaeological Material

Once the archaeological resource has been drawn and/or photographed, it may be removed from the excavation area.

If the archaeological resource is large (e.g., a large historic infrastructure line) and requires the use of heavy machinery to lift it out of the excavation area, the CRM will request (through the NYCT/CCM Engineer) the assistance of the contractor to remove the object.

The contractor will not excavate the archaeological resource except for providing assistance in lifting heavy items from the excavation area.

If remnants of log water mains from the Manhattan Company are exposed, the CRM will contact Deputy Commissioner, New York City Department of Environmental Protection, Bureau of Water and Sewers Operations to remove and store the log water mains specimen.

5.2.2.5 Stipulations – Work Outside the Areas of Archaeological Sensitivity

When work is conducted in areas outside the areas of archaeological sensitivity, archaeological monitoring will not be followed.

The CRM will not monitor work outside the areas of archaeological sensitivity, but rather, the CRM will be on-call and available to inspect any archaeological resources identified in areas outside the areas of archaeological sensitivity.

While the final EIS describes areas where construction will occur, it is possible that additional effects on archaeological resources than those described in the final EIS may occur. In addition, it is possible that a change in the Project may affect areas that have not previously been assessed for archaeological sensitivity. In these areas, NYCT will take the following actions:

For any change that would involve subsurface construction and whose effects have not been analyzed, and for any new information about archaeological effects that comes to light during construction, the effects on archaeologically sensitive areas within the APE will be assessed in accordance with Section 106 of the National Historic Preservation Act of 1966 (36 CFR 800.4).

NYCT will consult with SHPO, LPC and LMEPF to identify areas of potential archaeological sensitivity and to assess project effects. This consultation will take place as soon as deposits are encountered within areas already identified for construction, or as soon as design modifications are proposed for areas that have not previously been considered.

SHPO, LPC and LMEPF will provide comments regarding such newly defined areas within 14 calendar days of receiving information to assess.

If SHPO, LPC or LMEPF fail to respond within the 14 calendar day period, the newly defined area will be included in the Project's APE for archaeological resources.

5.2.2.6 Stipulations - Unanticipated Discovery During Construction

An unanticipated discovery is one that occurs outside the "Areas of Archaeological Sensitivity Within the Project Area." NYCT has developed steps that will be followed in the event that any unanticipated archaeological and/or human remains are encountered during construction of the Project.

5.3 Noise and Vibration Plan

5.3.1 Environmental Performance Commitments and Other Mitigation Measures

To minimize potential construction impacts, New York City Transit (NYCT) proposes to incorporate *Environmental Performance Commitments*, or EPCs, into the contract specifications. The EPCs would include the following:

- Where practicable, individual project construction activities will be scheduled to avoid or minimize adverse impacts;
- The condition of surrounding buildings, structures, infrastructure, and utilities shall be considered, where appropriate; and,
- Contingency measures such as sequencing of operations, construction alternative methods, and source reduction measures, will be prepared in the event established limits are exceeded.

Several potential measures have been identified to mitigate airborne noise and ground-borne noise and vibration impacts identified in the analyses. A Noise and Vibration Plan would be developed prior to construction and implemented throughout the construction of the Proposed Action to minimize airborne noise impacts. Typical elements of the Noise and Vibration Plan may include:

- Source Limits and Performance Standards to meet noise level thresholds for daytime, evening, and nighttime hours at sensitive land uses at and/or adjacent to the FSTC;
- Design considerations and project layout approaches including measures such as construction of temporary noise barriers and placing construction equipment farther from noise-sensitive receptors.
- Community Liaison and Complaint Hot Line; and,
- Alternative construction methods, using special low noise emission level equipment, and selecting and specifying quieter demolition or deconstruction methods would also be included.

The Contractor will implement mitigation measures to limit noise levels and control nuisance noise during construction operations.

Measurements will be taken on the “A” scale of a general purpose integrating sound level meter conforming to American National Standards Institute .4 for Type 2 meters at slow response.

The Contractor will schedule and conduct operations in a manner that will minimize, to the greatest extent feasible, the disturbance to the public areas adjacent to the work and to occupants of buildings in the vicinity of the construction sites.

The Contractor will use equipment with efficient noise-suppression devices and employ other noise abatement measures such as enclosures and barriers necessary for the protection of the public. All construction equipment will be subject to periodic compliance testing whenever evidence of non-compliance is apparent.

