

**Amendment No. 1 to the Programmatic Agreement**

**among the Federal Transit Administration, Metropolitan Transportation Authority, and  
the New York State Historic Preservation Officer**

**regarding the Implementation of the MTA/NYCT Second Avenue Subway Project**

**WHEREAS**, pursuant to Section 106 Regulations, the Federal Transit Administration ("FTA"), the Metropolitan Transportation Authority ("MTA") and the New York State Historic Preservation Officer ("SHPO") executed a Programmatic Agreement in April 2004 ("2004 PA") for the MTA/New York City Transit Second Avenue Subway Project ("Second Avenue Subway Project") to ensure that potential effects on historic and archaeological resources are taken into account and to satisfy FTA's Section 106 responsibility for all aspects of the Second Avenue Subway Project;

**WHEREAS**, the FTA, MTA, SHPO, and the New York City Landmarks Preservation Commission (LPC), as a consulting party, agreed that Second Avenue Subway Project shall be implemented in accordance with the stipulations executed in the 2004 PA;

**WHEREAS**, in 2004, the signatories to the 2004 PA - FTA, MTA and SHPO - agreed that vibration limits would adhere to a maximum peak particle velocity (PPV) of 0.5 inches per second for historic structures and 2.0 inches per second for non-historic structures;

**WHEREAS**, the MTA determined that establishing vibration limits above 0.5 inches per second for specific site conditions would have a positive impact on the Second Avenue Subway Project cost and schedule; and

**WHEREAS**, the vibration limit for historic resources will remain at 0.5 inches per second until the consultation process, as described below, between the parties of the 2004 PA has been completed.

**NOW, THEREFORE**, FTA, MTA, and SHPO agree that the Second Avenue Subway Project shall be implemented in accordance with this Amendment and the attached revised Exhibit E.

The consultation process will include a written request from MTA to SHPO and FTA of MTA's proposal to raise the vibration limit for a specific historic resource.

The written request will include documentation of MTA's consultation with the New York City Department of Buildings, LPC, documentation from a licensed professional engineer of their review and opinion of each vibration limit set for each historic resource, as well as MTA's explanation of the need to modify the vibration limit.

The MTA's engineer of record will perform engineering analysis on historic resources within the area of potential effect to establish the proper vibration limits to reduce the risk of damage to the historic resources.

The consultation process will be complete when FTA and SHPO have concurred on the MTA's request in writing.

With regard to excessive vibration, the FTA, MTA and SHPO agree that Exhibit E should be revised to delete the requirement of reporting to SHPO each time an excessive vibration (above 0.5 inches per second or above the revised site-specific limit) is detected and require written notification and consultation with FTA, SHPO and LPC only when damage has been sustained.

Pursuant to 36 C.F.R Section 800.14(b), the signatories of the 2004 PA agree it is appropriate to amend the 2004 PA in order to revise the stipulation, as described in Exhibit E (Construction Protection Plans) of the 2004 PA, with regard to vibration limit criteria for historic resources during construction activities and with regard to the reporting process when excessive vibration is detected.

This Amendment was developed in consultation with the LPC and with appropriate public participation pursuant to Subpart A of the Section 106 Regulations.

All other stipulations set forth in the 2004 PA remain unchanged.

The parties have determined that it is appropriate to execute an Amendment to the 2004 PA.

Federal Transit Administration

By: Anthony G. Carr Date: 5/23/12

Anthony G. Carr, Acting Regional Administrator, Region II

Metropolitan Transportation Authority

By: Michael Horodnicianu Date: 4/13/2012

Michael Horodnicianu, President of Metropolitan Transportation Authority Capital Construction

New York State Historic Preservation Officer

By: Ruth Pierpont Date: 4/14/12

Ruth Pierpont, Deputy Commissioner for Historic Preservation

EXHIBIT E As Amended

CONSTRUCTION PROTECTION PLANS

The primary objective of the Section 106 process is to identify Historic Properties and to protect them from adverse effects, including damage or destruction due to a project's construction. The Second Avenue Subway Project Construction Protection Plans (CPPs) will provide protocols and stipulations for protecting identified Historic Properties located within the Project's Areas of Potential Effect (APEs) during the demolition, excavation, and construction phases of the project. In practice, the CPPs will provide guidance for those designing as well as those constructing the project.

At this time, the Project is undergoing Preliminary Engineering, and potential project effects on Historic Properties have not yet been fully determined. Prior to the commencement of any project demolition, excavation, or construction, detailed CPPs will be developed in consultation with the SHPO, FTA, and all other relevant City agencies. The CPPs will be based on the requirements stipulated in SHPO documents concerning blasting and vibration and other relevant guidance. Given the length of time over which the project will be undertaken, and the use of a phased method of construction, it is anticipated that individual CPPs within a comprehensive Second Avenue Subway CPP will be drafted specifically for each major construction segment.

