Port Authority of New York and New Jersey

Permanent World Trade Center (WTC) PATH Terminal
New York, New York

Construction Protection Plan for Historic Properties Adjacent to the Project

February 2006

Revised 2/24/06

United States Department of Transportation
Federal Transit Administration

THE PORT AUTHORITY OF NY & NJ

1 INTRODUCTION

This component of the comprehensive Construction Protection Plan (CPP) for the Port Authority of New York & New Jersey (PANYNJ) Permanent WTC PATH Terminal Project (Project), addresses the process to protect Historic Properties adjacent to the Project from project-construction vibration, as required by the Section III.B. of the Project Memorandum of Agreement (MOA). This component is based on the Federal Transit Administration's (FTA) vibration threshold criterion, the requirements laid out in the "New York City Department of Buildings Technical Policy and Procedure Notice ("PPN") #10/88" regarding procedures for the avoidance of damage to historic properties resulting from adjacent construction, and industry standard Best Management Practices. The Historic Properties adjacent to the Project include:

- The Barclay – Vesey Building
- Federal Office Building/U.S Post Office
- 30 Vesey Street
- Former East River Savings Bank
- Beard Building
- 114 – 118 Liberty Street
- St. Paul's Chapel and Graveyard

With respect to the Project, the CPP will:

- Provide for the inspecting and reporting of existing conditions at these Historic Properties adjacent to the Project;
- Establish protection procedures;
- Establish a monitoring program to measure vertical and lateral movement and vibration;
- Establish and monitor construction methods to limit vibrations; and
- Incorporate the commitments made in the Project MOA and the Resource Protection Plan (RPP).

1.1 Project Historic Architect (PHA)

Prior to construction, PANYNJ will retain a PHA throughout the period of design and active construction that might impact Historic Properties adjacent to the Project or as otherwise agreed to by the PANYNJ and the SHPO.

The CPP provides for a historic architect meeting the Secretary of the Interior's professional qualifications standards (48 F.R. 44716) to work with an engineer with demonstrated comparable expertise in working with the historic buildings to supervise implementation of the CPP.

The CPP empowers the historic architect, in consultation with the chief engineer of PANYNJ ("Engineer") or the Engineer's designee, to issue "stop work" orders with

respect to this Project to prevent any unanticipated damage to Historic Properties adjacent to the Project recommencement of work shall only be permitted at such time that Engineer and PHA determine that the appropriate modification have been made to the construction technique to assure that no damage will occur to Historic Properties adjacent to the Project.

For specific information, refer to the RPP in Appendix A.

1.2 Interested Parties

Pursuant to the MOA, PANYNJ shall furnish copies of the CPP to SHPO, ACHP and Consulting Parties for review and comment with respect to the Project. The Consulting parties will have 21 calendar days in which to comment on the CPP. SHPO and ACHP shall respond within 30 calendar days of the request for review and comment on the CPP. Should SHPO and ACHP fail to respond within the 30 calendar day period, the PANYNJ may assume concurrence with the CPP. PANYNJ shall consider all comments received with respect to the Project within this review period in preparing the final CPP. The CPP for the Project shall be in place prior to the commencement of construction of the WTC PATH Terminal that could affect Historic Properties adjacent to the Project.

2 MANAGEMENT CONTROLS

2.1 Compliance Process

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

- Incorporation of all applicable MOA and RPP requirements into project design specifications, construction planning and construction contract documents.
- Promotion of CPP awareness among all project participants.
- Regular, ongoing, and comprehensive oversight of all construction activities.
- Regular, open, and timely interface and communication with PANYNJ, Lower Manhattan Construction Command Center (LMCCC) and regulatory agencies.
- Establishment of procedures, responsibilities, and accountability for project-wide compliance and problem resolution.

The process for achieving these objectives include:

- Developing a matrix that defines project commitments and documents how and where they will be fulfilled.
- Review of project designs and construction planning for mitigation measures tailored to the particular work sites.
- Procurement and involvement of consultants with technical expertise and problem-solving capability as required.

- Site compliance inspections and management of construction Contractors.
- Communication and teamwork within and external to the Project team.

3 HISTORIC PROPERTY CONTROLS

3.1 Resource Protection Plan (RPP)/Memorandum of Agreement (MOA)

The RPP is included in Appendix A and the MOA is included in Appendix B and are incorporated and a part of the CPP.

3.2 Vibration Control

Vibration created by the Project construction may adversely impact the seven Historic Properties adjacent to the Project within 90 feet of the construction zone and the executed Section 106 MOA establishes a process for addressing vibration during construction. These Historic Properties include:

- Barclay – Vesey Building
- Federal Office Building/U.S Post Office
- 30 Vesey Street
- Former East River Savings Bank
- Beard Building
- 114 – 118 Liberty Street
- St. Paul's Chapel and Graveyard

Special measures set forth by New York City Landmarks Preservation Commission and Buildings Department will be followed to protect these Historic Properties from increased vibration levels associated with construction activities [Refer to NYCDOB Technical (PPN# 10/88]. As well, for these fragile Historic Properties, these vibration protection measures for the Project shall reduce vibration levels to levels below FTA's vibration damage threshold criterion of 0.12 in/sec (approx 95 VdB).

The Project would not result in any operational vibration impacts for uses planned on the WTC site.

The project will implement a proactive approach to reduce vibration levels and the possibility of community complaints during construction activities. The Resident Engineer (RE) and the Construction Manager/General Contractor (CM/GC), a joint venture of Flour Enterprises, Inc. Slattery Skanska, Inc., Granite Construction Northeast, Inc. and Bovis Lend Lease LMB, Inc., will keep residents and businesses abutting the

works site properly informed of the period of impact and the mitigation methods to be used. The description of the responsibility of PANYNJ and the Contractor follows:

- Pre-construction surveys of these Historic Properties 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.
- Prior to construction, the CM/GC will develop site-specific Vibration Control Plans.
- Construction mitigation will be established for each structure.
- Construction vibration levels in all Historic Properties adjacent to the Project will be monitored. A vibration-monitoring program to measure vertical and lateral movement and vibration during nearby construction activities will be developed. 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, however at a minimum the following monitors will be implemented:

    - 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 CM/GC 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 RE. 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 CM/GC vibration monitoring program will be provided by the RE.
    - During construction, CM/GC will use industry standard best Management Practices, to limit vibration impacts (particularly nuisance vibration).

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 nighttime impacts on residential areas;
- Heightened attention and controls when working near Historic Properties adjacent to the Project; and
- Minimization of the duration of vibration impacts.

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

4 REPAIRS

If vibration created by the Project contractor allegedly adversely impacts the Historic Properties, the following process will be addressed to mitigate/repair the damage caused by Project vibration:

- Property owners will have a period of 12 months following completion of construction to file a claim with PANYNJ for property damage as it affects the structure's historic integrity allegedly caused by the Project.
- Property owners will be advised of their rights to make claims by written notice or on the Project website.
- In the event of damage to a Historic Property, claims will be directed to the PANYNJ or CM/GC. PANYNJ will respond to the claim within 45 calendar days from the receipt of the claim.
- After an investigation, if the PANYNJ or the CM/GC determines that damage to the property was caused by Project construction vibration, PANYNJ, after consultation with SHPO, will repair damage to Historic Properties that is reasonably attributable to Project vibration activities.

Appendix

A. Resource Protection Plan (RPP)
B. Memorandum of Agreement (MOA)