Noise reduction methods to be used by the Contractor may include, but not be limited to:

- Use of concrete crushers or pavement saws for concrete deck removal, demolitions, or similar construction activity;
- Pre-auguring equipment to reduce the duration of impact or vibratory pile driving;
- Use of local power grid to reduce the use of generators;
- Attaching intake and exhaust mufflers, shields, or shrouds;

- Noise-deadening materials to line inside of hoppers, conveyor transfer points, or chutes;
- Lining hoppers with rubber to reduce impact noise from rock, and enclose truck area below hopper or enclose both hopper and truck;
- Noise barriers, screens or enclosures to reduce the noise from activities such as spoil being loaded into trucks, concrete trucks mixing concrete;
- Use jersey barriers with a 6-8 foot barrier on top to mitigate noise at street level;
- Restrict hours of operation whenever possible so work does not occur between 10 pm and 7 am;
- Fit jackhammers, air compressors, generators, light plant and cranes with silencer, and use noise tents around workers using jackhammers;
- Clad crane with timber paneling, and possibly locate ventilation fans, dewatering pumps, air compressors and generators in the tunnel;
- Use alternative piling techniques such as bored or augered piling rather than impact piling;

Table 1 - Construction Noise Lot-Line Limits and Adjustments for Equipment Noise Measurements

Noise Monitoring Location Land Use	L_{eq} Level (dB(A), slow) re 2×10^{-5} Pa	L_{max} Level (dB(A), slow) re 2×10^{-5} Pa
	Whichever is greater	
DAYTIME (7 AM TO 6 PM)		
Noise Sensitive Locations	75 or Background + 5 *	85 * 90 (impact equipment)
Commercial Areas	80 or Background + 5 *	None
Industrial Areas	85 or Background + 5 *	None
EVENING (6 PM TO 10 PM)		
Noise-Sensitive Location	Background + 5	85
Commercial Areas	None	None
Industrial Areas	None	None
NIGHT-TIME (10 PM TO 7 AM)		
Noise-Sensitive Locations	Background + 5	80
Commercial Areas	None	None
Industrial Areas	None	None

* Noise from impact equipment is exempt from the L_{eq} requirement, however is subject to a lot-line L_{max} limit of 90 dBA.

Note: All measurements will be taken at the affected lot-line. In situations where the work site is within 50 feet of a lot-line, the measurement will be taken from a point along the lot-line such that a 50-foot distance is maintained between the sound level meter and the construction activity being monitored.

Lot-line noise limits will apply to all points along the receptor's lot-line.

L_{eq} noise readings are averaged over 1- hour intervals. L_{max} noise readings occur instantaneously.

Table 2 -Adjustments for Equipment Noise Measurements at Less than 50 Feet

Measurement Distance (Feet)	Values to be Subtracted from Measured Noise Level to Estimate Noise Level at 50 Feet (dBA)
19-21	8
22-23	7
24-26	6
27-29	5
30-33	4
34-37	3
38-42	2
43-47	1
48-50	0

5.4 Vibration Control

5.4.1 Vibration Mitigations

The project will implement a proactive approach to reduce vibration levels and the possibility of community complaints during construction activities. The RE and the Contractor will keep residents and businesses abutting the work sites properly informed of the period of impact and the mitigation methods to be used. The description of the responsibility of NYCT and the Contractor follows:

- The Contractor will identify all potential fragile buildings based on pre-construction survey information.
- All historical buildings will be inspected and construction mitigation established for each structure.
- Construction vibration levels in all historical structures within the influence area of the project alignment will be monitored.
- Pre-construction surveys of any structure likely to be affected adversely by construction activities will be performed and threshold or limiting values will be established to withstand the loads and displacements due to construction vibrations.
- During construction, the Contractor will develop site-specific Vibration Control Plans.
- During construction, vibration level measurements will be taken at vibration-sensitive locations during ongoing construction activities at applicable daytime, evening, and nighttime periods.
- Background and construction vibration data will be recorded. A sketch or diagram for the exact location of the vibration measurement, construction equipment operating during the monitoring period, and other activities occurring at the same time will be provided.
- Upon receipt or notification of a vibration complaint, the Contractor will promptly perform vibration measurements at the complainant's location during activities representative of the offending operation. The complaint response measurement will be immediately submitted to the Site Engineer. In the event that the measured level exceeds allowable limits or results in nuisance conditions, the Contractor will be instructed to immediately implement vibration reduction controls.
- Oversight of Contractors vibration monitoring program will be provided by the RE.

