SECTION 6-4-9
ASBESTOS AND LEAD

Asbestos-containing materials (ACM), materials containing more than one percent asbestos, were historically used in bridge, utility, and building construction materials. ACM may be classified as either friable (able to be crumbled, pulverized, or reduced to powder by the pressure of an ordinary human hand) or non-friable. State and Federal laws and regulations address the identification, handling, removal, and disposal of ACM to protect abatement workers, the public, and the environment from improper use, removal, and disposal.

The New York State Department of Labor's (NYSDOL's) Industrial Code Rule (ICR) 56 requires suspect ACM that would be affected or disturbed by construction work to be sampled by a NYSDOL-certified inspector and tested by an approved New York State Department of Health (NYSDOH) laboratory. NYSDOL ICR 56 also governs the procedures to be followed for the abatement (removal) of ACM. Federal regulations, including the National Emissions Standards for Hazardous Air Pollutants (NESHAP) program found in 40 CFR Part 61, and various Occupational Safety and Health Administration (OSHA) regulations, also apply to asbestos and its removal.

An assessment of ACM was conducted for the Project, which included:

- A review of roadway and bridge record plans, as-built drawings, and historical ACM surveys;
- An assessment of the potential for ACM associated with a structure based upon the date of original construction for the bridge or building and the materials identified for use in construction;
- Inspection of bridges and structures; and
- Collection of suspect ACM samples for laboratory analysis and reporting.

Homogeneous materials for each of the structures were delineated and grouped based on the time of construction and similarity of materials. When suspect ACM were found, representative bulk samples from the homogeneous material group identified by similar color, texture, construction date, item number, and appearance were collected. The assessment involved the collection of three bulk samples of each homogeneous material group associated with bridge survey work, except where the inspector experienced difficulty in either identifying enough material (e.g., most of the suspect material had weathered away or was inaccessible) or collecting enough of a material for the preparation of three individual samples for submission to the laboratory for analysis. A minimum of two bulk samples were collected from each homogeneous material associated with building survey work.

All suspect ACM sampled were first analyzed by Polarized Light Microscopy (PLM) by NYSDOH method 198.1. All non-friable organically bound (NOB) materials (e.g., caulks, bituminous materials, waterproofing, joint compounds) were initially analyzed according to NYSDOH method 198.4, gravimetric reduction followed by PLM. NOB materials found negative by NYSDOH method 198.4 were further analyzed by NYSDOH method 198.6, Transmission Electron Microscopy.

During the asbestos survey, all accessible bridges, ramps, and roadway areas were inspected. Access to some bridge structures and roadways was limited by the continued traffic operations through the area and coordination of field activities and is noted in the survey reports. Therefore, the samples were

collected at times from the same side of the bridge or roadway, or from a limited number of piers, abutments, guide rails, etc., but are representative of the entire structure. This is because the same materials (joint compound, bond breaker, sealant) are utilized in similar locations during construction (i.e., bearing pads on top of columns, bond breaker on the top of each abutment, caulking around railing base plates and in concrete joints, waterproofing membranes, and paint) and the results of the survey for each structure are presumed applicable to all similar physical locations across the entire structure. However, the survey reports identify areas where renovations were noted during the review of the record plans and where suspect ACM could have been removed by earlier rehabilitation activities. In addition, the survey reports identify where certain components associated with a structure (e.g., the inspection only involved looking at the underside of the bridge structure and did not include traffic lane closures and inspection of the deck) were not accessible and investigated at the time of the survey. Additional work will be required before construction commences at these locations. The detailed survey reports in the appendices (**Appendix K** and **Appendix L**) identify those areas requiring further investigation.

ACM surveys for the buildings to be acquired for the Project vary by alternative and have not yet been completed. Detailed asbestos surveys would be prepared for the affected buildings as NYSDOT finalizes purchase of each property. For the purpose of this evaluation, the potential for ACM in these structures was assessed based on their age and historical use. Building structures completed prior to the 1980s but after the 1920s are the most likely to have widespread ACM used in their original construction. However, the installation of products containing asbestos has not been banned in the United States except for a few products. As a result, even newer construction may contain asbestos materials, although these materials will typically be found in a smaller number of building products and applications.

The renovation and replacement of existing noise barriers may affect suspect ACM associated with these structures. Noise barriers identified for replacement would be inspected during final design. In addition, the installation of new noise walls may affect suspect ACM in those locations where they are proposed. Specifically, any existing bridges and ramps proposed to be used as the support for a noise barrier would be inspected during final design.

All asbestos screening assessments and surveys conducted conform to the procedures in NYSDOT's TEM, Section 4.4.19, Asbestos Management, which is the standard reference for this work. All surveys were also completed in accordance with the protocols established by the USEPA and as required by NYSDOL ICR 56.

