Memorandum

U.S. Department
of Transportation
Federal Transit Administration

Subject: Second Avenue Subway Project
Technical Memorandum No. 10:
NEPA Re-Evaluation for Revised Mitigation Measure at 215 East 68th Street, 252 East 72nd Street, 230 East 73rd Street

Date: December 12, 2011

From: Nina Chung
Community Planner

Reply to Attn. of:

To: Anthony G. Carr,
Acting Regional Administrator

Through: Nancy Danzig
Director, Planning and Program Development
&
Christopher VanWyk
Attorney-Advisor

See Dec 12, 2011 email

Introduction

The New York Metropolitan Transportation Authority (MTA) is requesting to revise a mitigation measure for the Second Avenue Subway Project (SAS Project) that is specified in the Section 106 Programmatic Agreement, executed in 2004, for the SAS Project. The proposed revision would increase the construction vibration limit from what is currently listed in the PA for the following three (3) buildings within the 72nd Street Area of Potential Effect (APE) for the Second Avenue Subway Project (SAS Project):

(1) 215 East 68th Street
(2) 252 East 72nd Street
(3) 230 East 73rd Street

Although the MTA also analyzed the possibility of increasing the vibration threshold for 200 East 66th Street (otherwise known as Manhattan House), in a meeting with FTA on October 26, 2011, MTA clarified that they are not requesting to increase the vibration threshold for the Manhattan House.

Therefore, the purpose of this Memorandum is to document FTA's analysis under the National Environmental Policy Act (NEPA) pursuant to 23 CFR 771.130 of the potential impact of the proposed revision to the mitigation measure for the three (3) historic resources: (1) 215 East 68th Street; (2) 252 East 72nd Street; and (3) 230 East 73rd Street in order to determine if the revised mitigation would result in significant environmental impacts not evaluated in previous NEPA evaluations. As part of this NEPA re-evaluation, which includes a review of compliance with

Section 106 of the National Historic Preservation Act, this Memorandum includes FTA's analysis, pursuant to Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 U.S.C. Section 303), of the applicability of Section 4(f) to the above three historic resources.

FTA's analysis is based on the following:

(1) October 26, 2011 correspondence and attachments transmitted via e-mail from MTA with subject "Response to your comments (transmitted by email) of 10/19/11" (herein referred to as "Technical Memorandum No. 10" (attachments include:"Revised Limits by MTA.pdf" and "2011-04-19 Memo C26007 Vibration Criteria Historic Structuresrev0.pdf")
(2) October 26, 2011 FTA meeting with MTA;
(3) June 23, 2011 Correspondence from New York State Office of Parks, Recreation and Historic Preservation;
(4) May 31, 2011 Correspondence from Louis Berger Group, Inc to New York State Office of Parks, Recreation and Historic Preservation;
(5) Record of Decision (ROD) issued on July 8, 2004 on the SAS Project; and
(6) Final Environmental Impact Statement (FEIS), entitled "MTA New York City Transit Second Avenue Subway Final Environmental Impact Statement and Final Section 4(f) and Section 6(f) Evaluation", issued on April 8, 2004.

Each of the three properties is eligible for the National Register of Historic Places. As specified in the Programmatic Agreement (included as part of the FEIS) for the SAS Project, the current mitigation measure limits construction vibration for historic resources within the APE to 0.5 inches/second. MTA has identified a need to revise this mitigation and raise the vibration limit for the above historic structures to 1.2 inches per second for blast frequencies in the 40-100 hertz range.

Background

In the 2004 Final Environmental Impact Station (FEIS) for the SAS Project, the properties located at 215 East 68th Street, 252 East 72nd Street, and 230 East 73rd Street, were not analyzed as part of the Section 106 or Section 4(f) processes because those properties were outside the APE at that time. Sometime between 2004 and 2007, the SAS Project APE was expanded from 50 to 90 feet for general construction activities and 200 feet for any drilling and blasting activity. In 2008, the three historic buildings were identified to be within the expanded APE.

Comparison of the FEIS Mitigation and the Proposed Mitigation

FEIS

For historic resources, as indicated in the FEIS (page 9-13), the SAS Project Programmatic Agreement governs the treatment of all historic properties. The Programmatic Agreement sets the vibration limit during construction for historic resources at 0.5 inches/second. The 0.5 inches/second limit is a mitigation measure intended to protect historic resources from any damage during construction activities. In addition, FTA's 2006 Noise and Vibration Assessment guidance ("2006 FTA Guidance", which was published after the 2004 FEIS) provides construction vibration damage screening criteria, as follows: 0.5 inches/second for "Reinforced-concrete, steel or timber (no plaster)" buildings; 0.3 inches/second for "Engineered concrete and masonry (no plaster)" buildings; 0.2 inches/second for "Non-engineered timber and masonry buildings"; and 0.12 inches/second for "Buildings extremely susceptible to vibration damage". (Page 12-13).