- During construction, Contractors will use industry standard Best Management Practices to limit vibration impacts (particularly nuisance vibration). Heightened attention to vibration control will occur when working within 50 feet of historic structures or residences.

The types of mitigation measures to be implemented by the Contractor on a site-specific basis may include but will not be limited to the following:

- Use of deep saw-cuts to minimize the transmission of vibrations from pavement-breaking operations to foundations of nearby structures;
- Use of concrete cutters on pavement surfaces instead of pavement breakers, where practical;
- Use of vibratory rather than impact pile drivers where feasible for installation of retaining walls and other structural elements;
- Routing of truck traffic and heavy equipment to avoid impacts to sensitive receptors;
- Conduct vibration monitoring during highly disruptive construction activities, such as pile driving and drilling, particularly if situated within 150 feet of a sensitive receptor;
- Properly securing street decking over cut-and-cover excavations;
- Scheduling of work to limit night time impacts in residential areas;
- Heightened attention and controls when working in Historic Districts and near historic structures; and
- Minimization of the duration of vibration impacts.

If the Contractor receives a complaint regarding construction noise or vibration, the Contractor will immediately notify the Site Engineer. The Contractor will promptly respond with feasible and appropriate mitigation measures upon receipt of community complaints.

5.4.2 Historic Structures

Special measures set forth by the New York City Landmarks Preservation Commission and Buildings Department will be followed to protect historic resources from increased vibration levels associated with construction activities [Refer to NYCDOB Technical (PPN# 10/88)]. At any construction locations where historic resources and particularly older fragile buildings are nearby, Contractors are required to implement special vibration protection measures. These measures will be included in the construction protection plan submitted to the SHPO and will likely include the following:

- Inspect and report on the current foundation and structural condition of any historic resource;
- Set up a vibration-monitoring program to measure vertical and lateral movement and vibration to the historic structures during nearby construction activities. Details as to the frequency and duration of the vibration monitoring program will be determined as part of the projects on-going consultation process with the SHPO;
- Establish and monitor construction methods to limit vibrations to levels that will not cause structural damage to the historic structures, as determined by the condition survey.

6. GROUND MOVEMENTS

Shallow excavations are defined by the Stage 1 Ground Movements Report (GMR) as those excavations made to 20 feet or less. The Stage 1 GMR requires that structures within the anticipated 0.5 inch settlement contour be further analyzed. As the design of the FSTC project progresses, further analysis will be conducted. Criteria for analyzing the structures included the type of soil within the project areas, foundation type and the sensitivity of the structure.

It was found that shallow excavations do not produce settlements in excess of 0.5 inch, given the assumptions of the report. It is possible that vertical ground deformations may be greater than estimated due to unforeseen conditions, methods, or events beyond the control and scope of the GMR. Regardless, the list of buildings requiring further analysis is defined in the Stage 1 report.

6.1 Traffic Management

Traffic Management for the project includes public roadways and sidewalks and the maintenance of access to residences, businesses and public services throughout the Study Area. Traffic delays and reductions in roadway capacity are anticipated during aspects of the construction of the subway. Vehicular, pedestrian and surface transit traffic will be impacted at a number of locations; however, such impacts will be minimized through the development of Maintenance of Traffic Plans.

Maintenance and Protection of Traffic Plans will be prepared to provide specific guidance on traffic management for various portions of the construction zones and construction staging. The concepts will be developed as the basis for the development of specific Maintenance and Protection of Traffic (MPT) Plans for individual contract packages. The MPT plans will be coordinated all Lower Manhattan projects and will be modified to coordinate with other project street and sidewalk closures.