Lead Based Paint (LBP) waste associated with historic lead paint applications may be designated as either hazardous or non-hazardous. This waste stream may be associated with and generated by structural steel painting operations and steel rehabilitation and demolition work involving steel-constructed bridges. In most cases bridges constructed post 1988 or that have been previously 100% abrasively blasted to a surface preparation standard of Steel Structures Painting Council (SSPC) Specification (SP) 10 near-white blast cleaning metal standard are considered non-hazardous. All other painted structures are considered hazardous.

Ultimate waste designation during construction is the responsibility of the contractor based on the requirements of the selected disposal facility and is based on representative sample analysis collected from the waste containers.

Designers shall make every effort to select and group steel bridges in painting, steel rehabilitation and demolition projects so as to be exclusively hazardous paint removal waste or a mix of both hazardous and non-hazardous paint removal waste.

NYSDOT contracts shall typically include the following pay items:

- Contracts exclusively containing hazardous waste bridges - Item 571.03
- Contracts containing both hazardous and non-hazardous waste bridges - Items 571.03 and 571.04

Paint Removal Operations includes three containment levels associated with steel structure paint removal work. These include Environmental Ground/Waterway Protection, Class B Containment and Class A Containment.

Environmental Ground and/or Water Protection – This containment level protects either ground surfaces or water bodies from being impacted by potential waste material deposition. This level of containment is typically specified for localized paint removal work associated with repair, rehabilitation and demolition work using manual scraping methods and/or shrouded power tools in project locations with no immediate nearby public receptors (occupied residential, commercial or municipal facilities). Shrouded power tools can include shrouded grinder, needle scaler and vacuum-blast equipment.

Class B Containment – In addition to protecting either ground surfaces and/or water bodies from being impacted by potential waste material deposition, this containment level also provides additional protection for immediate nearby public receptors by including full hard-wall or tarpaulin containment for either localized or medium-scale paint removal work using manual scraping methods and/or shrouded power tools. Shrouded power tools can include shrouded grinder, needle scaler and vacuum-blast equipment.

Class A Containment – In addition to protecting either ground surfaces and/or water bodies from being impacted by potential waste material deposition, this containment level also provides additional protection for immediate nearby public receptors by including full hard-wall or tarpaulin containment and vacuum filtration ventilation for large-scale paint removal work using abrasive blasting methods. Class A Containment is required for all non-shrouded abrasive blasting of painted bridge steel or unpainted weathering bridge steel.

LBP applicable safety and health specification items for this work include contract pay items for Lead-Exposure Control Plan, medical testing, personal-exposure-monitoring, sample analysis and decontamination facilities for all steel rehabilitation, demolition and painting projects associated with painted steel bridges constructed prior to 1989, regardless of containment level. These items are not included for steel rehabilitation, demolition and painting projects that include work exclusively on weathering steel bridges and/or painted steel bridges constructed post 1988, regardless of containment level.

When NYSDOT projects involve demolition of buildings whose doors, woodwork, and window frames are coated with LBP, these are not typically regulated as hazardous wastes because the intact paint on these materials is incidental to the demolition waste and this LBP does not comprise a large volume of the generated waste.

Hazardous wastes are allowed to be accumulated/stored at the site of generation without requiring special hazardous waste permits. Since for bridge paint removal projects, the site of generation is the specific bridge undergoing renovation, the regulation necessitates that the drums or sealed roll-offs must be stored only at that location until the waste is sent (with a hazardous waste manifest) to a permitted transfer, storage and disposal facility (TSDF). At some urban or confined project locations, it may not be possible to safely store drums of lead-based paint. In these situations the NYSDOT has permission from the NYSDEC to move the drums to the nearest NYSDOT residency using a Part-364 licensed waste hauler

6-4-9.1 AFFECTED ENVIRONMENT

As described in **Section 6-1, Introduction**, the following four study areas were identified for the Project: Central Study Area; I-481 South Study Area; I-481 East Study Area; and I-481 North Study Area. The four study areas are collectively referred to as the Project Area. One hundred and eight (108) bridge structures were identified for the asbestos assessment.

Appendix K lists each bridge and ramp structure that was surveyed. The table identifies the bridge identification number (BIN), location name, and whether materials were sampled and tested positive for asbestos. None of the structures were analyzed for the presence of lead paint. Additional detail on each structure is found in the individual asbestos assessment reports (see **Appendix K**). ACMs were identified in many structures within the study areas.

Asbestos was also commonly used in public and commercial buildings constructed before the 1980s in the United States. While the availability and use of ACM have declined since then, products containing asbestos have not been completely banned for use or import in the U.S.; therefore, ACM can be potentially associated with every building that would be affected by acquisition and demolition on this Project. It is widely known that ACM may be identified within roofing materials; flooring materials; thermal system insulation; surfacing materials; and a wide variety of miscellaneous materials (e.g., wiring and lighting fixtures, elevator brake shoes, gaskets, sheetrock and joint compound, sealants, caulks, waterproofing, and similar coatings).