The CPPs will first detail the precise descriptions, locations, and dispositions of all known Historic Properties within the Second Avenue Subway APEs. All Historic Properties within the APEs will be plotted on the project's geographic information system (GIS), along with the construction alignment to provide a basic awareness to all involved in the project's construction. A typical CPP will consist of the following protective measures:

1. A preconstruction inspection of the potentially affected Historic Property(s) will be undertaken by professional engineers licensed to practice in the State of New York (the "Inspecting Engineer"), to ascertain any pre-existing damage, existing structural distress, and any potential weakness of the Historic Property'(s) foundations or structures.
2. A written report will be prepared by the Inspecting Engineer documenting any potential weakness or structural distress, and assessing the stability of any applied ornament, together with a protocol addressing any recommended remediation to secure problem areas prior to the commencement of any construction activities that may affect the Historic Property(s). The written report will be supplemented with photographic documentation—in the form of 8 by 10-inch color photographs keyed to a map or plan—in order to provide a clear record of existing conditions and any problem areas.
3. The CPP shall identify appropriate vibration thresholds based on preconstruction building surveys and site-specific constraints to protect against cosmetic damage to historic buildings caused by project construction. The LPC threshold of 0.5 inches per second<sup>1</sup> maximum peak particle velocity (PPV) shall be used unless, pursuant to this agreement among MTA, SHPO, and FTA, and after which concurrence from all parties is to be obtained in writing, the threshold is adjusted either higher or lower or set at different levels dependent upon the vibration frequency (frequency-dependent PPV), based upon site-specific conditions and engineering analyses as reported to the consulting parties.

<sup>1</sup> LPC standards for blasting near historic properties are provided in "Technical Policy and Procedure Notice #10-88" (TPPN 10-88) issued by the New York City Department of Buildings.

4. The construction contractor will thereafter ensure that the appropriate vibration limits and any other criteria deemed appropriate by the project design engineer are incorporated into the construction plan. The construction contractor will be responsible for monitoring these controls with periodic inspection by the owner's representative.
5. Under supervision of the Inspecting Engineer, the construction contractor will provide continuous vibration monitoring inside the Historic Property(s), pursuant to the design protocol during demolition, excavation, and construction operations. Seismographs will be installed in the basement and/or the first floor of the Historic Property(s). These units will be located so that they would be away from the general public but accessible to the technicians who must monitor them. The seismographs would measure vibration levels during demolition, excavation, and construction. Prior to the commencement of demolition and excavation operations, the seismographs would be installed and tested to ensure that they are in working order and to enable taking baseline readings. Daily logs of the seismic monitoring would be maintained and submitted to the SHPO upon request.
6. If any excessive vibration (which meets or exceeds the peak velocity level of 0.5 inches per second or the revised site-specific limit) to a Historic Property is detected, the Inspecting Engineer will notify the Resident Engineer to stop the work causing this excessive vibration. The Historic Property(s) will be inspected for any structural degradation that may have occurred. SHPO and LPC standards will be used for identifying damage and structural degradation to historic properties that require a report to SHPO. If any damage to the Historic Property(s) was sustained, FTA, SHPO and LPC will be notified and consulted to develop plans for appropriate repair. The Historic Property(s) will be secured, and the work that caused any damage would be altered to reduce the vibration levels to within acceptable limits. Following the corrective measure to ensure that the vibration levels are reduced, the Resident Engineer will restart the work.
7. In addition, during excavation the Inspecting Engineer will monitor any exposed vertical rock faces or fissures, joint orientation, and potential weaknesses to ensure that underground utilities that service the Historic Property(s) are protected from damage.
8. Should any cracking in the Historic Property(s) occur during demolition, excavation, or construction, crack monitors would be installed over each crack and monitored on a weekly basis until the Inspecting Engineer deems the cracks to be stable.
9. A general plan will be prepared for the protection of Historic Properties from heavy machinery, including the installation of construction barriers, sensitive Historic Property signage, and the development of machinery operating protocols.
10. Should any Historic Property(s) sustain damage during Project construction, such damage will be repaired and reasonable steps will be undertaken to restore the structure to its condition prior to being damaged. Before undertaking such work, the Inspecting Engineer will consult with SHPO regarding the proposed method(s) of repair work and materials to be used, and similarly will consult with LPC when the damage is to a Historic Property that is an LPC individual landmark, interior landmark, scenic landmark or in an LPC historic district and is owned or controlled by the MTA. If any work is to be performed on a Historic Property that is an LPC individual landmark, interior landmark, scenic landmark or in an LPC historic district and is not owned or controlled by the MTA, LPC shall review and approve such work prior to work beginning and the work shall be performed in compliance with LPC standards and requirements.