The types of mitigation measures to be implemented by the construction contractors will be based upon the FEIS as well as the approved MPT plan, on a site-specific basis and will include:

- Advance public notice to motorists of the nature, extent, and duration of lane closings and detours.
- Detour signage placed in strategic locations, and use of appropriate warning signs.
- Construction during off-peak hours whenever feasible.
- Efforts to minimize disruption of access to residences and businesses; maintenance of at least one entrance to a property where multiple entrances exist.
- Coordination with other projects in the area that have potential to impact roadways and create cumulative effects.
- Parking policies for construction workers that will help minimize impacts to residences and businesses. Encourage contractors, inspectors and other personnel to use mass transit and dissuade the use of private vehicles in Lower Manhattan.
- Installation of signage and barriers for protecting and guiding pedestrians.
- Relocation of bus stops at construction sites to minimize the impacts on surface transit passengers.
- Removal of curbside parking where necessary at construction zones to provide maximum road width for traffic lanes. Loading and unloading areas would be relocated to minimize the impact on businesses in the areas.

6.1.1 Vehicle Traffic

The contractor will use standard traffic engineering improvements for mitigation of intersection and local construction impacts.

6.1.2 Pedestrians

- Within construction areas, pedestrian sidewalks shall not be reduced to widths narrower than 5-feet.
- Physical separation will be provided between the construction zone and the sidewalks. Separations will consist of concrete barriers, wood fencing or protective mesh fencing.

6.2 Contaminated Materials

Contaminated materials in soil, soil gas, and groundwater are anticipated to be uncovered, either in locations where research indicated a potential problem or in other unexpected locations during construction.

6.2.1 Control of Groundwater (Allowable Drawdown)

The FSTC Design Team consistent with site-specific subsurface conditions and anticipated construction procedures will establish drawdown limits in final design. Final design submittals will be reviewed for consistency by the FSTC Design Team geotechnical department with geotechnical reports.

For the Cat Ex and other Design Bid Build (DBB) phases of the FSTC project, a Groundwater Monitoring Plan will be prepared by the FSTC Design Team to be carried out by the Contractor and the CCM.

Should dewatering activities be required, the Contractor will, at a minimum, monitor groundwater levels from wells to ensure that drawdown levels do not exceed allowable limits. Data loggers will be installed in the wells for 24-hour recording.

6.2.2 Soil Sampling

The Contractor will perform soil sampling for the purposes of waste characterization and proper disposal. Oversight of the Contractor's sampling, soil reuse, tracking methods, waste management program, site sanitation, and spill prevention control and containment plan will be provided by the CCM. Contractor Safety & Health Plans will be reviewed and approved prior to the start of construction activities. The potential impact from contaminated or hazardous materials during construction will be determined and health risks to construction workers and the public will be assessed.

6.2.3 Air Quality - Hazardous Material Abatement and Chemical Handling

Construction of the FSTC Project will require abatement within subway facilities and building structures. Contractors performing abatement activities or handling chemicals must implement the following in order to meet Air Quality objectives:

- Maintain a surface coating list and chemical inventory, including a list of all coatings, solvents and adhesives.
- Maintain daily surface coating logs with monthly summaries that record the use of paints solvents and adhesives.
- Minimize disposal of excess materials, reuse when applicable, dispose of waste properly.
- Maintain a file of Material Safety Data Sheets for all of the above products.
- Practice safe storage to prevent fire or spills.
- Have a Health and Safety Program (HASP) that identifies proper ventilation, protective clothing and personal protective equipment, and emergency response actions, including

telephone numbers for emergency response personnel, and the address and telephone number of the nearest hospital emergency room.

- Identify a point of contact that will maintain the above information and conduct periodic site inspections and who can coordinate with emergency personnel and regulatory staff.
- Restrict application method – ensure the use of high transfer efficiency methods to reduce over spray or excess application.
- Require adherence to all applicable rules and regulations.

6.3 Air Quality

Implementation Plan

- Use of ultra-low sulfur diesel (ULSD) fuel (max.15 ppm) in off-road equipment with engine hp of 50 or greater, consistent with the requirements of the Coordinated Construction Act for Lower Manhattan.
- Use of Tier II diesel engines in all off-road equipment with hp of 50 or greater with diesel retrofit technology (DPF/DOC), where commercially available.
- Use diesel engine retrofit technology in off-road equipment to further reduce emissions. In addition to this EPC provision and as required by the Coordinated Construction Act for Lower Manhattan, NYCT will require that non-road vehicles of 50 HP and above are retrofitted with Diesel Oxidation Catalysts (DOC), Diesel Particulate Filters (DPF) or technology that achieves lowest particulate matter emissions. Based on currently available data, Diesel Particulate Filters (DPF) will be the preferred retrofit technology, with Diesel Oxidation Catalyst (DOC) as a fallback when the use of DPF is not practicable.
- Limit unnecessary idling times on diesel powered engines to three (3) minutes. Locate diesel powered exhausts away from fresh air intakes.
- Control dust related to the construction site through a Soil Erosion Sediment Control Plan that includes, among other things:
 - o Spraying of a suppressing agent on dust pile (non-hazardous, biodegradable);
 - o Containment of fugitive dust; and,
 - o Adjustment for meteorological conditions as appropriate.
- Dust control measures to protect air quality will also be developed and implemented by the Contractor for earthmoving and trucking operations. Contractor air quality mitigation measures will be tailored to the specific work-site conditions. The CCM will perform oversight of Contractor Best Management Practices to reduce dust and protect air quality. The CCM will monitor the cumulative effect of simultaneous construction activities on air quality.