The NESHAP regulation established by USEPA states that an inspection shall be completed for each building or structure that will be demolished or renovated as part of the project. Asbestos inspections will be performed on the buildings identified for acquisition. The inspections to survey each structure will be performed either under an agreement negotiated by the NYSDOT with the property owner during final design, or after the NYSDOT finalizes purchase of the property. Properties owned by the NYSDOT can be inspected at any time.

6-4-9.2 NO BUILD ALTERNATIVE

The No Build Alternative would maintain the highway in its existing configuration with ongoing maintenance and repairs to ensure the safety of the traveling public. It would not result in the demolition of bridges, ramps, buildings, and other structures and would not disturb utilities. As such, there would be no effects related to ACM associated with the No Build Alternative. Lead based paints would continue to be abated on older structures as part of standard bridge maintenance and rehabilitation projects. These projects would follow identified and approved specifications and procedures developed by NYSDOT.

6-4-9.3 ENVIRONMENTAL CONSEQUENCES OF THE VIADUCT ALTERNATIVE

6-4-9.3.1 PERMANENT/OPERATIONAL EFFECTS

Implementation of the Viaduct Alternative would affect 119 parcels including 118 parcels in the Central Study Area and one parcel in the I-481 North Study Area. Of the parcels, twenty-four (24) have buildings and one associated structure (a smokestack). These are identified in **Section 6-3-1, Land Acquisition, Displacement, and Relocation**. In addition, a total of approximately 52 ramps and bridges would be affected.

The Viaduct Alternative would allow for the abatement and proper disposal of identified ACM associated with the affected roadway bridges and ramps, thereby eliminating future adverse effects associated with these materials. ACM associated with the building structures affected by this alternative would also be abated prior to demolition, eliminating future risks associated with these materials. Asbestos abatement would follow state and Federal laws and regulations. NYSDOL ICR 56 requires the use of a NYSDOL certified asbestos Project Monitor/Air Sampler hired by the owner of the structures and/or buildings to oversee the asbestos abatement process, collect area air samples for laboratory analysis, and document the work conducted by the abatement Contractor. It is probable that a large number of structures with lead-based paint would be affected by this alternative. Testing of each structure would be conducted to identify special lead handling and containment requirements to insure the safety of the workers and the surrounding public during the performance of the work. Testing would likely include some form of in the field non-destructive screening (x-ray fluorescence or similar technology) that has been accepted by the US Environmental Protection Agency (USEPA) and commonly identified in support of Housing and Urban Development projects.

6-4-9.3.2 CONSTRUCTION EFFECTS

During the construction period, ACM and lead-based paint that are abated would be moved from the active construction zone and transported off-site for disposal as described in **Chapter 4, Construction Means and Methods** and **Table 4-7**. The greatest quantity and type of ACM would likely be generated during the pre-demolition abatement activities carried out for any buildings scheduled for demolition. The materials would likely involve both friable and non-friable products. Most ACM associated with the bridges are considered non-friables, and these would be removed following NYSDOT Asbestos Blanket Variance 14. Removal of friable asbestos would follow ICR 56 unless a site-specific variance is prepared for NYSDOL approval.

Limited quantities of lead based paint will be generated by the project since actual lead paint abatement will be limited in scope with demolition and removal of the structures being the goal of the project as opposed to lead paint abatement and re-painting. Structures will be removed with the majority of paint still intact and sent out for metals recycling. The paint waste that is captured by the containment or protection system will be considered and managed as a hazardous waste if the waste stream fail the Resource Conservation and Recovery Act (RCRA) Toxicity Characteristic Leaching Procedure (TCLP) analysis for lead. Otherwise the materials will be managed as non-hazardous industrial waste requiring disposal at a municipal landfill. Shipment and labeling will depend on the classification of each waste stream that is generated.

The transport and disposal of ACM are covered by 6 NYCRR Part 360. Transport of asbestos would follow required transportation regulations, and NYCRR Part 364 permitted haulers would be used to transport friable materials in covered trucks. Non-friable asbestos is exempt from the regulation and does not require a waste transporter permit. Friable asbestos materials must be disposed of at a permitted solid waste landfill that is approved to accept asbestos material. Non-friable asbestos materials must be disposed of at either a construction and demolition (C&D) or solid waste landfill that is approved to accept asbestos materials but is in a different section of the landfill than the friable material.

6-4-9.3.3 INDIRECT EFFECTS

No indirect effects would result from the removal of ACM or lead-based paint associated with the Viaduct Alternative.

6-4-9.3.4 CUMULATIVE EFFECTS

The removal of ACM and lead-based paint for the Viaduct Alternative and/or any other redevelopment that may occur within and/or adjacent to the Project Area would have a cumulative benefit as the risks associated with exposure to the asbestos and lead-based paint to be removed would be diminished.