Proposed Change to Mitigation
MTA is proposing to increase the vibration threshold for the three (3) historic resources: (1) 215 East 68th Street; (2) 252 East 72nd Street; and (3) 230 East 73rd Street from 0.5 inches/second to 1.2 inches/second for blast frequencies of 40-100 hertz.

Section 4(f) Applicability for 215 E68th Street, 252 E72nd Street and 230 E73rd Street

There is a "use" of a Section 4(f) resource when land is permanently incorporated into a transportation facility; when there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose; or when there is a constructive use of land.

The SAS Project will not incorporate nor occupy any of the three historic-eligible properties within the expanded APE. However, there is a potential constructive use of the properties due to potential vibration impacts. A constructive use occurs when the project's proximity impacts are so severe that the protected activities, features or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Below is an analysis of the potential vibration impact with respect to the potential for constructive use.

Vibration Impact Analysis
On May 31, 2011, the Metropolitan Transportation Authority (MTA), through their consultants Louis Berger Group, Inc., requested State Historic Preservation Officer (SHPO) concurrence on increasing the vibration limits, which are specified in the Programmatic Agreement for the SAS Project at 0.5 inches/second for historic resources, for the three buildings to 1.2 inches/second for blast frequencies greater than 40 hertz.[1] On June 23, 2011, the SHPO concurred with this request. SHPO's concurrence was based on New York City Department of Building's (DOB) analysis of the risk to each of the three historic buildings and DOB's concurrence to raise the vibration limit to 1.2 inches/second.

Although the Programmatic Agreement sets the vibration limit to 0.5 inches/second for historic resources, MTA has determined that they need to increase the threshold because not doing so would cause significant cost and schedule impacts. Although MTA is able to meet the existing vibration threshold of 0.5 inches/second by reducing the amount of explosives used for each blast, MTA is requesting to increase the threshold to avoid significant cost and schedule impacts and because increasing the threshold would not cause harm to the three historic resources.[2] MTA, in consultation with the DOB, has determined that the vibration limit can be safely increased to 1.2 inches/second for blast frequencies in the 40-100 hertz range without damage to the three (3) historic structures. MTA's conclusion was based on studies conducted by the Bureau of Mines; surveys and analysis of vibration levels related to prior construction activities; concurrence from SHPO; and concurrence from the New York City Department of Building. The 2006 FTA Guidance provides the construction vibration damage screening criteria, as noted above, in order to identify problem locations that must be addressed during final design. The vibration damage criteria presented in the 2006 FTA Guidance was not meant to be used as hard and fast thresholds that were not to be exceeded. Because during the preliminary engineering phase of a project, information to define specific construction vibration mitigation measures would not be sufficient,

[1] The May 31, 2011 Louis Berger correspondence, as well as SHPO's concurrence, mistakenly refers to the structure at Block 1423/Lot 10 as "216 East 68th Street"; the correct address is "215 East 68th Street".
[2] The MTA notes that the only other mining method that could be employed is the "Roadheader", which is a piece of equipment that grinds rock. The strength of the rock within SAS alignment, however, prohibits the effective use of such equipment.

the 2006 FTA Guidance indicates that it would be appropriate to describe and commit to a mitigation plan that would be developed during final design and construction phases. The plan would provide a procedure for establishing threshold and limiting vibration values for potentially affected structures based on an assessment of each structure's ability to withstand the loads and displacements due to construction vibrations.

Based on MTA's Technical Memorandum No. 10, the SAS Project vibration impact, if the vibration threshold were increased to 1.2 inches/second, would not substantially impair the features of any of the three buildings such that a constructive use would result, pursuant to Section 4(f), of the three (3) historic resources located at 215 East 68th Street, 252 East 72nd Street and 230 East 73rd Street.

Future Revisions to Vibration Criteria

FTA, MTA, and SHPO are preparing to amend the SAS Project Programmatic Agreement in accordance with the terms of the Programmatic Agreement, so that vibration limits for historic resources can be adjusted to above 0.5 inches per second on a site-specific basis through a documented consultation process. The documented consultation process would satisfy FTA's responsibilities under NEPA for future approvals of adjustments of vibration limits for historic resources.

Conclusion

Based on MTA's analysis and conclusion as summarized above, if the vibration threshold for the three (3) historic buildings is increased to 1.2 inches/second, there will be no new significant environmental impact as a result of the revised mitigation measure.
Additionally, there will be no use of any of the three historic resources, pursuant to Section 4(f). The NEPA requirements pursuant to 23 CFR 771.130 have been met, and no further environmental review is necessary.

Concur:

Anthony G. Carr
Acting Regional Administrator

12/13/11
Date