In addition, the Contractor will take the following steps to protect air quality:

- Ventilation facility air exhaust and intakes will be designed to have state-of-the art noise attenuation devices, and be located a minimum of 10-feet from any neighboring buildings windows or entrances.
- Development of aggressive measures to reduce dust and air pollution during construction.
- Require use of only ultra-low sulfur diesel fuel in combination with diesel particulate reduction and retrofit technology in all heavy off-road equipment.
- All diesel equipment will not be permitted to idle for more than 3 consecutive minutes.

Implement a dust suppression program to be approved and monitored by NYCT. The program shall include as a minimum:

- Water sprays to treat excavated materials at major points of transfer (i.e. unloading onto conveyor belts or trucks). Water sprays shall be used on exposed soils and excavation to reduce dust.
- Dump trucks hauling loose material such as, but not limited to, sands, gravels, muck, excavation spoils and soils shall be covered with tarpaulins or other load covering that can be securely fastened and shall be equipped with tight fitting tailgates that can be securely fastened in the closed position and will not permit wet or dry materials being hauled to leak or trickle out.
- The Contractor shall implement appropriate measures to prevent deposition of material on public ways. Street sweeping service shall be provided as necessary to ensure that any material that is tracked onto public ways is immediately removed.
- Construction sites will be fenced to reduce wind-borne dust.
- At long-term spoil removal locations, such as at boring or mining shaft sites, spoil transfer points will be fully enclosed to reduce dust and noise impacts.

6.4 Dust Control

Dust control measures to protect air quality will be implemented by Contractors for earthmoving and trucking operations. Additionally, trucking and operation of heavy equipment will occur with consideration of air quality impacts on abutting residents and businesses.

Air quality mitigation measures will be tailored according to the specific work-site conditions and locations along the project alignment. Contractors will implement Best Management Practices and the methods described below:

- All vehicles transporting soil to/from the work sites will have their loads covered to minimize spillage and fugitive dust.
- Gravel cover will be applied to soil (unpaved) surfaces where they will be regularly traveled at egress and ingress routes from/to work sites; wheels will be cleaned as necessary prior to leaving sites to control tracking.
- Water or a dust/erosion control agent will be applied as necessary by truck to unpaved surfaces used for trucking during dry weather conditions, with adequate frequency to limit the generation of dust from vehicle traffic.
- All materials deposited on public roadways and sidewalks from construction-related activities will be cleaned up within one day or sooner except in designated lay-down areas. Laborers and/or street-sweeping equipment will be available and used where necessary to clean paved surfaces.
- All piles of soil and aggregate that could cause fugitive dust generation through wind erosion will be covered with a tarp or watered-down regularly. Contractors will be responsible for monitoring and controlling dust generation from their specific work areas and materials.
- All stockpiles of soils designated for reuse will be placed on, and covered with, waterproof material until removed for placement elsewhere.
- Dust screens will be used as feasible where added dust controls are needed when work abuts sensitive receptors.

Contractors will practice the following materials handling methods:

- Reduce the amount/frequency of material handling operations (i.e., avoid multiple handling of materials).
- Minimize the frequency of stockpile disturbance and the size of areas disturbed.
- Reduce material drop height when loading-out to stockpiles and trucks.
- All vehicles traveling onsite must obey appropriate speed limits for safety and to minimize dust generation.
- Trucks and heavy equipment will not idle for extended periods (e.g., longer than five minutes) adjacent to residential and commercial buildings. Trucking schedules will be established to minimize cues.
- Established truck routes will be used to minimize air quality impacts to local residents and businesses.