6-4-9.3.5 MITIGATION

ACM and lead-based paint would be removed from the project site during demolition and would be transported to a licensed handling facility in accordance with Federal and state regulations. Refer to **Table 4-7** for specific measures to mitigate ACM and lead-based paint encountered during construction.

6-4-9.4 ENVIRONMENTAL CONSEQUENCES OF THE COMMUNITY GRID ALTERNATIVE

6-4-9.4.1 PERMANENT/OPERATIONAL EFFECTS

Implementation of the Community Grid Alternative would affect 151 parcels including 136 parcels in the City of Syracuse, eight (8) in the Town of DeWitt, and seven (7) in the Town of Cicero. Of these parcels, only four contain buildings that would require acquisition. These are identified in **Section 6-3-1, Land Acquisition, Displacement, and Relocation**. The I-81 viaduct and ramps from the New York, Susquehanna and Western Railway bridge (near Renwick Avenue) to I-690 would be removed, and other highway structure and ramps within the Central Study Area would be rebuilt. Highway structures along I-481 would also be reconstructed. In addition, a total of approximately 64 ramp and bridge structures would be affected.

The Community Grid Alternative would require the abatement and proper disposal of identified ACM associated with the affected bridges and ramps, thereby eliminating future adverse effects associated with these materials. ACM associated with the building structures affected by this alternative would also be abated prior to demolition, eliminating future risks associated with these materials. Asbestos abatement would follow state and Federal laws and regulations. NYSDOL ICR 56 requires the use of a NYSDOL certified asbestos Project Monitor/Air Sampler hired by the owner of the structures

and/or buildings to oversee the asbestos abatement process, collect area air samples for laboratory analysis, and document the work conducted by the abatement Contractor.

It is probable that a large number of structures with lead-based paint would be affected by this alternative. Testing of each structure would be conducted to identify special lead handling and containment requirements to insure the safety of the workers and the surrounding public during the performance of the work. Testing would likely include some form of in the field non-destructive screening (x-ray fluorescence or similar technology) that has been accepted by the US Environmental Protection Agency (USEPA) and commonly identified in support of Housing and Urban Development projects.

6-4-9.4.2 CONSTRUCTION EFFECTS

During the construction period, ACM that are abated would be moved from the active construction zone and transported off-site for disposal as described in **Table 4-7**. The greatest quantity and type of ACM would likely be generated during the pre-demolition abatement activities carried out for buildings scheduled for demolition. The materials would likely involve both friable and non-friable products. Most ACM associated with the bridges are considered non-friables, and these would be removed following NYSDOT Asbestos Blanket Variance 14. Removal of friable asbestos would follow ICR 56 unless a site-specific variance is prepared for NYSDOL approval.

Limited quantities of lead based paint will be generated by the project since actual lead paint abatement will be limited in scope with demolition and removal of the structures being the goal of the project as opposed to lead paint abatement and re-painting. Structures will be removed with the majority of paint still intact and sent out for metals recycling. The paint waste that is captured by the containment or protection system will be considered and managed as a hazardous waste if the waste stream fail the Resource Conservation and Recovery Act (RCRA) Toxicity Characteristic Leaching Procedure (TCLP) analysis for lead. Otherwise the materials will be managed as non-hazardous industrial waste requiring disposal at a municipal landfill. Shipment and labeling will depend on the classification of each waste stream that is generated.

The transport and disposal of ACM are covered by 6 NYCRR Part 360. Transport of asbestos would follow required transportation regulations, and NYCRR Part 364 permitted haulers would be used to transport friable materials in covered trucks. Non-friable asbestos is exempt from the regulation and does not require a waste transporter permit. Friable asbestos materials must be disposed of at a permitted landfill that is approved to accept asbestos material. Non-friable asbestos materials must be disposed of at either a C&D or solid waste landfill that is approved to accept asbestos materials but is in a different section of the landfill than the friable material.

6-4-9.4.3 INDIRECT EFFECTS

No indirect or secondary effects would result from the removal of ACM or lead-based paint associated with the Community Grid Alternative.

6-4-9.4.4 CUMULATIVE EFFECTS

The removal of ACM and lead-based paint for the Community Grid Alternative and any other redevelopment that may occur within and adjacent to the Project Area would have a cumulative

benefit as the risks associated with exposure to the asbestos and lead-based paint to be removed would be diminished.

6-4-9.4.5 MITIGATION

ACM and lead-based paint would be removed from the project site during demolition and would be transported to a licensed handling facility in accordance with Federal and state regulations. Refer **to Chapter 4, Construction Means and Methods** and **Table 4-7** for specific measures to mitigate ACM and lead-based paint encountered during construction.