

## EXHIBIT E

### 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 Design Engineer will specify vibration limits for each Historic Property along the subway alignment that could be affected by construction. The criteria will adhere to the LPC standards, which limit construction vibration to a maximum peak particle velocity of 0.5 inches per second for historic structures and 2.0 inches per second for non-historic structures. More stringent vibration criteria may be adopted for specific historic structures, based upon the findings of the preconstruction surveys. These limits will be adhered to and monitored for the preservation of the Historic Property(s).
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) 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. The Inspecting Engineer will submit a report to SHPO detailing the reason for exceeding the peak particle velocity level and the presence or lack of damage to the Historic Property(s). If any damage to the Historic Property(s) was sustained, 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. \*