The CCM field staff will provide daily visual monitoring of work site conditions and give direction for implementation of mitigation measures where needed if the cumulative effect of construction produces unacceptable conditions.

6.5 Settlement

A comprehensive settlement-monitoring program will be prepared by the FSTC Design Team for DBB phases of the FSTC project. A pre-construction survey is underway by the FSTC Design Team, in all existing nearby buildings to document baseline conditions. Criteria established by the FSTC Design Team will define the limits of acceptable ground movements and levels of ground movements for which remedial or mitigation measures will be considered. To apply these criteria, the monitoring program will be implemented by the Contractor, to measure ground movements, movements of existing facilities, and groundwater levels, including surface and deep settlement points, before, during and after construction.

Oversight geotechnical monitoring by the CCM will be undertaken, to ensure that settlement criteria are being met. The CCM will have the authority to enforce continued work shutdown until correct conditions are re-established.

6.6 Sediment/Erosion Control and Water Quality

During construction Best Management Practices will be employed to minimize soil erosion and other effects of stormwater run-off.

Best Management Practices will be employed, as appropriate to site conditions, including but not limited to the use of:

- Minimization of the acreage of bare soils and the duration that are exposed;
- Use of silt fence, hay bale barriers, and other physical controls;
- Controls at catch basins to help protect against turbid water inflow;
- Seeding with appropriate materials and at correct times of the year to stabilize slopes;
- Use of stormwater basins to collect and control runoff;
- Possible use of cofferdams and sheeting along stream embankments and areas of bridge work;

- Minimizing water flow where it has the potential to cause erosion;
- Containment around soil stockpiles;
- Containment to prevent raw concrete or grout from contacting waterways;
- Control of suspended solids during dewatering operations using filtration methods, proper flow rates, settling basins, or sedimentation tanks;
- Use of silt curtains along shorelines of waterways where appropriate during work;
- Containment under/around bridges during periods of work to help protect against spillage of material into surface waters;
- Minimization equipment operations in and near waterways; and
- On-going maintenance of sediment and erosion controls.

Dewatering will be performed according to permit conditions and to discharge points acceptable to either New York City Department of Environmental Protection (NYCDEP) or NYSDEC, as appropriate. Filtration methods, sedimentation basins, controlled pumping rates, and protection of catch basins with filter fabric and/or haybales will be used to limit discharge of suspended solids into storm drains or surface waters. Control methods will be checked and monitored daily during active dewatering and adjusted or replaced when needed.

All work is not within the 100-year floodplain and will not need to comply with the NYSDEC Part 502, Floodplain Management Criteria for State Projects.

6.7 Soil Reuse and Tracking

The Contractor will submit a Spoils Management Plan, in compliance with applicable solid and hazardous waste regulations, with their proposal addressing items such as:

6.7.1 Construction Approach

- Proposed Construction Areas/Construction Overview
- Construction Sequence and Schedule
- Construction Methods

6.7.2 Spoils Management

Spoils is the term used to define the rock and soil material that results from excavation in the process of building the Phase 1 structures and facilities.

Spoils Management includes all those activities that the contractors need to perform to move excavated material from the immediate vicinity of the excavation source to either a final reuse location, or interim storage awaiting possible reuse at a later time. Contractors must develop the processes and the means and methods that will be used to handle, store, stockpile and transport the spoils and a description of the reuse destination and its suitability to receive the spoils.

As in any project located in a heavily urbanized area, some spoils material can be expected to be contaminated or to contain hazardous waste. Federal, State and local regulations are in place governing the handling of hazardous or contaminated spoils and means and methods are readily understood by the Project and the local contracting community to properly identify, segregate

and handle this material. The Project will require contractors to adhere to these governing regulations that specify criteria for handling these materials.

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6.8 Remedial Action Work Plans

If spill conditions or hazardous materials are encountered during excavation and construction activities, then the Contractor and CCM will follow the procedures for Handling of Hazardous Materials.

Contractors will prepare Environmental Compliance and Safety and Health plans related specifically to remedial actions involving soil reuse, sampling, hazardous materials (including lead and asbestos), spills, and material handling. Disposal facilities selected for use will be those licensed for the particular type of material and acceptable to the affected property owner/operator or NYCT. A list of acceptable facilities will be compiled by NYCT and added to the Solid and Hazardous Waste Management Plan